REGULAR PLANNING COMMISSION MEETING AGENDA

City Hall - Council Chambers
4381 Broadway, Ste. 201, American Canyon
November 17, 2022
6:30 PM

Chair: Crystal Mallare
Vice Chair: Tammy Wong
Commissioners: Eric Altman, Andrew Goff, Tyrone Navarro

AMENDED AGENDA

This agenda has been amended to make the meeting **Zoom Only**

Consistent with Government Code Section 54953 and the American Canyon City Council Resolution Declaring the Existence of a Local Emergency due to the COVID-19 Pandemic, City Council and other public meetings will be conducted both in person at City Hall, 4381 Broadway, Suite 201, and also via Zoom Teleconferencing to promote local, state, and federal guidelines and social distancing recommendations for the containment of the coronavirus. City officials and members of the public are invited to attend the meeting either in person or via teleconference. This meeting will be broadcast live to residents on Napa Valley TV, on our website here and on YouTube here.

PUBLIC PARTICIPATION = ZOOM ONLY

Oral comments, during the meeting: Oral comments can be made in person during the meeting. A Zoom Webinar has been established for public comments made via zoom. To give your public comment via zoom, use the Register to Speak feature of eComments, connect via the below Zoom link and use the "raise your hand" tool, or call into the zoom meeting at 408-638-0968 and press *9 to "raise your hand" when the item is called. To avoid confusion, all hands raised outside of Public Comment periods will be lowered.

Written comments, via eComments: Please submit written comments through the eComments link, located on the Meetings & Agendas page of our website here. Comments will be available to council members in real time. eComments will remain open throughout the meeting. All comments received will be posted online and become part of the meeting record.

Zoom Meeting Link: Click here
Webinar ID: 845 4930 5865 Passcode: 454062

The above-identified measures exceed all legal requirements for participation in public comment, including those imposed by the Ralph M. Brown Act. For more information, please call the Office of the City Clerk at (707) 647-4369 or email cityclerk@cityofamericancanyon.org.

AGENDA MATERIALS: City Council agenda materials are published 72 hours prior to the meeting and are available to the public via the City's website at www.cityofamericancanyon.org.

AMERICANS WITH DISABILITIES ACT: The City Council will provide materials in appropriate alternative formats to comply with the Americans with Disabilities Act. Please send a written

request to City Clerk at 4381 Broadway, Suite 201, American Canyon, CA 94503 or by email to cityclerk@cityofamericancanyon.org. Include your name, address, phone number and brief description of the requested materials, as well as your preferred alternative format or auxiliary aid, at least three calendar days before the meeting.

6:30 P.M. REGULAR MEETING

CALL TO ORDER

PLEDGE

ROLL CALL

PUBLIC COMMENT

*This time is reserved for members of the public to address the City Council/American Canyon Fire Protection District Board on items of interest that are not on the Agenda and are within the subject matter jurisdiction of the City Council/American Canyon Fire Protection District Board. It is recommended that speakers limit their comments to 3 minutes each and it is requested that no comments be made during this period on items on the Agenda. Members of the public wishing to address the City Council/American Canyon Fire Protection District Board on items on the Agenda should comment via email prior to the start of the meeting, or to verbally comment on the item during the meeting, click the "raise your hand" button if joining by computer, or press *9 if joining by phone, when the item is called. The City Council/American Canyon Fire Protection District Board is prohibited by law from taking any action on matters discussed that are not on the Agenda, and no adverse conclusions should be drawn if the City Council/American Canyon Fire Protection District Board does not respond to public comment at this time. Speakers are asked to please speak clearly, and provide their name. Any handouts for distribution to the City Council/American Canyon Fire Protection District Board must be emailed by 3:00 p.m. on meeting day.*

AGENDA CHANGES

CONSENT CALENDAR

1. **Minutes of September 22, 2022**
Recommendation: Approve the minutes of September 22, 2022

2. **2023 Planning Commission Meeting Calendar**
Recommendation: Review and approve the Planning Commission Calendar of regular meetings for 2023

PUBLIC HEARINGS

3. **Giovannoni Logistics Center Warehouse Project**
Recommendation: Consider three Resolutions to recommend the City Council:

(1) A Resolution of the Planning Commission of the City of American Canyon, California, recommending the City Council of the City of American Canyon (i) Certify the Final Environmental Impact Report (SCH #2021010104), (ii) Adopt CEQA Findings of Fact, (III)

Adopt a Statement of Overriding Considerations, and (iv) Adopt a Mitigation Monitoring and Reporting Program for the Giovannoni Logistics Center Project located north of Green Island Road and bisected by Devlin Road, APN 057-090-008, 057-130-034, 057-130-036 (File No. PL 20-0042)

(2) A Resolution of the Planning Commission of the City of American Canyon, California, recommending the City Council of the City of American Canyon approve the Giovannoni Logistics Center Phase 1 Design Permit to allow up to 1,069,904 square feet of High Cube Warehouse Uses on 70.2 acres, located north of Green Island Road and east of Devlin Road, APN 057-090-008, 057-130-034, 057-130-036 (File No. PL 20-0042)

(3) A Resolution of the Planning Commission of the City of American Canyon, California, recommending the City Council of the City of American Canyon approve the Giovannoni Logistics Center Tentative Parcel Map to create a Two-Lot Subdivision for up to 1,069,904 square feet of High Cube Warehouse Uses on 70.2 acres, located north of Green Island Road and east of Devlin Road, APN 057-090-008, 057-130-034, 057-130-036 (File No. PL 20-0043)

MANAGEMENT AND STAFF ORAL REPORTS

4. **Active Planning Projects**
Recommendation: Review Active Planning Projects List

COMMISSIONER ITEMS

ADJOURNMENT

CERTIFICATION

I, Nicolle Hall, Administrative Technician for the City of American Canyon, do hereby declare that the foregoing Agenda of the Planning Commission was posted in compliance with the Brown Act prior to the meeting date.

_____
Nicolle Hall, Administrative Technician

CITY OF AMERICAN CANYON
REGULAR PLANNING COMMISSION MEETING

ACTION MINUTES

September 22, 2022

6:30 P.M. REGULAR MEETING

CALL TO ORDER
The meeting was called to order at 6:30 p.m.

PLEDGE
Commissioner Goff led the Pledge of Allegiance

ROLL CALL
Present: Commissioners Eric Altman, Andrew Goff, Vice-Chair Tammy Wong
Absent: Commissioner Tyrone Navarro, Chair Crystal Mallare

PUBLIC COMMENT
Vice Chair Wong opened Public Comment.
Written comments: None Oral Comments: None
Vice Chair Wong closed Public Comment

AGENDA CHANGES
There were no agenda changes.

CONSENT CALENDAR

Minutes of July 26, 2022
Action: Approve minutes of July 26, 2022

Minutes of July 28, 2022
Action: Approve Minutes of July 28, 2022

Action: Motion to approve the consent calendar was made by Commissioner Altman, seconded by Commissioner Navarro and CARRIED by a roll call vote.

Ayes: Commissioner Andrew Goff, Commissioner Eric Altman, Vice Chair Tammy Wong
Nays: None
Abstain: None
Absent: Chair Crystal Mallare, Commissioner Tyrone Navarro
Excused: None

PUBLIC HEARINGS

Home2Suites Major Modification to revise Condition 40 regarding overhead utilities and pole undergrounding

Recommendation: Approve a Resolution of the Planning Commission of the City of American Canyon, California, approving a Major Modification to the Home2Suites Hotel Design Permit (PL19-0023) to substitute Condition 40 of Resolution 2020-02 with a new requirement to underground approximately 1,450 linear feet of overhead utilities consisting of undergrounding seven utility poles and installing two new riser poles along the east side of Highway 29 from S. Napa Junction Road to Antonina Avenue (File No. PL22-0007)

Associate Planner William He shared a PowerPoint presentation

Speakers:
Mark Stumm, Noble Hospitality, Inc.
Public Works Director, Erica Ahmann Smithies
City Attorney William Ross

Vice Chair Wong Opened the Public Hearing
Written Comments: None Oral Comments: Justin Hamilton Hole

Commissioners discussed the item.

Vice Chair Wong closed public comment.

Action: Motion to adopt Resolution 2022-04 approving a Major Modification to the Home2Suites Hotel Design Permit (PL19-0023) to substitute Condition 40 of Resolution 2020-02 with a new requirement to underground approximately 1,450 linear feet of overhead utilities consisting of undergrounding seven utility poles and installing two new riser poles along the east side of Highway 29 from S. Napa Junction Road to Antonina Avenue (File No. PL22-0007), contingent upon Planning Commission review in 180 days, if the Deferred Improvement agreement between applicant and the City is not in place was made by Eric Altman, seconded by Andrew Goff, and CARRIED by roll call vote.

Ayes: Commissioner Andrew Goff, Commissioner Eric Altman, Vice Chair Tammy Wong
Nays: None
Abstain: None
Absent: Chair Crystal Mallare, Commissioner Tyrone Navarro
Excused: None

BUSINESS

Conduct a workshop to discuss a potential carwash in the Broadway District Specific Plan
Recommendation: Provide questions, comments, and feedback to consider during a prospective Carwash Conditional Use Permit in the Broadway District Specific Plan.

Community Development Director shared a PowerPoint presentation.

Speakers:
Clement Balser, Blackpointe Properties
Vance Shannon, Quick Quack
Associate Planner, William He
City Attorney, William Ross

Commissioners discussed the item.

Vice Chair Wong opened public comments
Written Comments: None
Oral Comments:
Chris James
Beth Marcus
Al Donaldson
Karen Fritz
Justin Hamilton Hole
Beth Marcus

Vice Chair Wong closed public comments.

MANAGEMENT AND STAFF ORAL REPORTS

Active Planning Projects
Action: Review Active Planning Projects List

Community Development Director Brent Cooper reported on active planning projects including an amendment to the Watson Ranch Specific Plan, solar farm pre-application with RV storage, a new design permit proposal for quick serve Chicken Guy restaurant, pre-application at 5555 Broadway, Giovannoni Logistics Center, Watson Ranch construction, PG&E Regional Center, upcoming joint City Council Planning Commission meeting on October 18th, General Plan Update, Watson/Paoli Annexation.

COMMISSIONER ITEMS

Commissioners reported on items of interest.

ADJOURNMENT

The meeting adjourned at 9:06 p.m.

CERTIFICATION

Respectfully Submitted,

_____
Nicolle Hall, Administrative Technician

TITLE

2023 Planning Commission Meeting Calendar

RECOMMENDATION

Review and approve the Planning Commission Calendar of regular meetings for 2023

CONTACT

Nicolle Hall, Administrative Technician

BACKGROUND & ANALYSIS

The Planning Commission's established regular meeting schedule is at 6:30 p.m. on the fourth Thursday of each month. The November and December meetings are proposed one week earlier than the regular schedule in order to avoid conflict with holiday schedules. Meetings held on other dates are considered special meetings.

The proposed Calendar lists all the regular meetings for the Planning Commission in 2023.

Adoption of a 2023 Calendar of Regular and Special Meetings does not prevent the Planning Commission from calling additional special meetings throughout the year or canceling meetings when necessary.

STAFF RECOMMENDATION

Review and approve the Planning Commission Calendar of regular meetings for 2023

Attachment

COUNCIL PRIORITY PROGRAMS AND PROJECTS

Not applicable.

ATTACHMENTS:

Calendar Year 2023 Planning Commission Meeting Dates.

Calendar Year 2023

Regular Planning Commission Tentative Meeting Dates

January 26, 2023

February 22, 2023

March 23, 2023

April 27, 2023

May 25, 2023

June 22, 2023

July 27, 2023

August 24, 2023

September 28, 2023

October 26, 2023

**November 16, 2023

***December 21, 2023

**Special date due to Thanksgiving Holiday

***Special date due to December Holidays

TITLE

Giovannoni Logistics Center Warehouse Project

RECOMMENDATION

Consider three Resolutions to recommend the City Council:

(1) A Resolution of the Planning Commission of the City of American Canyon, California, recommending the City Council of the City of American Canyon (i) Certify the Final Environmental Impact Report (SCH #2021010104), (ii) Adopt CEQA Findings of Fact, (III) Adopt a Statement of Overriding Considerations, and (iv) Adopt a Mitigation Monitoring and Reporting Program for the Giovannoni Logistics Center Project located north of Green Island Road and bisected by Devlin Road, APN 057-090-008, 057-130-034, 057-130-036 (File No. PL 20-0042)

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CONTACT

Brent Cooper, AICP, Community Development Director

BACKGROUND & ANALYSIS

The proposed Giovannoni Logistics Center consists of up to 2.4 million square feet of high-cube warehouse on 163 acres of a 208-acre project site. Approximately 45-acres will remain open space for stormwater detention and wetlands preservation. The semi-rectangular project site is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Park and

Devlin Road (north), the Napa Branch Line (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south). A location map is included as Attachment 0.0.

The project is anticipated to develop in two phases.
Phase 1 consists of two high cube warehouse buildings that comprise approximately 1.1 million square feet on approximately 70 acres east of Devlin Road.

Phase 2 consist of approximately 1.3 million square feet of high cube warehouse on 113.1-acres west of Devlin Road.

Approximately 45 acres of the overall project site would be preserved as wetlands. A site plan is included as Attachment 0.1.

The underlying purpose of the Project is to develop industrially zoned land within the American Canyon city limits to its highest and best use. The objectives of the Proposed Project are to:

1. Promote economic growth in American Canyon by attracting new industries.
2. Promote development that that generates net positive tax revenues for the City by generating more in new tax revenues than are consumed by City expenditures on services provided to the development.
3. Create new employment opportunities for residents of Napa County and the surrounding region.
4. Develop compatible land uses near the Napa County Airport in the interests of avoiding interference with aviation operations.
5. Improve American Canyon's jobs-housing ratio by adding new employment opportunities.
6. Continue the orderly development of the Devlin Road corridor with a well-designed project.
7. Further the goals and policies of the City of American Canyon General Plan by developing land contemplated to support urban development to its highest and best use.
8. Preserve the most biologically sensitive portions of the project site as open space.
9. Install circulation improvements along Green Island Road and Devlin Road that provide efficient ingress and egress to the Proposed Project while also ensuring these facilities operate at acceptable levels.
10. Promote public safety by incorporating security measures into the project design.
11. Mitigate impacts on the environment through implementation of feasible mitigation measures.

The Project includes three Entitlements. They are:

1. An Environmental Impact Report (EIR) for the entire 208-acre Project;
2. A Design Permit for Phase 1 which includes two high cube warehouses that comprise nearly 1.07 million square feet; and
3. A Tentative Parcel Map to subdivide Phase 1 into two parcels.

The Planning Commission's role is to review the Project and make recommendations to the City Council on each of the three entitlements. The City Council is the final approval authority because the EIR requires a Statement of Overriding Considerations (see ACMC Section 19.01.0060(D)).

Existing Conditions

The Giovannoni property was annexed into the City of American Canyon in 2005. At that time, this property along with other properties north of Green Island Road were pre-zoned for industrial use. At 208-acres, the Giovannoni Logistics Center site is the largest undeveloped property within American Canyon designated for industrial land use.

The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The project site contains undeveloped land. Vegetation consists primarily of non-native grasslands, with seasonal wetlands and associated plant species scattered throughout the site. The property has no on-site structures. Photographs of the site are included as Attachment 0.2.

Devlin Road bisects the site north-to-south. Green Island Road, to the south will be improved within the next 12-18 months. Both Devlin Road and Green Island Road will include an extension of the Vine Trail.

The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows into the Napa Logistics Park Wetland Preserve from the northwestern corner of the property. This drainage is hydrologically connected to Fagan Slough, which flows into the Napa River.

Although most of the Project Site is relatively flat, historic grazing and inundation in low topographic areas with scattered depressions. As a result, there are small seasonal wetlands and swales scattered throughout the site, most of which are supported by rainwater. Altogether, there are 11.93 acres of seasonal wetlands in the north and southwest corner of the site. These are regulated as "waters of the U.S." pursuant to Section 404 of the Clean Water Act and are subject to U.S. Army Corps of Engineers (USACE) jurisdiction.

Several features in the southeastern portion of the Project Site are "isolated" seasonal wetlands because they do not have hydrologic connectivity to any water of the U.S. The "isolated" features are contained within discreet topographic depressions, surrounded by uplands and berms that are higher in elevation, thereby isolating these features from any water of the U.S. A total of 0.84 acre of "isolated" features that are mapped on the Project Site are not subject to USACE jurisdiction as shown on Attachment 0.3.

The Phase 2 site west of Devlin Road is impacted by the West Napa Fault and utility infrastructure. The West Napa Fault bisects the project site in a northwest/southeast direction. The fault does not

extend into the proposed Phase 1 Design Permit and Tentative Parcel Map. A graphic depicting the approximate location of the West Napa Fault and Regulatory Zone is included as Attachment 0.4.

An existing 18-inch diameter force main crosses the western portion of the project site between a Pump Station on Tower Road and another Pump Station on Green Island Road. Parallel wastewater and recycled water pipelines were constructed through the Phase 2 project site in Spring 2021 to support the Napa Logistics Park. These pipelines link Napa Logistics Park to the north with the City's Water Reclamation Facility to the south.

Environmental Impact Report

An Environmental Impact Report (EIR) was prepared for the Giovannoni Logistics Center Project (Proposed Project) consistent with the California Environmental Quality Act (CEQA) (State Clearinghouse No. 2021010104). An EIR is an informational document for the agency decision-makers and the public to understand potential environmental impacts associated with the Proposed Project.

The proposed Giovannoni Logistics Center EIR is a combination of a Project EIR and a Program EIR. The EIR provides a Project-level analysis of the Phase 1 Design Permit and Tentative Parcel Map east of Devlin Road and a Programmatic analysis for a future Phase 2 development west of Devlin Road.

The Project-level Phase 1 analysis provides sufficient detail to address permitting and construction of the Phase 1 Design Permit and Tentative Parcel Map without any additional environmental review.

The Program-level Phase 2 analysis anticipates permitting and construction of up to 1.3 million square feet of high cube warehouse development. At the time Phase 2 development is proposed, a subsequent environmental review would evaluate whether the proposed development remains within the program-level EIR assumptions (pursuant to CEQA Guidelines Sections 15162 through 15164 (subsequent EIR, supplement to an EIR, or addendum to an EIR)).

EIR Milestones

The EIR was circulated for public review for 60 days from May 20, 2022 to July 20, 2022. A copy of the Draft EIR and Appendices is included as Attachments 1.A through 1.J.

The City received comments on the Draft EIR. These comments were reviewed and a response to each comment was prepared. Altogether, the Final EIR includes the Draft EIR (see Attachments 1.A through 1.J), Responses to EIR comments, Errata corrections, and a Mitigation and Monitoring Report (see Attachments 1.K though 1.P).

A Schedule of Important Milestones in the EIR Review Process is included as Attachment 0.5.

ANALYSIS OF THE PROPOSED PROJECT

Environmental Impact Report (EIR)

The California Environmental Quality Act (CEQA) requires every project evaluate impacts on a range of environmental topics. Listed below are each of the environmental topics and the degree of impact caused by the Project:

1) No Significant Impact. The Project's impact on following topic areas are Not Significant:

- Agriculture and Forest Resources
- Mineral Resources
- Population and Housing
- Recreation
- Wildfire
- State Scenic Highways
- Septic or Alternative Wastewater Disposal Systems
- Exposure of Schools to Hazardous Materials
- Private Airstrips
- Emergency Response or Evacuation Plan
- Wildland Fire

An explanation of the reasons why each issue is determined to be Not Significant is provided in EIR Chapter 7, Effects Found Not to be Significant. See Attachment 1.A. Giovannoni Logistics Center Draft EIR.

2) The project impacts are Less Than Significant. Changes to the project and/or feasible mitigation measures lessen the impact to Less Than Significant. These topic areas include the following:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services
- Transportation
- Utility Systems

An explanation of the reasons why each issue is determined to be Less Than Significant is provided

in EIR Chapter 3, Environmental Impact Analysis. See Attachment 1.A. Giovannoni Logistics Center Draft EIR. Proposed Mitigation Measures to reduce environmental impacts are summarized in the Mitigation and Monitoring Report. See Attachment 1.P.

3) The project creates a Significant and Unavoidable Impact. Changes to the project and/or feasible mitigation measures lessen the impact, but the impact remains Significant and Unavoidable. Significant and Unavoidable impacts are limited to Air Quality as described below:

Air Quality Management Plan: *The Proposed Project would exceed regional emissions thresholds and, therefore, be inconsistent with the Bay Area Air Quality Management District (BAAQMD) regional air quality planning assumptions. Proposed Mitigation includes emission reduction measures; however, these measures would not lower impacts to a Less Than Significant level. Therefore, the significance after mitigation is significant and unavoidable.*

Cumulative Criteria Pollutant Emissions Impacts*: The Bay Area region does not comply with federal or State air quality standards for certain air pollutants. The Proposed Project would cause a net increase of some of these criteria air quality pollutants. Even though the project would implement measures to reduce these pollutants though Mitigation, it would not fully reduce this impact to a level of less than significant. Therefore, the significance after mitigation is significant and unavoidable.*

An explanation of the reasons why these Air Quality impacts are Significant and Unavoidable is provided in EIR Chapter 3, Section 3.2, Environmental Impact Analysis. See Attachment 1.A. Giovannoni Logistics Center Draft EIR.

Project Alternatives

CEQA requires an EIR evaluate alternatives to the Proposed Project that are potentially feasible and would attain most of the basic project objectives while avoiding or substantially lessening the project's potential impacts. Below is a summary of the alternatives to the Proposed Project considered in Chapter 5, Alternatives to the Proposed Project. See Attachment 1.A. Giovannoni Logistics Center Draft EIR.

No Project/No Development Alternative

The Proposed Project would not be pursued, and the project site would remain undeveloped for the foreseeable future. This alternative would avoid all the Proposed Project's significant impacts.

No Project/Existing General Plan Alternative

A 2.4 million square-foot food and beverage facility would be developed on the project site. The project boundaries would remain the same as the Proposed Project. This alternative would increase the severity of all the Proposed Project's significant impacts.

Reduced Density Alternative

A 1.6-million-square-foot logistics center would be developed on the project site, which represents a 25 percent reduction relative to the Proposed Project. The layout and project boundaries would remain the same as the Proposed Project. This alternative would lessen the severity of all the Proposed Project's significant impacts.

Phase 1 Only Alternative

Phase 1 would be developed, which consist of 1.1 million square feet of high-cube warehouse on 95 acres. Phase 2 would not be pursued, and the remaining 113 acres of the project site would remain undeveloped. This alternative would lessen the severity of all the Proposed Project's significant impacts to the greatest extent. The Phase 1 Only Alternative is the environmentally superior alternative.

Conclusion

The Phase 1 Only Alternative would lessen the severity of, but would not avoid, the significant and unavoidable Air Quality and GHG emissions impacts associated with the Proposed Project. Additionally, the severity of several significant impacts that can be reduced to Less Than Significant with mitigation (e.g., biological resources, cultural resources, hydrology and water quality, and noise), would be further reduced by the Phase 1 Only Alternative.

The Project Applicant has a 100-year lease agreement with the Property Owner for the entire 208-acre site. The Phase 1 Only Alternative is problematic because the Project Applicant would be unlikely to forgo development on approximately 113 acres (the Phase 2 portion of the project site). Moreover, the project site is the single largest undeveloped industrial zoned site in the City of American Canyon. Preserving 113 acres as a wetland preserve would not represent the highest and best use of the property, particularly since approximately 45 acres of the project site would be assigned for this use.

For reasons described above, staff does not recommend the environmentally superior Phase 1 Only Alternative. Alternatives to the Proposed Project are more fully described in the Draft EIR, Chapter 5. See Attachment 1.A Giovannoni Draft EIR.

Comments on the Draft EIR

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15088, the City of American Canyon, as the lead agency, evaluated the comments received on the Draft EIR (State Clearinghouse No. 2021010104) for the proposed Giovannoni Logistics Center Project (proposed project), and prepared t responses to the comments received. This Response to Comments document becomes part of the Final EIR for the proposed project in accordance with CEQA Guidelines Section 15132.

Comments on the Draft EIR and response can be viewed in Section 2, 3, and 4 of the Final EIR. See Attachment 1.C.

EIR Conclusion

A Statement of Findings has been prepared to document the project description, environmental review process, and substantial evidence to support all the conclusions in the EIR. This evidence is contained in a list of Findings. See Attachment 1.Q.

Phase 1 Design Permit

Buzz Oates LLC, submitted a Giovannoni Logistics Center Phase 1 Design Permit application to develop two high-cube warehouse buildings totaling 1,069,904 square feet on 70.2-acres east of Devlin Road and north of Green Island Road.

Building A, located at 300 Green Island Road, is proposed to be 627,976 square feet; and Building B, located at 1200 Devlin Road is proposed to be 469,512 square feet. Both buildings would provide docks, grade level roll-up doors, and trailer parking stalls and enclosed with a secure perimeter. Access would be restricted to authorized users. Building A building may be rail-served by the adjacent Napa Branch Line. A graphic depicting the site plan is included as Attachment 0.1

The building architecture meets the design and development principles set out in the General Plan (Policy 1.22.4 and 1.22) and reflect a modern industrial look by providing architectural detailing around windows, building corners, parapet, and articulated sidings of the main entrance. The exterior concrete walls have score lines that break up the wall expanse. The ground floor elevation has store-front like windows that capture natural light.

The building design includes a tall parapet to screen rooftop structures and mechanical equipment. A condition of approval requires adequate rooftop equipment screening verified at the time of building permit issuance and occupancy. Photosimulations of the building elevations are included as Attachment 0.6.

The site is well landscaped, including trees throughout the parking areas and along the southern, western and northern edges of the site, and plantings within the stormwater bio-retention area that runs along the northwest side of the site. There are clearly marked pedestrian routes in the parking lot leading to the front office of the building. A copy of the Preliminary Landscape Plan is included as Attachment 0.7.

Each building has safe access onto the adjacent roadway. The entrances are designed to separate big-rig trucks from passenger vehicles and the site plan has a driveway interconnection between the Building A and Building B site along the northern perimeter onto Devlin Road.

- Building A has dour entrances on Green Island Road. The western and eastern entrances are designed for big-rig trucks. The central two driveways are for passenger vehicles.

- Building B has three entrances off Devlin Road. The northern and southern entrances are designed for big-rig trucks. The central driveway is for passenger vehicles

The parking code requires ten bicycle racks for each building. The site plan shows bike lockers located adjacent to service doors at two locations on the northern and southern sides of Building A. On Building B, bike lockers are located next to the western elevation directly in line with the Devlin Road entrance. A second bike locker is located on the northeast elevation near the office entrance.

A table depicting compliance with General Industrial zoning standards for Building A (300 Green Island Road) and Building B (1200 Devlin Road) is included as Attachment 0.8. As shown on the table, all applicable General Industrial development standards have been met or exceeded.

Special Issues

a. Fire District Fiscal Impacts.

The applicant conducted a fiscal analysis that projected the Project would generate an annual Fire District operating deficit of $158,000. The applicant and the Fire District reached a mutual agreement to supplement financing over the long term. The Memorandum of Understanding between the American Canyon Fire Protection District and Buzz Oats, LLC was approved by the Fire District Board on October 22, 2022 (Resolution 2022-29). A condition of approval requires the Applicant to form a Mello-Roos Community Facilities District or similar public financing mechanism (CFD) on full legal parcels that are a part of the Project prior to City issuance of the first building permit. This same condition is included in the Tentative Parcel Map except the threshold is prior to recordation of the map, or city issuance of the first building permit, whichever occurs first.

b. Traffic Monitoring.

The Giovannoni EIR projected trip generation from the project to equal 240 vehicles in the AM peak-hour and 264 vehicles in the PM peak-hour. To ensure actual traffic volumes are no more than the EIR assumption, the Design Permit includes two conditions of approval that require the Applicant to enter into a Recorded a Transportation Demand Management (TDM) Program Agreement ("TDM Agreement") prior to issuance of the first building permit. Modelled after the Napa Logistics Park Phase 2 TDM Program, the applicant may include a variety of trip reduction measures including off-peak hour workday shifts, car sharing, transit subsidies, and so on. If these are not successful, the Applicant would be required to pay an additional amount for each and every peak-hour trip recorded by the counting device that exceeds the TDM threshold, equal to the latest adopted Traffic Impact Fee ("TIF") program in effect at the time.

c. Water Conservation

As a part of ongoing water conservation efforts in the commercial sector, the City of American Canyon adopted a Zero Water Footprint policy. Also known as ZWF, the primary goal of this policy is there will be no loss in reliability or increase in water rates for existing water service customers due to new demand for water within the City's water service area.

To meet the ZWF standards, Developers must ensure that all new developments offset the amount

of increased potable water that will be consumed by their project on a one-to-one basis. There are several ways to meet ZWF requirements. During the development process, the City and Developer work in partnership with each other to identify the most appropriate ZWF methods for offsetting the increase in potable water consumption. At a minimum, water conservation measures include:

- Water efficient fixtures
- Install water wise landscaping and irrigation
- Dual plumb the buildings to use recycled water for non-potable uses

Once the Developer has refined their plan to minimize potable water needs, the City and Applicant evaluates the project's water footprint and the proposed potable water offset through these potential programs:

- Contributing to the City's existing conservation programs, including our popular Cash-for-Grass turf conversion program, toilet retrofits, and similar community-wide programs.
- Eliminating an existing public use of potable water by converting it to recycled water, such as city park and landscaping irrigation.
- Constructing or funding city capital projects that directly result in reduced demand for potable water or increased capacity to produce recycled water, including but not limited to replacing leaking main lines, replacing inefficient water meters, and treatment improvements at the water reclamation facility.
- Contributing toward the expansion of the City's reclaimed water system by extending the purple pipeline to locations not currently served by recycled water.
- Acquiring water supply from another source.

The Giovannoni Logistics Center has a condition of approval requiring the project to comply with the ZWF policy and to dual plumb toilets to use recycled water.

d. Greenhouse Gas Reduction Methods

The Giovannoni EIR includes five mitigation measures to reduce greenhouse gas emissions. The first mitigation measure MM GHG-1a includes ten ways to reduce greenhouse gas emissions from project construction. These range from no volatile organic compound (VOC) paints, local building material suppliers, use of electric construction equipment, and so on.

The other four measures reduce greenhouse gas emissions from ongoing building operation. MM GHG 1e requires the Applicant to provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the Year 2045. This requirement is necessary to satisfy prior to the issuance of any building permit for the Proposed Project.

Staff met with the Applicant to discuss the proposed method to provide 100 percent carbon-free electricity sources through the year 2045. The Applicant informed staff their preferred method is for tenants (or subsequent building owners) to subscribe to Marin Clean Energy (MCE) or Pacific Gas

& Electric (PGE) carbon free electricity sources.

If this method of mitigation compliance were selected, it would require the applicant to send utility bills to a designated city staff (or Department) on a monthly or yearly basis until Year 2045. An assigned staff person would be required to review the records, retrieve the applicable mitigation measure, record compliance, scan, and store the information in a retrievable folder.

Staff expressed concern with this approach because the required tasks represents a long-term burden placed on the City of American Canyon where there are limited staff resources. Furthermore, obtaining off-site carbon-free electricity requires transmission to the site using PG&E transmission lines. PG&E transmission lines are subject to disruption from a variety of storm events, brownouts, accidents, and equipment failures from an antiquated and unmaintained distribution system.

A second alternative to obtain carbon-free electricity is to install on-site solar panels. On-site solar panels are growing in popularity with homeowners and business owners. On-site solar electricity has the advantage of not requiring use of unreliable PG&E distribution lines. Furthermore, there is significant concern that adapting to a carbon free future will strain existing supplies of carbon free electricity. Generating electricity on-site helps grow the supply of carbon-free electricity, not draw from limited existing sources.

The applicant has stated that on-site solar electricity is more expensive than subscribing to an electric utility and that a large industrial user may require more electricity than can be generated on-site. Perhaps subscribed solar electricity is less expensive than on-site solar panels. However, given the long-term life of an industrial building, it is difficult to say for certain whether the current price difference between utility provided solar electricity will remain less expensive than on-site solar panels.

The EIR project description and Design Permit suggest the Project Description is high cube warehouses, not a heavy industrial user. The zoning permits a variety of industrial uses, but a change in project description at a minimum would require an environmental evaluation and entitlement modification. At that time, electricity demands could be addressed based on the needs of the revised Project description.

Based on the current project description and reasons described above, staff recommends the Planning Commission recommend the City Council require carbon-free electricity through on-site solar panel generation. This recommendation would require applicable revisions to the Energy Sector discussion in the Findings of Fact and Statement of Overriding Considerations. See Attachment 1.Q.

e. Lot Line Adjustment

An existing parcel line cuts through the proposed Building A western parking lot from Green Island

Road to the proposed bioswale north of Building A. For a variety of legal reasons and zoning setback requirements, it is important to reconfigure parcel lines to reflect the proposed site plan. A graphic depicting the existing parcel line is included as Attachment 0.9. It is labelled "Lands of Right From The Start" APN 057-130-036.

Design Permit Conclusion
Staff recommends the Planning Commission adopt the draft Design Permit Resolution, which recommends the City Council approve the Design Permit as shown in Attachment 2.

Tentative Subdivision Map
Buzz Oates LLC, submitted a Giovannoni Logistics Center Phase 1 Tentative Parcel Map to create a two-lot parcel map north of Green Island Road, and east of Devlin Road for up to 1,069,904 square feet of high-cube warehouse buildings (the proposed project). Lot 1, located at 300 Green Island Road, comprises 38.36 acres, and Lot 2 located at 1200 Devlin Road comprises 31.44 acres.

The main purpose for subdividing land is to finance or sell the property. Both parcels are specifically designed to accommodate the proposed warehouse buildings shown in the Design Permit application. Each parcel has its own parking and access, so they could operate independently from each other.

Parcel Sizes
The Light Industrial zoning district requires a minimum parcel size of 40,000 square feet. Both Lot 1 and 2 greatly exceed this minimum standard with 38.36 acres, and 31.44 acres, respectively.

Infrastructure
As shown on the Tentative Parcel Map plans, the subdivision has been designed to accommodate stormwater and utilities. The conditions of approval (See Attachment 3) provide additional instructions on infrastructure development and impact fee payments.

Giovannoni Logistics Park EIR Mitigation Measures
As required for the Design Permit, the Tentative Map also includes applicable mitigation measures from the Giovannoni Logistics Park EIR.

Fire District Financing Agreement
As required for the Design Permit, the Tentative Map also includes a requirement for the Applicant shall form a Mello-Roos Community Facilities District or similar public financing mechanism (CFD) on full legal parcels that are a part of the Project in accordance with ACFPD Agreement 2022-29. A copy of Agreement 2022-29 is included with the Tentative Map Resolution as Exhibit C (See Attachment 3).

Tentative Parcel Map Conclusion
Staff recommends the Planning Commission adopt the draft Tentative Parcel Map Resolution, which

recommends the City Council approve the Tentative Parcel Map as shown in Attachment 3.

COUNCIL PRIORITY PROGRAMS AND PROJECTS

Economic Development and Vitality: "Attract and expand diverse business and employment opportunities."

FISCAL IMPACT

Processing the Entitlements are funded by the applicant to eliminate a General Fund subsidy. Development of the project will generate ongoing tax revenues and indirect economic development from additional employees. Costs will increase from providing municipal services ie: road maintenance, emergency services. Specific fiscal impacts will vary dependent upon the ultimate site users at the property.

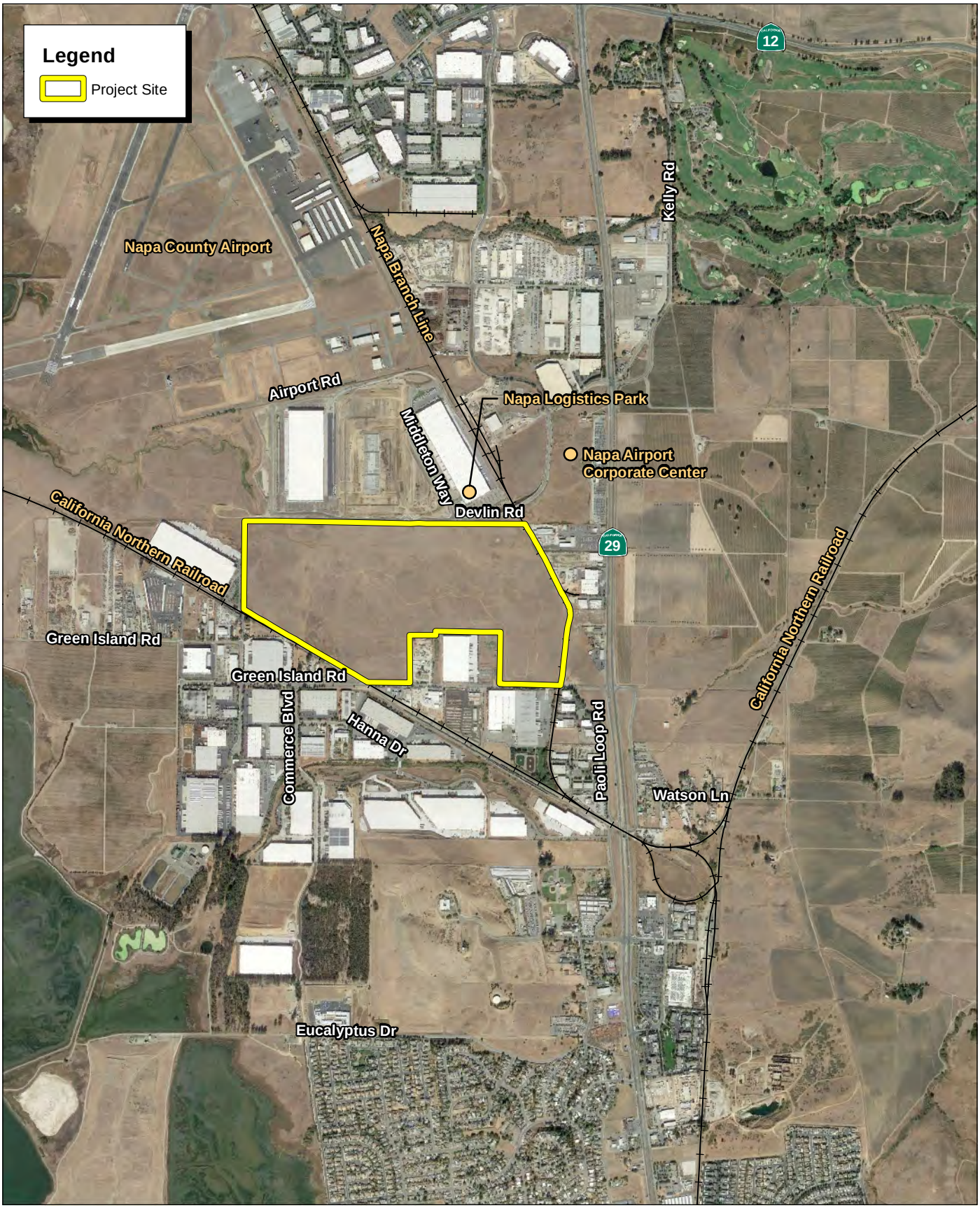
ENVIRONMENTAL REVIEW

The Planning Commission will review and consider whether to recommend the City Council certify that the Final Environmental Impact Report (EIR) (SCH# 2021010104) has been completed in compliance with the California Environmental Quality Act (CEQA) and as adequately reflects the City's independent judgement and analysis regarding the potential environmental impacts associated with the Giovannoni Logistics Center Project, and adopt CEQA Findings of Fact, a Statement of Overriding Considerations, for the Project, and adopt a the Mitigation Monitoring and Reporting Program for the Project.

ATTACHMENTS:

0.0 Location Map
0.1 Site Plan
0.2 Site Photographs
0.3 Wetlands Delineation Map
0.4 Fault Zone Map
0.6 Building Photosimulations
0.7 Preliminary Landscape Plan
1. A. Giovannoni Logistics Center Draft EIR
1. B. Appendix A - Notice of Preparation-Comments COMBINED
1. C. Appendix B - AQ, Energy, GHG Emissions Supporting INFO COMBINED
1. D. Appendix C - Biological Resources Supporting Info COMBINED
1. E. Appendix D - Cultural-Tribal Cultural Resources Supporting Info PUBLIC
1. F. Appendix E - Geological Supporting Info COMBINED
1. G. Appendix F - Hazardous Materials Supporting Info COMBINED
1. H. Appendix G - Noise Supporting Information COMBINED
1. I. Appendix H - Transportation Supporting Info COMBINED
1. J. Appendix I - Utilities and Service Systems Supporting Info COMBINED
1. K. 54600001 Final EIR Giovannoni

2.B Confirmation of Design Permit Conditions
2.B Confirmation of Design Permit Conditions
2.C. Fire District Resolution 2022-29 Buzz Oats
3.A. Giovannoni Tentative Parcel Map Plans
3.A. Lot Line Adjustment
3.B.Confirmation of TPM Conditions
3.C. Fire District Resolution 2022-29 Buzz Oats
1. L. Final EIR Appendix J - Travel Behavior Memorandum COMBINED.
1. M. Final EIR Appendix K - Fire Fiscal Impact Analysis COMBINED
1. N. Final EIR Appendix L - Wildlife Hazard Assessment COMBINED
1. O. 54600001 Giovannoni Logistics Center Project MMRP
1. P. 54600001 Giovannoni Logistics Center Project FOF_11-10-22
2.A. Giovannoni Design Permit Architectural Plans
2.A2. Giovannoni Logistics Center Photometric plan
2. Giovannoni PC Design Permit Reso 11.10.22
3. Giovannoni PC TPM Reso Revised 11.10.22
0.5 Important EIR Milestones
0.8. Building A and B Development Standards
0.9. Parcel Line To Adjust



Source: Google Earth Aerial Imagery, 10/2020. County of Napa.

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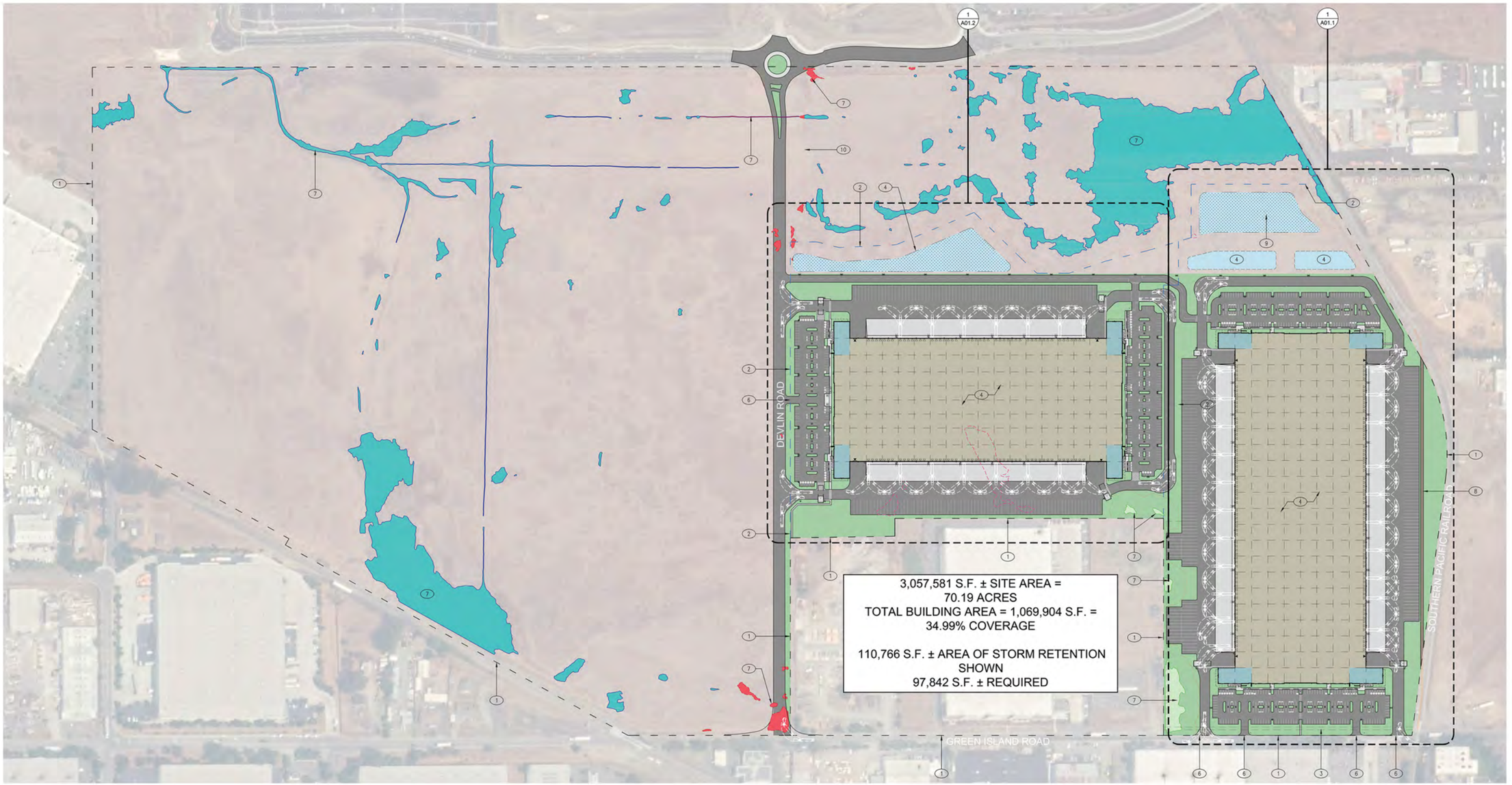
2,000 1,000 0 2,000
Feet

Exhibit 2-2
Local Vicinity Map

54600001 • 09/2021 | 2-2_local_vicinity.mxd



Source: RMW Architecture Interiors, 11/11/2020.

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Exhibit 2-4
Preliminary Site Plan – Phase 1

Photograph 1: View of Phase 1 (eastern) portion of project site.

Photograph 2: View of Phase 2 (western) portion of project site.

Photograph 3: View of the under construction segment of Devlin Road.

Source: FirstCarbon Solutions, 2021.

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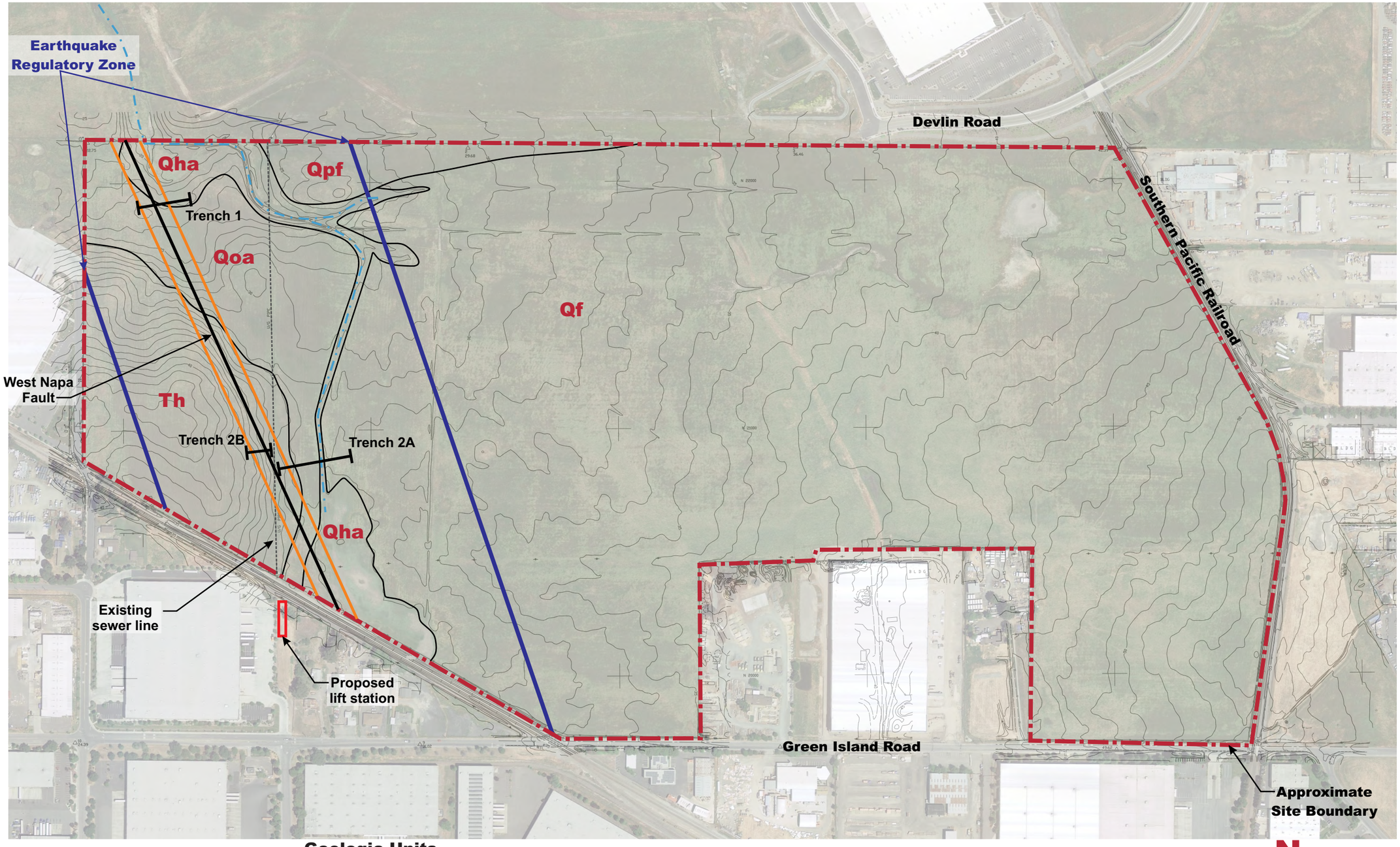
Exhibit 2-3
Site Photographs

Figure 4. Aerial Imagery With USACE Verified Wetlands
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California



Geologic Units

Qha	Holocene alluvium, undifferentiated
Qf	Late Pleistocene to Holocene fan deposits
Qpf	Late Pleistocene fan deposits
Qoa	Early to middle Pleistocene fan or terrace deposits
Th	Huichica Formation (Pliocene) Fluvial gravel, sand, silt, and clay

Legend

- Approximate location of trench
- Approximate Earthquake Regulatory Zone
- Approximate location of seasonal unnamed creek
- Approximate location of West Napa Fault (this investigation)
- 50 ft setback

N

0 400 800

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 5/20/2017
Overlay: Topographical Map, undated

Project Number 582-4-1

Figure Number Figure 7

Drawn By RRN

Date October 2017

Fault Investigation

Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

BUILDING B

BUILDING A

BUILDING B

BUILDING A

Source: RMW Architecture Interiors, 11/11/2020.

FIRSTCARBON SOLUTIONS™

Exhibit 2-5
Conceptual Renderings

ATTACHMENT 0.7

PRELIMINARY PLANT LEGEND

TREES

Acer buergeranum	Trident Maple	Med	15 Gallon	Deciduous Shade Tree
Acer r. 'October Glory'	Red Maple	Med	15 Gallon	Deciduous Shade Tree
Ginkgo 'Princeton Sentry'	Maidenhair Tree	Low	36" Box	Flowering Accent Tree
Lagerstroema f. 'Catawba'	Crepe Myrtle	Low	24" Box	Flowering Accent Tree
Pistacia chinensis	Chinese Pistache	Low	24" Box	Deciduous Shade Tree
Platanus a. 'Columbia'	London Plane Tree	Low	15 Gallon	Deciduous Shade Tree
Quercus r. Shumardii	Shumard Oak	Low	15 Gallon	Deciduous Shade Tree
Quercus lobata	Valley Oak	Low	15 Gallon	Deciduous Shade Tree
Quercus suber	Cork Oak	Low	15 Gallon	Evergreen Screen Tree
Sequoia s. 'Aptos Blue'	Redwood	Med	15 Gallon	Evergreen Screen Tree
Ulmus 'Frontier'	Frontier Elm	Med	15 Gallon	Deciduous Shade Tree

FOUNDATION SHRUBS

Arctostaphylos 'Sunset'	Manzanita	Low	5 Gallon	5' OC	5' x 5'
Ceanothus 'Skylark'	California Lilac	Low	5 Gallon	5' OC	5' x 5'
Cistus purpureus	Purple Rockrose	Low	5 Gallon	6' OC	4' x 6'
Coleonema pulchrum	Breath of Heaven	Med	1 Gallon	4' OC	3' x 4'
Grevillea noelli	Noel Grevillea	Low	5 Gallon	5' OC	5' X 5'
Loropetalum 'Ever Red'	Fringe Flower	Low	5 Gallon	6' OC	6' X 6'
Nandina varieties	Heavenly Bamboo	Low	5 Gallon	5' OC	5' X 5'
Raphiolepis 'Indian Princess'	Indian Hawthorne	Low	5 Gallon	5' OC	5' X 3'
Rosa Carpet varieties	Carpet Rose	Med	5 Gallon	5' OC	4' X 5'
Rosemarnus 'Tuscan Blue'	Tuscan Rosemary	Low	5 Gallon	5' OC	6' X 5'
Xylosma c. compacta	Compact Xylosma	Low	5 Gallon	6' OC	6' X 6'
Tulbaghia violacea	Society Garlic	Low	1 Gallon	2' OC	2' X 2'

GRASSES & ACCENTS

Achillea 'Moonshine'	Yarrow	Low	1 Gallon	2' OC	2' X 2'
Calamagrostis 'Karl Foerster'	Feather Reed Grass	Low	1 Gallon	3' OC	4' X 3'
Muhlebergia capillans	Pink Muhly Grass	Low	1 Gallon	4' OC	4' X 5'
Pennisetum 'Karley Rose'	Fountain Grass	Med	1 Gallon	3' OC	3' X 3'
Pennisetum s. Cupreum'	Red Fountain Grass	Low	1 Gallon	4' OC	4' X 4'
Tulbaghia violacea	Society Garlic	Low	1 Gallon	2' OC	2' X 2'

GROUNDCOVER

Coprosma p. 'Verde Vista'	NCN	Low	1 Gallon	3' OC	2' X 4'
Cotoneaster dammen	Bearberry	Low	1 Gallon	4' OC	1' X 6'
Juniper c. 'Blue Pacific'	Shore Juniper	Low	1 Gallon	4' OC	1' X 6'
Myoporum 'Pink'	NCN	Low	1 Gallon	5' OC	1' X 8'

COVER

Landscape Planters-3" Layer of Recycled Wood mulch in all landscape planters

BIO RETENTION TREATMENT

48 lbs. per acre Pacific Coast Seed

Apply Compact Bio Swale Mix via hydroseed at the following rates:

Bio Swale Seed Mix	48/lbs/ac
Mulch	2000 lbs/ac
M-Binder Tackifier	180 lbs/ac

WELO NOTES

1. ALL PLANTS AND TREES ARE WUCOLS LOW OR MEDIUM WATER VARIETIES.
2. SOIL AMENDMENTS WILL BE INCORPORATED PER SOILS TEST. COMPOST WILL BE ORGANIC COMPOSTED GREEN WASTE.
3. ALL PLANTER AREAS SHALL BE TREATED WITH A 3" LAYER OF RECYCLED MULCH.
4. A FULLY AUTOMATIC IRRIGATION SYSTEM THAT MEETS THE CURRENT WATER EFFICIENT LANDSCAPE ORDINANCE REQUIREMENTS SHALL BE INSTALLED INCLUDING THE FOLLOWING:
5. AN ET (SMART) CONTROLLER AND ET SENSOR SHALL BE USED FOR WEATHER BASED IRRIGATION CONTROL.
6. A MASTER VALVE AND FLOW SENSOR SHALL BE INSTALLED IN THE SYSTEM.
7. ALL PLANTER AREAS SHALL BE IRRIGATED WITH POINT SOURCE-DRIP IRRIGATION.
8. TREES SHALL RECEIVE DEEP WATER BUBBLERS ON SEPARATE VALVES.
9. WELO DOCUMENTATION SHALL BE SUBMITTED WITH LANDSCAPE IMPROVEMENT PLANS (CONSTRUCTION DOCUMENTS).

BUILDING A PRELIMINARY LANDSCAPE NOTES

1. THERE IS APPROXIMATELY 195,250 SQ' OF LANDSCAPE PLANTER AREA.
2. THERE IS 10.4% LANDSCAPE AREA WITHIN THE PARKING AND CIRCULATION AREAS.
3. THERE ARE 430 PARKING STALLS AND 143 SHADE TREES. REQUIREMENT OF 1 TREE PER 3 STALLS SINGLE LOADED AND 1 PER 6 STALLS DOUBLE LOADED HAS BEEN MET.

BUILDING B PRELIMINARY LANDSCAPE NOTES

1. THERE IS APPROXIMATELY 186,547 SQ' OF LANDSCAPE PLANTER AREA.
2. THERE IS 11.3% LANDSCAPE AREA WITHIN THE PARKING AND CIRCULATION AREAS.
3. THERE ARE 430 PARKING STALLS AND 139 SHADE TREES. REQUIREMENT OF 1 TREE PER 3 STALLS SINGLE LOADED AND 1 PER 6 STALLS DOUBLE LOADED HAS BEEN MET.

WELO WORKSHEETS

Green Island Road Logistics Center Bldg A WELO Worksheet
Reference Evapotranspiration (Eto) 45.8

Regular Landscape Areas There are no special landscape areas. Trees are value of 25 sq'

Hydrozone#	Plant Factor	Irrigation Method	Irrigation Efficiency	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF X Area	Estimated Total Water Use (GPY)
1	0.2	Drip	0.81	0.25	8836	2209	62714
2	0.2	Drip	0.81	0.25	17048	4262	120998
3	0.2	Drip	0.81	0.25	4342	1086	30817
4	0.2	Drip	0.81	0.25	11930	2983	84673
5	0.2	Drip	0.81	0.25	12174	3044	86405
6	0.2	Drip	0.81	0.25	20089	5022	142582
7	0.2	Drip	0.81	0.25	15087	3772	107080
8	0.2	Drip	0.81	0.25	15087	3772	107080
9	0.2	Drip	0.81	0.25	15087	3772	107080
10	0.2	Drip	0.81	0.25	8552	2138	60698
11	0.2	Drip	0.81	0.25	13822	3456	98102
12	0.2	Drip	0.81	0.25	17442	4361	123795
13	0.2	Drip	0.81	0.25	12035	3009	85418
14	0.2	Drip	0.81	0.25	18019	4505	127890
15	0.4	Bubbler	0.81	0.49	925	453	12868
16	0.4	Bubbler	0.81	0.49	1300	637	18084
17	0.4	Bubbler	0.81	0.49	1075	527	14954
18	0.4	Bubbler	0.81	0.49	1250	613	17389
19	0.4	Bubbler	0.81	0.49	1150	564	15998
Totals					195250		1424624

Maximum Allowed Water Allowance (MAWA) 2494416
Estimated Total Water Use (ETWU) 1424624
Average ETAF 0.26
Allowed ETAF 0.45

Green Island Road Logistics Center Bldg B WELO Worksheet
Reference Evapotranspiration (Eto) 45.8

Regular Landscape Areas There are no special landscape areas. Trees are value of 25 sq'

Hydrozone#	Plant Factor	Irrigation Method	Irrigation Efficiency	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF X Area	Estimated Total Water Use (GPY)
1	0.2	Drip	0.81	0.25	13904	3476	98684
2	0.2	Drip	0.81	0.25	11699	2925	83034
3	0.2	Drip	0.81	0.25	25695	6424	182370
4	0.2	Drip	0.81	0.25	11936	2984	84716
5	0.2	Drip	0.81	0.25	11740	2935	83325
6	0.2	Drip	0.81	0.25	12046	3012	85496
7	0.2	Drip	0.81	0.25	14001	3500	99372
8	0.2	Drip	0.81	0.25	11319	2830	80337
9	0.2	Drip	0.81	0.25	6849	1712	48611
10	0.2	Drip	0.81	0.25	7568	1892	53714
11	0.2	Drip	0.81	0.25	13878	3470	98499
12	0.2	Drip	0.81	0.25	16099	4025	114263
13	0.2	Drip	0.81	0.25	11788	2947	83665
14	0.2	Drip	0.81	0.25	11750	2938	83396
15	0.2	Bubbler	0.81	0.25	650	163	4613
16	0.4	Bubbler	0.81	0.49	500	245	6956
17	0.4	Bubbler	0.81	0.49	1425	698	19823
18	0.4	Bubbler	0.81	0.49	550	270	7651
19	0.4	Bubbler	0.81	0.49	1150	564	15998
20	0.4	Bubbler	0.81	0.49	750	368	10433
21	0.4	Bubbler	0.81	0.49	1250	613	17389
Totals					186547		1362344

Maximum Allowed Water Allowance (MAWA) 2383251
Estimated Total Water Use (ETWU) 1362344
Average ETAF 0.26
Allowed ETAF 0.45

100 0 100 200 300 N

Scale 1" = 100'

RMW
Architecture
Interiors

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Suite 101
Sacramento
California 95811

Office
916 449-1400

rmw.com

OWNER / DEVELOPER:

BUZZ OATES

555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

VISTA PARKS
design /build /construction
8264 Barryman Court Sacramento, CA 95829
PH. (916) 681-2227 FAX (916) 681-2228

drawn by : EJD plot date : 11-11-2020

checked by : JN

stamp

scale : AS NOTED

project number : 2204049.00

PRELIMINARY PLANTING PLAN

sheet no. :

LP

FIRSTCARBONSOLUTIONS™

DRAFT
Environmental Impact Report
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

State Clearinghouse Number 2021010104

Prepared for:
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
707.647.5345

Contact: Brent Cooper, AICP, Community Development Director

Prepared by:
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
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Contact: Mary Bean, Project Director
Grant Gruber, Project Manager

Date: May 20, 2022

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius (Centigrade)
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACP	Alternative Compliance Plan
ACT	American Canyon Transit
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AERMOD	American Meteorological Society/EPA Regulatory Model
AFY	acre-feet/year
AIA	Airport Influence Area
AIC	Archaeological Information Center
AICUZ	Air Installation Compatibility Use Zone
AIRFA	American Indian Religious Freedom Act
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AMS	American Meteorological Society
APCD	Air Pollution Control District
APE	Area of Potential Effect
APN	Assessor's Parcel Number
AQI	Air Quality Index
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act
AST	aboveground storage tank
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BART	Bay Area Rapid Transit
BASMAA	Bay Area Stormwater Management Agencies Association

BAU	business-as-usual
BCDC	Bay Conservation and Development Commission
BCF	billion cubic feet
BCF/year	billion cubic feet per year
BERD	California Built Environment Resource Directory
BMP	Best Management Practice
BTU	British Thermal Unit
BVOC	biogenic volatile organic compound
C&D	construction and demolition waste
c/mve	collisions per million vehicles entering
C^2ES	Center for Climate and Energy Solution
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Health and Safety Administration
CalEEMod	California Emissions Estimator Model
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CASQA	California Stormwater Quality Association
CBC	California Building Standards Code
CCA	community choice aggregations
CCAC	Climate and Clean Air Coalition
CCCC	California Climate Change Center
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDF	California Department of Finance
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH4	methane
CHL	California Historical Landmarks

CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
COC	constituents of concern
CPHI	California Points of Historical Interest
CPUC	California Public Utilities Code
CRA	Cultural Resources Assessment
CRAM	California Rapid Assessment Method
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DBH	diameter at breast height
DOE	United States Department of Energy
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
du	dwelling unit
du/acre	dwelling unit per acre
DWR	California Department of Water Resources
EECAP	Energy Efficiency Climate Action Plan
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act of 2007
EMF	electromagnetic field
EPA	United States Environmental Protection Agency
EV	electric vehicle
FAA	Federal Aviation Administration
FAR	floor area ratio
FCS	FirstCarbon Solutions
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map

FSM	Further Study Control Measure
GHG	greenhouse gas
GI	General Industrial
gpm	gallons per minute
GPS	Global Positioning System
GWh	gigawatt-hours
GWh/y	gigawatt-hours per year
GWP	global warming potential
HAP	Hazardous Air Pollutant
HBG	Huffman-Broadway Group, Inc.
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbon
HI	hazard index
HOV/HOT	High Occupancy Vehicle/High Occupancy Toll
HRA	Health Risk Assessment
HRI	California Historic Resources Inventory
HSWA	Hazardous and Solid Waste Act
HVAC	heating, ventilation, and air conditioning
HWCL	Hazardous Waste Control Law
IAQ	Indoor Air Quality
IPCC	United Nations Intergovernmental Panel on Climate Change
ISTEA	Intermodal Surface Transportation Efficiency Act
ITP	Incidental Take Permit
IW	Isolated Wetland
kW	kilowatts
LCFS	Low Carbon Fuel Standard
LDA	light-duty auto
L_{dn}	day/night average sound level
LDT1	light-duty truck 1
LDT2	light-duty truck 2
LED	light-emitting diode
LEEDTM	Leadership in Energy and Environmental Design
L_{eq}	equivalent sound level
LEV	low-emission vehicle
LID	Low Impact Development
LOS	Level of Service
LSE	load-serving entities

MBTA	Migratory Bird Treaty Act
MDV	medium-duty vehicle
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MTBE	methyl tertiary-butyl ether
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System
MW	megawatt
MWD	Metropolitan Water District of Southern California
MWh	megawatt-hour
MXD	mixed-use development
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NACC	Napa Airport Corporate Center
NAHC	Native American Heritage Commission
NapaSan	Napa Sanitation District
NCTPA	Napa County Transportation and Planning Agency
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHM	Natural History Museum of Los Angeles County
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA Fisheries	National Marine Fisheries Service
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NVWMA	Napa-Vallejo Waste Management Authority
NWIC	Northwest Information Center
NWPR	Navigable Waters Protection Rule
O_3	ozone
OAL	Office of Administrative Law
OEHHA	California Office of Environmental Health Hazard Assessment
OHWM	ordinary high water mark
ONAC	Federal Office of Noise Abatement and Control
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PCE	Passenger Car Equivalent
pCi/L	picocuries per liter
PERP	Portable Equipment Registration Program
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
PM_{10}	particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$	particulate matter, including dust, 2.5 micrometers or less in diameter
PMx	particulate matter
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PRC	Public Resources Code
PPV	peak particle velocity
PRC	Public Resources Code
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
Recology	Integrated Resource Recovery Company
RecycleSmart	Central Contra Costa County Solid Waste Authority
REL	Reference Exposure Level
RMP	Risk Management Plan
rms	root mean square
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act

SB	Senate Bill
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFPUC	San Francisco Public Utilities Commission
SIP	State Implementation Plan
SO_2	sulfur dioxide
South Coast AQMD	South Coast Air Quality Management District
SR	State Route
SS	Stationary Source
SSMM	start-up, shutdown, maintenance, and malfunction
State Water Board	California State Water Resources Control Board
STN	State Transportation Network
SWITRS	Statewide Integrated Traffic Records System
SWMP	Storm Water Management Plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminants
TCM	transportation control measures
TDM	Transportation Demand Management
TDS	total dissolved solids
TDV	Time Dependent Valuation
TEA-21	Transportation Equity Act for the 21st Century
Tg	teragram
therms/y	therms per year
TIA	Traffic Impact Analysis
TIF	Transportation Impact Fee
TIS	Traffic Impact Study
TISG	Transportation Impact Study Guide
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TNW	traditional navigable water
TOD	Transit Oriented Development
TRU	Transport Refrigeration Unit
UBC	Uniform Building Code
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture

USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
V/C	volume to capacity ratio
Valley Air District	San Joaquin Valley Air Pollution Control District
VDECS	Verified Diesel Emission Control Strategies
VINE	Valley Intercity Neighborhood Express
VMT	Vehicle Miles Traveled
VOC	volatile organic compound
WDR	Waste Discharge Requirement
WQMP	Water Quality Management Plan
WSA	Water Supply Assessment
WWTP	Wastewater Treatment Plant
ZEV	Zero Emission Vehicle
ZWF	zero water footprint

EXECUTIVE SUMMARY

Purpose

This Draft Environmental Impact Report (Draft EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the Giovannoni Logistics Center Project (State Clearinghouse No. 2021010104). This document is prepared in conformance with CEQA (Public Resources Code [PRC] § 21000, *et seq*.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, § 15000, *et se*q.).

The purpose of this Draft EIR is to inform decision-makers, representatives of affected and responsible agencies, the public, and other interested parties of the potential environmental effects that may result from implementation of the proposed project. This Draft EIR describes potential impacts relating to a wide variety of environmental issues and methods by which these impacts can be mitigated or avoided.

Project Summary

Project Location

The 208-acre project site is located in the City of American Canyon, Napa County, California. The semi-rectangular project site is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Park and Devlin Road (north), the Napa Branch Line (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south).

Project Description

The proposed project consists of the development of up to 2.4 million square feet of high-cube warehouse on 163 acres of the project site. Phase 1 consists of approximately 1.1 million square feet on the eastern portion of the project site. Phase 2 consist of approximately 1.3 million square feet on the western portion of the project. Approximately 45 acres of the project site would be preserved as wetlands. The applicant would extend the Napa Valley Vine Trail along the project frontage with Devlin Road and Green Island Road. Section 2, Project Description, provides a complete description of the project.

Project Objectives and Underlying Purpose

The underlying purpose of the proposed project is to develop industrially zoned undeveloped land within the American Canyon city limits to its highest and best use.

The objectives of the proposed project are to:

1. Promote economic growth in American Canyon by attracting new industries.

2. Promote development that that generates net positive tax revenues for the City by generating more in new tax revenues than are consumed by City expenditures on services provided to the development.
3. Create new employment opportunities for residents of Napa County and the surrounding region.
4. Develop compatible land uses near the Napa County Airport in the interests of avoiding interference with aviation operations.
5. Improve American Canyon's jobs-housing ratio by adding new employment opportunities.
6. Continue the orderly development of the Devlin Road corridor with a well-designed project.
7. Further the goals and policies of the City of American Canyon General Plan by developing land contemplated to support urban development to its highest and best use.
8. Preserve the most biologically sensitive portions of the project site as open space.
9. Install circulation improvements along Green Island Road and Devlin Road that provide efficient ingress and egress to the proposed project while also ensuring these facilities operate at acceptable levels.
10. Promote public safety by incorporating security measures into the project design.
11. Mitigate impacts on the environment through implementation of feasible mitigation measures.

Significant Unavoidable Adverse Impacts

The proposed project would result in the following significant unavoidable impacts:

- **Consistency With Air Quality Management Plan:** The proposed project would result in exceedances of regional emissions thresholds and, therefore, be inconsistent with the Bay Area Air Quality Management District (BAAQMD) regional air quality planning assumptions. Mitigation is proposed requiring the implementation of feasible emissions reduction measures; however, these measures would not reconcile this inconsistency. Therefore, the significance after mitigation is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** The proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or State ambient air quality standard. Mitigation is proposed requiring the implementation of air emissions reduction measures, but it would not fully reduce this impact to a level of less than significant. Therefore, the significance after mitigation is significant and unavoidable.

Summary of Project Alternatives

Below is a summary of the alternatives to the proposed project considered in Section 5, Alternatives to the Proposed Project.

No Project/No Development Alternative

The proposed project would not be pursued, and the project site would remain undeveloped for the foreseeable future. This alternative would avoid all of the proposed project's significant impacts.

No Project/Existing General Plan Alternative

A 2.4 million square-foot food and beverage facility would be developed on the project site. The project boundaries would remain the same as the proposed project. This alternative would increase the severity of all of the proposed project's significant impacts.

Reduced Density Alternative

A 1.6-million-square-foot logistics center would be developed on the project site, which represents a 25 percent reduction relative to the proposed project. The layout and project boundaries would remain the same as the proposed project. This alternative would lessen the severity of all of the proposed project's significant impacts.

Phase 1 Only Alternative

Phase 1 would be developed, which consist of 1.1 million square feet of high-cube warehouse on 95 acres. Phase 2 would not be pursued, and the remaining 113 acres of the project site would remain undeveloped. This alternative would lessen the severity of all of the proposed project's significant impacts to the greatest extent. The Phase 1 Only Alternative is the environmentally superior alternative.

Areas of Controversy and Potentially Controversial Issues

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

A Notice of Preparation (NOP) for the proposed project was issued on January 12, 2021. The NOP describing the original concept for the project and issues to be addressed in the EIR was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a 30-day public review period extending from January 12, 2021, through February 10, 2021. During the NOP review period, the following issues were raised in comments submitted to the City of American Canyon:

- Health effects on disadvantaged communities from diesel emissions
- Housing for project employees
- Climate change
- Impacts on nearby vernal pools

- Impacts on special-status plant and wildlife species
- Traffic
- Aesthetics
- Noise

Disagreement Among Experts

This Draft EIR contains substantial evidence to support all the conclusions presented herein. It is possible that there will be disagreement among various parties regarding these conclusions, although the City of American Canyon is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide the standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to allow the public and decision-makers to make an informed judgment about the environmental consequences of the proposed project.

Public Review of the Draft EIR

Upon completion of the Draft EIR, the City of American Canyon filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (PRC § 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review at the City of American Canyon offices and the American Canyon Library. The address for each location is provided below:

American Canyon City Hall
4381 Broadway Street, Suite 201
American Canyon, CA 94503
Hours: Monday-Friday: 8:00 a.m. to 5:00 p.m.

American Canyon Library
300 Crawford Way
Hours: Monday-Saturday
10:00 a.m. to 5:30 p.m.

The Draft EIR is also posted on the City of American Canyon's website:
https://www.cityofamericancanyon.org

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Brent Cooper, AICP, Community Development Director
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
Phone: 707.647.4335
Email: bcooper@cityofamericancanyon.org

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the City of American Canyon on the project, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision-makers for the project.

Executive Summary Matrix

Table ES-1 below summarizes the impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed project. The table is intended to provide an overview; narrative discussions for the issue areas are included in the corresponding section of this EIR. Table ES-1 is included in the EIR as required by CEQA Guidelines Section 15123(b)(1).

Table ES-1: Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Section 3.1—Aesthetics, Light, and Glare		
Impact AES-1: The proposed project would not have a substantial adverse effect on a scenic vista.	No mitigation is necessary.	Less than significant impact.
Impact AES-2: The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings.	No mitigation is necessary.	Less than significant impact.
Impact AES-3: The proposed project may create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	**MM AES-3:** Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.	Less than significant impact.
Section 3.2—Air Quality		
Impact AIR-1: The proposed project would conflict with or obstruct implementation of the applicable air quality plan.	Implement Mitigation Measures MM AIR-2a, MM AIR-2b, MM AIR-2c, MM AIR-2d.	Significant unavoidable impact.
Impact AIR-2: The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard.	**MM AIR-2a:** The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction: • All active construction areas shall be watered at least two times per day. • All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard. • All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.	Significant unavoidable impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	• All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. **MM AIR-2b:** Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. **MM AIR-2c:** Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	MM AIR-2d: Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy-duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement. To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.	
Impact AIR-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations.	None Required.	Less than significant impact.
Impact AIR-4: The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	None Required.	Less than significant impact.
Section 3.3—Biological Resources		
Impact BIO-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.	**MM BIO-1a:** Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall follow California Department of Fish and Wildlife (CDFW) guidelines for	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	conducting surveys for Swainson's hawk that were developed by the Swainson's Hawk Technical Advisory Committee to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances. If no nesting Swainson's hawk are found during the first non-optional survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus that the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site. If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there is a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist. **MM BIO-1b:** No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project site vicinity. Pre-construction surveys shall include investigation of all potential nesting trees within a 0.5-mile radius around all project activities. If active golden eagle active nests are identified within any trees within a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	of buffer zone may be modified by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist. **MM BIO-1c:** Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier if construction is scheduled during the nesting season (February 1 through September 1). To determine whether northern harrier is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests. An active northern harrier nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be modified considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Biologist. **MM BIO-1d:** Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted. The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site. If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report. If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.	
Impact BIO-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.	**MM BIO-2:** To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.	Less than significant impact.
Impact BIO-3: The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	**MM BIO-3a:** Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s). **MM BIO-3b**: Prior to issuance of the Phase 2 grading permit, the project applicant shall apply for and obtain an Individual Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for the placement of fill material within approximately 3.7 acres of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for the discharge of fill material within approximately 3.7 acres of waters of the State. To offset the loss of 3.7 acres of permanent wetland impacts and to ensure there is no-net loss of wetland area or permanent loss of functions and values, the applicant shall establish/create 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pools (1:1 ratio), at a minimum of 1 year prior to the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands and vernal pools shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s). **MM BIO-3c:** Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	of Phase 2. The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s). **MM BIO-3d:** Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J–Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board Implementation Guidance dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332) The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum:	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	1. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve. 2. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio. 3. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur. 4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards. 5. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc. 6. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface therefore a 5-year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts. 7. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan. 8. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.	
Impact BIO-4: The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.	**MM BIO-4:** If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. Nesting bird surveys shall cover the proposed project footprint and adjacent areas. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on-site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting northern harriers; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.	Less than significant impact.
Impact BIO-5: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No mitigation is necessary.	Less than significant impact.
Section 3.4—Cultural and Tribal Cultural Resources		
Impact CUL-1: The proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.	None required.	No impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact CUL-2: The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	**MM CUL-2a:** No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place. **MM CUL-2b:** An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.	
Impact CUL-3: The proposed project could disturb human remains, including those interred outside of formal cemeteries.	**MM CUL-3**: In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken: 1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98. 2 Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance: • The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission. • The descendant identified fails to make a recommendation. • The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner. Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:	Less than significant.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	• When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.	
Impact CUL-4: The proposed project may cause a substantial adverse change in the significance of a Tribal Cultural Resource.	**MM CUL-4:** A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities. 1. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol. 2. Inadvertent Discovery of Native American Human Remains**:** Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the area is culturally affiliated with the	Less than significant.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents. Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely. 3. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	4. Non-Disclosure of Location of Reburials**:** Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 *et seq*. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property. 5. Treatment of Cultural Resources**:** Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe. 6. Inadvertent Discoveries**:** If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.	

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact CUL-5: The proposed project may cause a substantial adverse change in the significance of a tribal cultural resource.	Implement Mitigation Measures CUL-2a, CUL-2b, CUL-3 and CUL-4.	Less than significant impact.
Section 3.5—Geology, Soils and Seismicity		
Impact GEO-1: The proposed project may expose people or structures to potential substantial adverse effects associated with seismic hazards.	**MM GEO-1a:** Prior to the issuance of building permits for each Phase 2 structure, the project applicant shall submit plans to the City of American Canyon for review and approval that demonstrate a minimum 50-foot setback between the West Napa Fault and each building. The approved plans shall be incorporated into the proposed project. **MM GEO-1b**: Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.	Less than significant impact.
Impact GEO-2: The proposed project may result in substantial soil erosion or the loss of topsoil.	**MM HYD-1a:** Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.	
Impact GEO-3: The proposed project would not be located on an unstable geologic unit or soil.	No mitigation is necessary.	Less than significant impact.
Impact GEO-4: The proposed project may create substantial risks to life or property as a result of expansive soil conditions on the project site.	Implement Mitigation Measure GEO-1b.	Less than significant impact.
Impact GEO-5: The proposed project may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**MM GEO-5**: If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil. The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
Section 3.6—Greenhouse Gas Emissions and Energy		
Impact GHG-1: The proposed project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	**MM GHG-1a:** Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs): • At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric. • At least 10 percent of building materials used for project construction shall be sourced from local suppliers. • At least 65 percent of construction and demolition waste materials shall be recycled or reused. • At least one contractor that has a business location in American Canyon shall be contracted for project construction. • All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) using during construction be electrically powered. • Architectural coatings used for project construction shall be "Low-VOC," containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product. • Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective action within 48 hours. The BAAQMD's	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	phone number shall also be identified and visible to ensure compliance with applicable regulations. **MM GHG-1b:** Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing. **MM GHG-1c:** Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2. **MM GHG-1d:** Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2. Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that each loading dock is each outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while trucks are loading and unloading goods. **MM GHG-1e:** Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans)	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045.	
Impact GHG-2: The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	No mitigation is necessary.	Less than significant impact.
Impact GHG-3: The proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	No mitigation is necessary.	Less than significant impact.
Impact GHG-4: The proposed project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	No mitigation is necessary.	Less than significant impact.
Section 3.7—Hazards and Hazardous Materials		
Impact HAZ-1: Buildout of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	No mitigation is necessary.	Less than significant impact.
Impact HAZ-2: The proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.	No mitigation is necessary.	Less than significant impact.
Impact HAZ-3: The proposed project may create aviation safety hazards for persons residing or working within 2 miles of the Napa County Airport.	No mitigation is necessary.	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact HAZ-4: The proposed project would not impair emergency response or evacuation in the project vicinity.	No mitigation is necessary.	Less than significant impact.
Section 3.8—Hydrology and Water Quality		
Impact HYD-1: Construction activities and changes to drainage patterns associated with the proposed project may degrade surface water quality in downstream water bodies.	**MM HYD-1a**: Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction. **MM HYD-1b**: Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include the applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No.	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design concepts, as well as concepts that accomplish a "first flush" objective that remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.	
Impact HYD-2: The proposed project would not deplete groundwater supplies or interfere substantially with groundwater recharge.	No mitigation is necessary.	Less than significant impact.
Impact HYD-3: The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.	No mitigation is necessary.	Less than significant impact.
Section 3.9—Land Use		
Impact LU-1: The proposed project would not conflict with the applicable provisions of the City of American Canyon General Plan.	No mitigation is necessary.	Less than significant impact.
Impact LU-2: The proposed project would not conflict with the applicable provisions of the American Canyon Municipal Code.	No mitigation is necessary.	Less than significant impact.
Impact LU-3: The proposed project may conflict with the applicable provisions of the Napa County Airport Land Use Compatibility Plan.	Implement Mitigation Measure AES-3 and: **MM LU-3:** Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.	
Section 3.10—Noise		
Impact NOI-1: The proposed project could generate a substantial temporary or permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**MM NOI-1**: Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts: • The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment. • The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited. • The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. • At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences. • The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site. • The construction contractor shall ensure that all on-site construction activities, including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.	Less than significant impact.
Impact NOI-2: The proposed project would not result in generation of excessive groundborne vibration or groundborne noise levels.		Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact NOI-3: The proposed project would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.		Less than significant impact.
Section 3.11—Public Services		
Impact PS-1: The proposed project would not result in a need for new or expanded fire protection facilities that may have physical impacts on the environment.	No mitigation is necessary.	Less than significant impact.
Impact PS-2: The proposed project would not result in a need for new or expanded police protection facilities that may have physical impacts on the environment.	No mitigation is necessary.	Less than significant impact.
Section 3.12—Transportation		
Impact TRANS-1: The proposed project would not conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities.	No mitigation is required.	Less than significant impact.
Impact TRANS-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	No mitigation is necessary.	Less than significant impact.
Impact TRANS-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	No mitigation is necessary.	Less than significant impact.
Impact TRANS-4: The proposed project would not result in inadequate emergency access.	No mitigation is necessary.	Less than significant impact.
Section 3.13—Utilities and Service Systems		
Impact USS-1: The proposed project would not require the City of American Canyon to obtain additional water supplies in order to serve the project and reasonably	No mitigation is required.	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
foreseeable future development during normal, dry, and multiple dry years.		
Impact USS-2: The proposed project would not create a need for new or expanded wastewater collection or treatment facilities.	No mitigation is necessary.	Less than significant impact.
Impact USS-3: The proposed project would not result in a need for new or expanded off-site storm drainage facilities.	No mitigation is necessary.	Less than significant impact.
Impact USS-4: The proposed project's solid waste would not create a need for additional landfill capacity.	No mitigation is necessary.	Less than significant impact.

CHAPTER 1: INTRODUCTION

1.1 - Overview of the CEQA Process

This Draft Environmental Impact Report (Draft EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the proposed Giovannoni Logistics Center Project (proposed project) (State Clearinghouse No. 2021010104). This document is prepared in conformance with CEQA (California Public Resources Code [PRC], § 21000, *et seq*.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, § 15000, *et seq*.). This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the proposed project.

1.1.1 - Overview

The proposed project consists of the development of up to 2.4 million square feet of high-cube warehouse on 208-acre project site. Phase 1 consists of approximately 1.1 million square feet on the eastern portion of the project site. Phase 2 consist of approximately 1.3 million square feet on the western portion of the project. Approximately 45 acres of the project site would be preserved as wetlands. The applicant would also extend the Napa Valley Vine Trail along the project frontage with Devlin Road and Green Island Road. Section 2, Project Description, provides a complete description of the project.

1.1.2 - Purpose and Authority

This Draft EIR for the proposed Giovannoni Logistics Center Project is a combination of a project EIR and a program EIR. The Draft EIR provides a project-level analysis of the environmental effects of Phase 1 and programmatic analysis for Phase 2 of the Project.

The project-level analysis for Phase 1, consistent with CEQA Guidelines Section 15161, provides sufficient detail to allow for approvals of all needed approvals and permitting for, as well as construction of, Phase 1 without any need for additional environmental review, provided that future project changes or changed circumstances do not trigger the need for some sort of subsequent environmental review pursuant to CEQA Guidelines Sections 15162 through 15164 (subsequent EIR, supplement to an EIR, or addendum to an EIR).

The programmatic level of analysis for Phase 2 has been prepared pursuant to CEQA Guidelines Section 15168. Under Section 15168(c), "[l]ater activities in the program must be examined in the light of [a] program EIR to determine whether an additional environmental document must be prepared." Two general outcomes are possible: the later activity may be found to be "within the scope of the project covered by the program EIR," in which case "no new environmental document would be required;" or such a finding cannot be made and a new project-specific Mitigated Negative Declaration or EIR would be required, depending on the severity of the effects of the later activity.

Section 15168(c)(4) directs that "[w]here the later activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and

the activity to determine whether the environmental effects of the operation were within the scope of the program EIR."

Section 15168(c)(2) provides that "[i]f the agency finds that pursuant to Section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the program EIR."

For any later activity covered in whole or in part in the program EIR, "[a]n agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into later activities in the program" (CEQA Guidelines Section 15168(c)(2)).

This document addresses the potentially significant adverse environmental impacts (both project-level and programmatic) that may be associated with the planning, construction, or operation of the proposed project. It also identifies appropriate and feasible mitigation measures and alternatives that may be adopted to significantly reduce or avoid these impacts.

CEQA requires that an EIR contain, at a minimum, certain specific elements. These elements are contained in this Draft EIR and include:

- Table of Contents
- Executive Summary
- Introduction
- Project Description
- Environmental Setting, Significant Environmental Impacts, and Mitigation Measures
- Cumulative Impacts
- Significant Unavoidable Adverse Impacts
- Alternatives to the Proposed Project
- Growth-Inducing Impacts (Addressed in Chapter 6, Other CEQA Considerations)Areas of Known Controversy

1.1.3 - Lead Agency Determination

The City of American Canyon is designated as the lead agency for the project. CEQA Guidelines Section 15367 defines the lead agency as ". . . the public agency, which has the principal responsibility for carrying out or approving a project." Once the City certifies the Final EIR for the proposed project after soliciting and responding to public and agency comments on this Draft EIR, other public agencies acting as responsible agencies may use the Final EIR in their own decision-making or permit processes.

This Draft EIR was prepared by FirstCarbon Solutions (FCS), an environmental consultant. Prior to public review, it was extensively reviewed and evaluated by the City of American Canyon. This Draft EIR reflects the independent judgment and analysis of the City of American Canyon as required by

CEQA. Lists of organizations and persons consulted and the report preparation personnel are provided in Chapter 8, Persons and Organizations/List of Preparers, of this Draft EIR.

1.2 - Scope of the Draft EIR

This Draft EIR addresses the potential environmental effects of the proposed project. The City of American Canyon issued a Notice of Preparation (NOP) for the proposed project on January 12, 2021, which circulated between January 12, 2021, and February 10, 2021, for the statutory 30-day public review period. The scope of this Draft EIR includes the potential environmental impacts identified in the NOP and issues raised by agencies and the public in response to the NOP. The NOP is contained in Appendix A of this Draft EIR.

Seven comment letters were received in response to the NOP. They are listed in Table 1-1 and provided in Appendix A of this Draft EIR.

Table 1-1: NOP Comment Letter Summary

Status	Affiliation	Signatory	Date
Public Agencies	Native American Heritage Commission	Nancy Gonzalez-Lopez	January 13, 2021
	California Air Resources Board	Heather Arias, Chief, Transportation and Toxics Division	February 8, 2021
	California Department of Fish and Wildlife	Greg Erickson, Regional Manager, Bay Delta Region	February 8, 2021
	Napa County Planning, Building and Environmental Services Department	John McDowell	February 10, 2021
Private Parties	Ironworkers Local 378	Jason Lindsey, Business Representative	February 4, 2021
	Ironworkers Local 378	Jason Gallia, President/Business Agent	February 8, 2021
	Center for Biological Diversity	Ross Middlemiss, Staff Attorney; Mary Rassenfoss, Legal Fellow	February 9, 2021
Source: City of American Canyon 2021.			

1.2.1 - Scoping Meeting

Pursuant to CEQA Guidelines Section 15082(c)(1), the City of American Canyon held a virtual public scoping meeting for the proposed project on Tuesday, February 2, 2021. The meeting was recorded and is posted on the City of American Canyon's website: www.cityofamericancanyon.org.

1.2.2 - Environmental Issues Determined not to be Significant

The NOP identified topical areas that were determined not to be significant. An explanation, in compliance with CEQA Guidelines Section 15128, of the reasons why each area is determined not to

be significant is also provided in Chapter 7, Effects Found not to be Significant. These topical areas are as follows:

- Agriculture and Forest Resources
- Mineral Resources
- Population and Housing
- Recreation
- Wildfire

In addition, certain subjects with various topical areas were determined not to be significant. Other potentially significant issues are analyzed in these topical areas; however, the following issues are not analyzed:

- State Scenic Highways
- Septic or Alternative Wastewater Disposal Systems
- Exposure of Schools to Hazardous Materials
- Private Airstrips
- Emergency Response or Evacuation Plan
- Wildland Fire
- Levee or Dam Failure
- Seiches, Tsunamis, or Mudflows
- Division of an Established Community
- Schools
- Parks
- Other Public Facilities

An explanation, in compliance with CEQA Guidelines Section 15128, of the reasons why each issue is determined not to be significant is provided in Chapter 7, Effects Found Not to be Significant.

1.2.3 - Potentially Significant Environmental Issues

The NOP found that the following topical areas may contain potentially significant environmental issues that will require further analysis in the Draft EIR. These sections are as follows:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services
- Transportation
- Utility Systems

1.3 - Organization of the Draft EIR

This Draft EIR is organized into the following main sections:

- **ES: Executive Summary.** This section includes a summary of the proposed project and alternatives to be addressed in the Draft EIR. A brief description of the areas of controversy and issues to be resolved, and overview of the Mitigation Monitoring and Reporting Program (MMRP), in addition to a table that summarizes the impacts, mitigation measures, and level of significance after mitigation, are also included in this section.
- **Chapter 1: Introduction.** This chapter provides an introduction and overview describing the purpose of this Draft EIR, its scope and components, and its review and certification process.
- **Chapter 2: Project Description.** This chapter includes a detailed description of the proposed project, including its location, site, and project characteristics. A discussion of the project objectives, intended uses of the Draft EIR, responsible agencies, and approvals that are needed for the proposed project are also provided.
- **Chapter 3: Environmental Impact Analysis.** This chapter analyzes the environmental impacts of the proposed project. Impacts are organized into major topic areas. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation. The specific environmental topics that are addressed within Section 3 are as follows:
  - **Section 3.1—Aesthetics, Light and Glare:** Addresses the potential visual impacts of development intensification and the overall increase in illumination produced by the project.
  - **Section 3.2—Air Quality:** Addresses potential air quality impacts associated with project implementation and emissions of criteria pollutants. In addition, the section also evaluates project emissions of toxic air contaminants.
  - **Section 3.3—Biological Resources:** Addresses the project's potential impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and impacts on listed, proposed, and candidate threatened and endangered species.
  - **Section 3.4—Cultural and Tribal Cultural Resources:** Addresses potential impacts on historical resources, unique archaeological resources, tribal cultural resources, and burial sites.
  - **Section 3.5—Geology, Soils, and Seismicity:** Addresses the potential impacts the project may have on soils and assesses the effects of project development in relation to geologic and seismic conditions as well as paleontological resources.
  - **Section 3.6—Greenhouse Gas Emissions and Energy:** Addresses potential project impacts related to energy usage and project emissions of greenhouse gases.
  - **Section 3.7—Hazards and Hazardous Materials:** Addresses the potential for the presence of hazardous materials or conditions on the project site and in the project area that may have the potential to impact human health.
  - **Section 3.8—Hydrology and Water Quality:** Addresses the potential impacts of the project on local hydrological conditions, including drainage areas, and changes in the flow rates.
  - **Section 3.9—Land Use:** Addresses the potential land use impacts associated with division of an established community and consistency with the City of American Canyon General Plan, the American Canyon Zoning Ordinance, and the Napa County Airport Land Use Compatibility Plan.

- **Section 3.10—Noise:** Addresses the potential noise impacts during construction and at project buildout from mobile and stationary sources. The section also addresses the impact of noise generation on neighboring uses.
- **Section 3.11—Public Services:** Addresses the potential impacts upon public services, including fire protection, law enforcement, schools, parks, and recreational facilities.
- **Section 3.12—Transportation:** Addresses the impacts on the local and regional roadway system, public transportation, bicycle, and pedestrian access.
- **Section 3.13—Utilities and Services Systems:** Addresses the potential impacts upon service providers, including fire protection, law enforcement, water supply, wastewater, solid waste, and energy providers.

- **Chapter 4: Cumulative Effects.** Discusses the cumulative impacts associated with the proposed project, including the impacts of past, present, and probable future projects.
- **Chapter 5: Alternatives to the Proposed Project.** Compares the impacts of the proposed project with four project alternatives: the No Project/No Development Alternative, the No Project/Existing General Plan Alternative, the Reduced Density Alternative, and the Phase 1 Only Alternative. An environmentally superior alternative is identified. In addition, alternatives initially considered but rejected from further consideration are discussed.
- **Chapter 6: Other CEQA Considerations. Provides** a summary of significant environmental impacts, including unavoidable and growth-inducing impacts. This section discusses the cumulative impacts associated with the proposed project, including the impacts of past, present, and probable future projects. In addition, the proposed project's energy demand is discussed.
- **Chapter 7: Effects Found not to be Significant.** Contains analysis of the topical sections not addressed in Chapter 3.
- **Chapter 8: Persons and Organizations Consulted/List of Preparers.** Contains a full list of persons and organizations that were consulted during the preparation of this Draft EIR. This section also contains a full list of the authors who assisted in the preparation of the Draft EIR, by name and affiliation.
- **Appendices.** Includes all notices and other procedural documents pertinent to the Draft EIR as well as all technical material prepared to support the analysis.

1.4 - Documents Used In Preparation of the Draft EIR

This Draft EIR has referenced several technical studies, analyses, and previously certified environmental documentation. The documents and other sources that have been used in the preparation of this Draft EIR include but are not limited to:

- City of American Canyon General Plan
- American Canyon Zoning Ordinance
- Napa County Airport Land Use Compatibility Plan
- City of American Canyon Urban Water Management Plan

In accordance with CEQA Guidelines Section 15150(b), the referenced documents and other sources used in the preparation of the Draft EIR are available for review at American Canyon City Hall at the address shown in Section 1.6 or online at www.cityofamericancanyon.org.

1.5 - Documents Prepared for the Project

The following technical studies and analyses were prepared for the proposed project:

- Air Quality/Greenhouse Gas Emissions Analysis, prepared by FirstCarbon Solutions (The analysis is wholly contained in Section 3.2, Air Quality/Greenhouse Gas Emissions and supporting information is provided in Appendix B.1)
- Health Risk Assessment, prepared by FirstCarbon Solutions (Appendix B.2)
- Biological Resources Study, prepared by Huffman Broadway Group (Appendix C)
- Section 106 Cultural Resources Assessment, prepared by FirstCarbon Solutions (Appendix D)
- Geotechnical Engineering Report, prepared by Wallace Kuhl & Associates (Appendix E.1)
- Geological Fault Investigation, prepared by Cornerstone Earth Group (Appendix E.2)
- Preliminary Hydrologic and Hydraulic Modeling Memo, prepared by Balance Hydrologics (Appendix F)
- Noise Analysis, prepared by FirstCarbon Solutions (The analysis is wholly contained in Section 3.9, Noise and supporting information is provided in Appendix G)
- Traffic Impact Study, prepared by W-Trans (Appendix H)
- Water Supply Assessment, prepared by Balance Hydrologics (Appendix I.1)
- Preliminary Sanitary Sewer Sizing Calculations, prepared by CBG (Appendix I.2)

1.6 - Review of the Draft EIR

The City of American Canyon filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the Draft EIR public review period (PRC § 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review at the locations listed below and online at www.cityofamericancanyon.org.

American Canyon City Hall
Community Development Department
4381 Broadway Street, Suite 201
American Canyon, CA 94503
Hours:
Monday-Friday: 8:00 a.m.–5:00 p.m.
Saturday-Sunday: Closed

American Canyon Library
300 Crawford Way
American Canyon, CA 94503
Hours:
Monday-Friday: 1:00 p.m.–5:00 p.m.
Saturday: 10:00 a.m.–5:30 p.m.
Sunday: Closed

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Mr. Brent Cooper, AICP, Community Development Director
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
Phone: 707.647.4335
Email: bcooper@cityofamericancanyon.org

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the American Canyon Planning Commission on the project, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision-makers for the project.

CHAPTER 2: PROJECT DESCRIPTION

This Draft Environmental Impact Report (Draft EIR) analyzes the potential environmental effects of the proposed Giovannoni Logistics Center Project (proposed project) in American Canyon.

2.1 - Project Location and Setting

2.1.1 - Location

The 208-acre project site is located in the City of American Canyon, in Napa County, California; refer to Exhibit 2-1. The semi-rectangular project site is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Park and Devlin Road (north), the Napa Branch Line (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south); refer to Exhibit 2-2. The project site is located on the Cuttings Wharf, California, United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West).

2.1.2 - Existing Conditions

The project site contains undeveloped land; there are no structures on-site. Vegetation consists primarily of non-native grasslands, with seasonal wetlands and associated plant species scattered throughout the site. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park Wetland Preserve. The drainage is hydrologically connected to Fagan Slough, which flows into the Napa River. The majority of wetlands that occur throughout the site are supported by direct precipitation. Small soil mounds are located in various places throughout the site.

The West Napa Fault bisects the project site in a northwest/southeast direction. An existing 18-inch diameter force main that connects the Tower Road Pump Station with the Green Island Pump Station crosses the western portion of the project site.

The City of American Canyon owns an approximately 8-acre strip of land that bisects the site north-to-south. This strip of land would support the planned extension of Devlin Road from Middleton Way to Green Island Road, which was under construction as of Summer 2021.

Pursuant to the approval of the Napa Logistics Park Phase 2 EIR, parallel wastewater and recycled water pipelines were constructed through the project site via jack-and-bore technologies in Spring 2021. The pipelines link Napa Logistics Park to the north with the City's Water Reclamation Facility to the south.

Photographs of the project site are provided in Exhibit 2-3.

2.1.3 - Surrounding Land Uses

West

The California Northern Railroad line connecting American Canyon and Sonoma and the Biagi Brothers distribution warehouse form the western boundary of the project site.

North

Devlin Road and the Napa Logistics Park form the northern boundary of the project site. Napa Logistics Park contains more than 2 million square feet of distribution warehouses as well as a planned Pacific Gas and Electric Company (PG&E) regional operations and maintenance center. Further north is the Napa County Airport.

East

The Napa Branch Line, a railroad that connects American Canyon and Napa, forms the eastern boundary of the project site. East of the branch line are several industrial and commercial businesses that front State Route (SR) 29.

South

Green Island Road, Crown Hill Stone Supply, and the Wine Direct warehouse form the southern boundary of the project site. Further south are industrial and commercial businesses within the Green Island Business Park.

2.1.4 - Land Use Designations

The project site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial." The project site is within the boundaries of the Napa County Airport Land Use Compatibility Plan.

2.2 - Project History

2.2.1 - Giovannoni Property

Historic topographic maps indicate that the Giovannoni Property has been undeveloped since at least the early 20th Century. The property was annexed into the City of American Canyon in 2005 when the City pre-zoned the site for industrial use. It is the largest undeveloped property designated for industrial land use activities within the American Canyon city limits.

2.2.2 - Napa Logistics Park

The approximately 218-acre Napa Logistics Park property is immediately north of the Giovannoni project site and has been through several rounds of entitlements.

In 2009, Napa County approved the entitlements for Phase 1 of the Napa Logistics Park. These entitlements included a use permit, tentative parcel map, and development agreement for a 646,000-square-foot warehouse on 38 acres of the project site. In 2011, the City of American Canyon

annexed the entire Napa Logistics Park property. The Napa Logistics Park applicant completed the Phase 1 warehouse in 2016 and the building is used as an IKEA customer fulfillment center.

In 2015, the American Canyon City Council certified the Napa Logistics Park Phase 2 EIR and approved entitlements including a use permit, vesting tentative subdivision map, design permits, engineering design exceptions, and a development agreement. The EIR contemplated the development of a 2.27-million-square-foot logistics center on 173 acres of the project site.

In 2017, the Napa Logistics Park applicant requested, and the City of American Canyon approved, the extension of the term of the development agreement to 10 years. The Napa Logistics Park applicant subsequently received design permits for two warehouses (702,000 square feet and 363,000 square feet); the warehouses were developed and are tenanted by Biaggi Bros and Amazon, respectively. The final developable parcel was acquired by PG&E for the development of the Napa Regional Center, a maintenance and operations facility.

2.2.3 - Napa Airport Corporate Center

The approximately 50-acre Napa Airport Corporate Center property is northeast of the Giovannoni project site and has been through several rounds of entitlements.

In 2018, the American Canyon City Council certified the Napa Airport Corporate Center EIR (State Clearinghouse No. 2014122005) and approved entitlements including a use permit, vesting tentative subdivision map, design permits, engineering design exceptions, and a development agreement. The EIR contemplated the development of a 550,000-square-foot business park on the 50-acre project site. The EIR included an option for a fuel station/convenience store/quick serve restaurant in lieu of a warehouse on one of the parcels.

In 2017, prior to the approval of the Napa Airport Corporate Center entitlements, the Napa Vallejo Waste Management Authority (NVWMA) acquired a 15-acre parcel from the property owner. In 2020, the NVWMA Board of Directors approved the development of an enclosed Construction and Demolition Debris Recycling Facility on approximately 9 acres of the parcel. The NVWMA processed an Addendum to the Napa Airport Corporate Center EIR.

2.2.4 - Devlin Road and Napa Valley Vine Trail Extension Project

The City of American Canyon adopted a Mitigated Negative Declaration (State Clearinghouse No. 2018122031) for the Devlin Road and Napa Valley Vine Trail Extension Project on October 1, 2019. The project consisted of the extension of Devlin Road from Green Island Road to Middleton Way (Napa Logistics Park) and associated construction of the Napa Valley Vine Trail along this roadway segment. The extended roadway would have one 14-foot travel lane in each direction and a 12-foot two-way left turn lane. A roundabout would be located at the intersection of Devlin Road/Boone Road. A three-way stop would control the Devlin Road/Green Island Road intersection. The majority of the 3,084-foot segment would be located within the Giovannoni Property.

The City of American Canyon's Circulation Element contemplates the completion of Devlin Road between Green Island Road and Middleton Way (Segment H). The improvement is programmed into

the City's Traffic Impact Fee Program and Capital Improvement Program. The City has been collecting fees from new development projects to pay for Segment H and it is fully funded. The applicant previously dedicated an approximately 8-acre strip of land to the City of American Canyon for this extension. Construction began in Summer 2021.

2.2.5 - Green Island Road Reconstruction and Widening Project

The City of American Canyon adopted a Mitigated Negative Declaration (State Clearinghouse No. 2019089082) for the Green Island Road Reconstruction and Widening Project on October 1, 2019. The project consisted of improvements to a 1.86-mile segment of Green Island Road between SR-29 and a cul-de-sac and include the following:

- Addition of a two-way left turn center lane on Green Island Road (0.80 mile).
- Construction of the Napa Valley Vine Trail Class I bicycle/pedestrian path along the north side of Green Island Road.
- Installation of curb, gutter, and sidewalks at several locations along the roadway corridor.
- Improvement the structural section on the internal roads within existing curb and gutter.
- Reconstruction and improvement of the two at-grade railroad crossings.
- Relocation of existing overhead utilities to a new underground joint trench.
- Installation of light-emitting diode (LED) street lighting.

The City was awarded funding from the United States Department of Commerce Economic Development Administration to pay for the proposed improvements.

2.3 - Project Characteristics

2.3.1 - Project Summary

The applicant, Buzz Oates LLC, is proposing to develop a 2.4-million-square-foot logistics center on approximately 163 acres of the approximately 208-acre project site. The remaining 44.8 acres would be preserved as open space/wetland preserve.

The applicant has developed design-level site plans for Phase 1 of the proposed project, which includes a 94.7-acre area east of the Devlin Road extension. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. One of the buildings would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade level roll-up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

Phase 2 of the proposed project would occur on a 113.1-acre area west of Devlin Road. This area is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse. Phase 2 would commence once Phase 1 is completed. Accordingly, this environmental document evaluates Phase 1 at a project level and Phase 2 at a program level of analysis. (See Chapter 1, Introduction, and

Section 2.5 below for detailed discussions of the differences between project-level and programmatic analysis, and how the document will be used for future approvals within Phases 1 and 2.)

Table 2-1 summarizes the proposed project. Exhibit 2-4 depicts the preliminary site plan for Phase 1.

Table 2-1: Giovannoni Logistics Center Project Summary

Phase	Acres	Building/Square Feet	End Use/Characteristics
1	94.7	A/627,976	High-Cube Warehouse/36 feet clear height
		B/469,512	High-Cube Warehouse/36 feet clear height
		Subtotal: 1,097,488	–
2	113.1	1.3 million	High-Cube Warehouse/36 feet clear height
Total	**208**	**2.4 million**	–

Notes:
Total acres and square footage values are rounded up.
Source: RMW Architectural Interiors 2020.

2.3.2 - Devlin Road Extension

As previously discussed, the City of American Canyon is extending Devlin Road approximately 3,084 linear feet from Green Island Road to Middleton Way (Napa Logistics Park). The Devlin Road extension is fully funded, the environmental review process was completed in 2019, and construction began in 2021. As such, the Devlin Road extension would be completed prior to Phase 1 of the proposed Giovannoni Logistics Center Project.

The City's Sewer Master Plan contemplates a new 21-inch diameter gravity sewer line that would follow the planned extension of Devlin Road. At Green Island Road, the sewer line would continue west to the new Green Island Pump Station. Once operational, the existing 18-inch diameter force main would be abandoned, along with the Tower Road Pump Station.

The project applicant would construct the Napa Valley Vine Trail segment along the project frontage with Devlin Road frontage.

2.3.3 - Green Island Road Improvements

As previously discussed, the City of American Canyon would improve Green Island Road along the project frontage. The roadway would be widened to provide a two-way left turn lane and half width improvements would be installed along the project frontage, including the Napa Valley Vine Trail. The new Green Island Road/Devlin Road intersection would provide turn lanes. The project applicant would dedicate right-of-way to the City for the Green Island Road widening. The Green Island Road improvements are fully funded, and the environmental review process was completed in 2019. As such, the Green Island Road improvements may be completed prior to Phase 1 of the proposed Giovannoni Logistics Center Project. The project applicant would construct the Napa Valley Vine Trail segment along the project frontage with Green Island Road.

2.3.4 - Vehicular Access

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on Devlin Road. Two driveways on each road would be dedicated for truck access and the remaining two would be dedicated for passenger vehicle access. Reciprocal access would be provided between the two Phase 1 warehouses.

Vehicular access to Phase 2 would occur from both Green Island Road and Devlin Road.

2.3.5 - Parking

Off-street parking spaces for Phase 1 would include standard stalls for passenger vehicles and 55-foot-long stalls for empty truck trailers. Table 2-2 summarizes the assignment of parking spaces by building.

Table 2-2: Phase 1 Parking Summary

Building	Stalls	Notes
A	430	Includes 10 ADA stalls, 26 electric vehicular charging stalls, and nine Clean Air stalls
B	430	Includes 10 ADA stalls, 26 electric vehicular charging stalls, and nine Clean Air stalls
Total	**860**	

Notes:
ADA = Americans With Disabilities Act
Clean Air stalls intended for vanpools and electric vehicles
Source: RMW Architecture Interiors 2020.

2.3.6 - Open Space Preservation

The applicant proposes to establish an Open Space Wetland Preserve (Preserve) to conserve and manage vernal pool and other wetland and grassland resources (including foraging habitat for Swainson's hawk and other birds of prey) in perpetuity; and to offset wetland impacts associated with the proposed project, and additional wetland impacts that may occur in the future as part of the possible development of a second phase of the project (referred to herein as the "Phase 2"), as described in more detail in the Biological Resource section of the Draft EIR, below.

The preserve is proposed to consist of approximately 44.8 acres on the northern portion of the site (Section 3.3, Biological Resources, Exhibit 3.3-4). This area coincides with the portion of the project site where No Name Creek meanders and would create a contiguous open space area with approximately the adjoining 37-acre Napa Logistics Park Wetland Preserve.

The project proposes to establish a conservation easement held by a third-party conservation entity. Additionally, a resource agency approved Wetland Preserve Interim and Long-term Management Plan would be prepared and implemented, which would include monitoring, and the requirement to establish an adequate endowment fund to support in perpetuity conservation and management of the biological resources of the Preserve.

2.3.7 - Storm Drainage

The proposed project would provide 110,766 square feet (2.6 acres) of storm drainage retention on-site. A network of underground piping ranging from 12 to 48-inches in diameter would convey runoff to bioretention and detention basins in the northern portion of the property.

2.3.8 - Utilities

Water

The City of American Canyon would provide potable water and recycled water service to the proposed project. Potable and recycled water infrastructure would be installed within the Devlin Road extension. Service laterals would extend from water lines within Green Island Road and Devlin Road to project buildings.

Wastewater

The City of American Canyon would provide wastewater collection and treatment service to the proposed project. Sewer infrastructure would be installed within the Devlin Road extension. Service laterals would extend from sewer lines within Green Island Road and Devlin Road to project buildings.

Electricity and Natural Gas

Marin Clean Energy would procure, and PG&E would deliver electricity to the proposed project. PG&E would procure and deliver natural gas to the proposed project. Electric and natural gas infrastructure would be installed within the Devlin Road extension. Service laterals would extend from facilities within Green Island Road and Devlin Road to project buildings.

2.3.9 - Grading and Earthwork

Rough grading would require 139,500 cubic yards of cut and 146,900 cubic yards of fill. Utility and development spoils would require 2,000 cubic yards of cut. In total, there would be 141,500 cubic yards of cut and 146,900 cubic yards of fill. Thus, there would be a need for 5,400 cubic yards of fill to be imported to the project site.

2.3.10 - Design and Appearance

Architecture

The warehouse buildings would be of Type VB construction, site cast, tilted concrete panels with a variety of architectural enhancements. The typical wall panels would be enhanced with reveals and a textured elastomeric, multicolored coating system. The areas around the building entries would also be enhanced with tinted glazing in aluminum frames with overhead steel-framed painted canopies. The placement of these enhancements would be focused on those locations most visible from the public roadways. Exhibit 2-5 depicts the conceptual building renderings.

Landscaping

The proposed project would be landscaped using plants adapted to the City of American Canyon climate. Low-water-use plants would primarily be used, with moderate water use plants used at accent points, such as driveways and building entries. The landscape palette will not include oleander because it cannot be composted with other green waste.

2.3.11 - Sustainability Features

The proposed project would incorporate a variety of sustainable materials and construction practices including:

- A stormwater pollution prevention plan to minimize contamination, erosion, and dust pollution during construction. All stormwater runoff from impervious surfaces (roofs and paving) will be routed through a specially designed water quality detention and treatment basin. Additionally, on-site detention will be provided to meet the City of American Canyon standards.
- Storage and collection of recyclable materials.
- Construction waste management including recycling.
- Environmental tobacco smoke control.
- Heat reflecting roof membranes.
- Light pollution reduction.
- Water-efficient landscaping.
- Water use reduction methods.
- Low volatile organic compound (VOC) emitting sealants, adhesives, coatings, floorings, and wood materials.
- Roof structures designed to accommodate additional weight for roof-top photovoltaic electricity generation panel arrays.
- California Green Building Code compliant electric vehicle charging stations at seven locations.
- The application of United States Green Building Council Leadership in Energy and Environmental Design (LEED™) techniques and practices to the project design and construction.
- Covered parking for bicycles

2.3.12 - Employment

The proposed project would employ an estimated 1,200 workers during construction and an estimated 3,643 workers at buildout.

2.3.13 - Buildout Horizon

For the purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be developed concurrently over a period of 18 months.

As a practical matter, the proposed project would buildout over a period of years or decades. Phase 1 would be developed first, followed by Phase 2.

2.4 - Project Objectives and Underlying Purpose

The underlying purpose of the proposed project is to develop industrially zoned undeveloped land within the American Canyon city limits to its highest and best use.

The objectives of the proposed project are to:

1. Promote economic growth in American Canyon by attracting new industries.
2. Promote development that that generates net positive tax revenues for the City by generating more in new tax revenues than are consumed by City expenditures on services provided to the development.
3. Create new employment opportunities for residents of Napa County and the surrounding region.
4. Develop compatible land uses near the Napa County Airport in the interests of avoiding interference with aviation operations.
5. Improve American Canyon's jobs-housing ratio by adding new employment opportunities.
6. Continue the orderly development of the Devlin Road corridor with a well-designed project.
7. Further the goals and policies of the City of American Canyon General Plan by developing land contemplated to support urban development to its highest and best use.
8. Preserve the most biologically sensitive portions of the project site as open space.
9. Install circulation improvements along Green Island Road and Devlin Road that provide efficient ingress and egress to the proposed project while also ensuring these facilities operate at acceptable levels.
10. Promote public safety by incorporating security measures into the project design.
11. Mitigate impacts on the environment through implementation of feasible mitigation measures.

2.5 - Intended Uses of this Draft EIR

This Draft EIR is being prepared by the City of American Canyon to assess the potential environmental impacts that may arise in connection with actions related to implementation of the proposed project. Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15367, the City of American Canyon is the lead agency for the proposed project and has discretionary

authority over the proposed project and project approvals. The Draft EIR is intended to address all future development and public infrastructure improvements that are within the parameters of the proposed project.

This Draft EIR is a combination of a project EIR and a program EIR. The Draft EIR provides a project-level analysis of the environmental effects of Phase 1 and programmatic analysis for Phase 2 of the Project.

The project-level analysis for Phase 1, consistent with CEQA Guidelines Section 15161, provides sufficient detail to allow for approvals of all needed approvals and permitting for, as well as construction of, Phase 1 without any need for additional environmental review, provided that future project changes or changed circumstances do not trigger the need for some sort of subsequent environmental review pursuant to CEQA Guidelines Sections 15162 through 15164 (subsequent EIR, supplement to an EIR, or addendum to an EIR).

The programmatic level of analysis for Phase 2 has been prepared pursuant to CEQA Guidelines Section 15168. Under Section 15168(c), "[l]ater activities in the program must be examined in the light of [a] program EIR to determine whether an additional environmental document must be prepared." Two general outcomes are possible: the later activity may be found to be "within the scope of the project covered by the program EIR," in which case "no new environmental document would be required;" or such a finding cannot be made, and a new project-specific Mitigated Negative Declaration or EIR would be required, depending on the severity of the effects of the later activity.

Section 15168(c)(4) directs that "[w]here the later activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were within the scope of the program EIR."

Section 15168(c)(2) provides that "[i]f the agency finds that pursuant to Section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the program EIR."

For any later activity covered in whole or in part in the program EIR, "[a]n agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into later activities in the program" (CEQA Guidelines § 15168(c)(2)).

2.5.1 - Discretionary and Ministerial Actions

Discretionary approvals and permits are required by the City of American Canyon for implementation of the proposed project. The project application would require the following discretionary approvals and actions, including:

- Use Permit
- Tentative Parcel Map
- Design Permits
- Lot Line Adjustment

Subsequent ministerial actions would be required for the implementation of the proposed project, including issuance of grading and building permits.

2.5.2 - Responsible and Trustee Agencies

Several other agencies in addition to the City of American Canyon will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of project implementation. These agencies or parties may include, but are not limited to, the following:

- California Department of Fish and Wildlife (CDFW)
- California Department of Transportation (Caltrans)
- California Public Utilities Commission
- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- Napa County Airport Land Use Commission (ALUC)
- County of Napa
- Napa Valley Transportation Authority/Napa Valley Vine Trail Coalition

Actions that are necessary to implement the project that may be taken by other agencies are:

- Land Use Compatibility Review (ALUC)
- Issuance of Section 1602 Lake and Streambed Alteration Agreement (CDFW)
- Issuance of Section 401 Water Quality Certification (RWQCB)
- Issuance of Encroachment Permit (Caltrans and City of American Canyon)
- Approval of General Order 33-B (California Public Utilities Commission)

This document may also be used by United States Army Corps of Engineers (USACE), to facilitate its compliance with the National Environmental Policy Act (NEPA) in connection with the 404 Permit required for the proposed project under the federal Clean Water Act.

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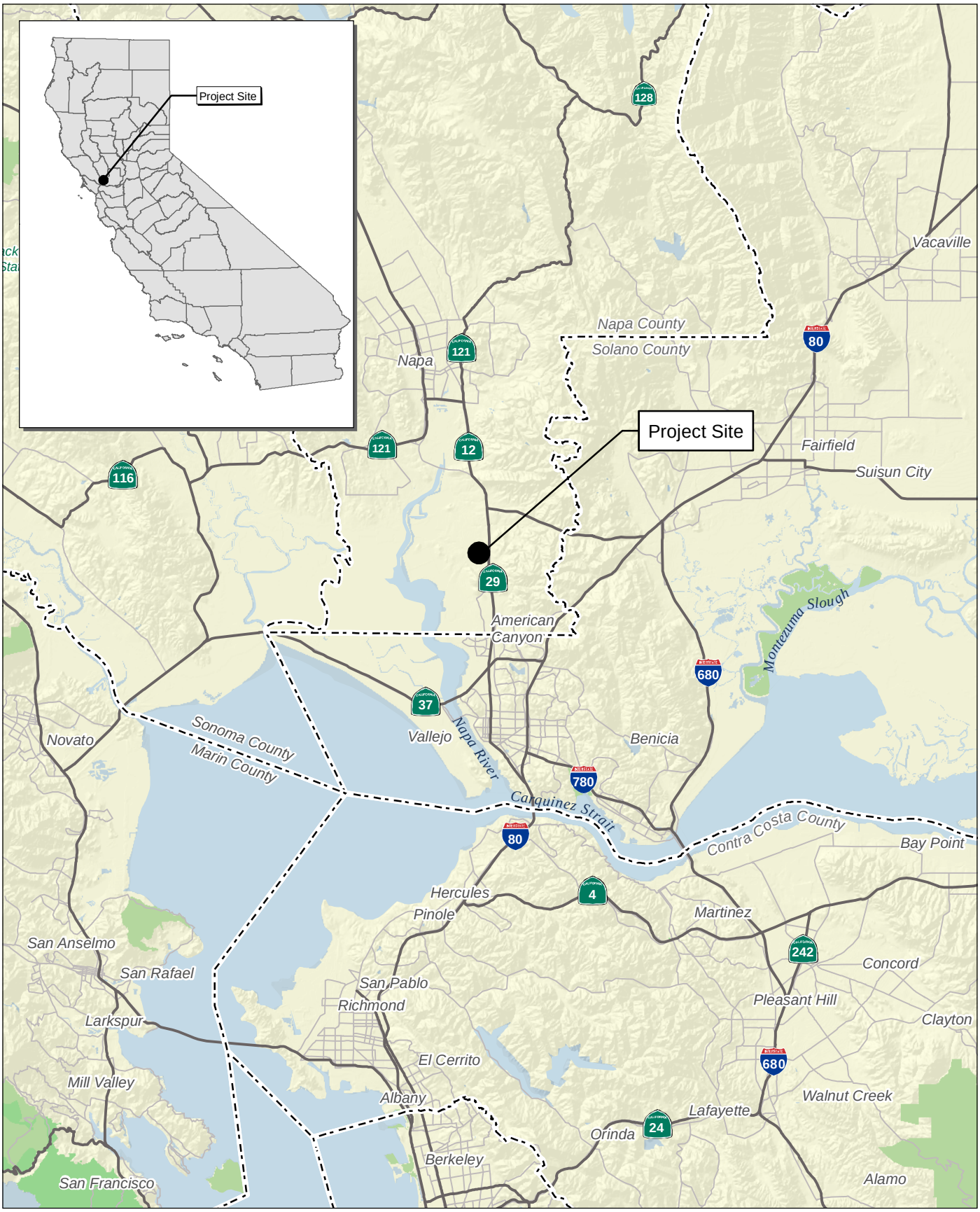

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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Exhibit 2-1
Regional Location Map

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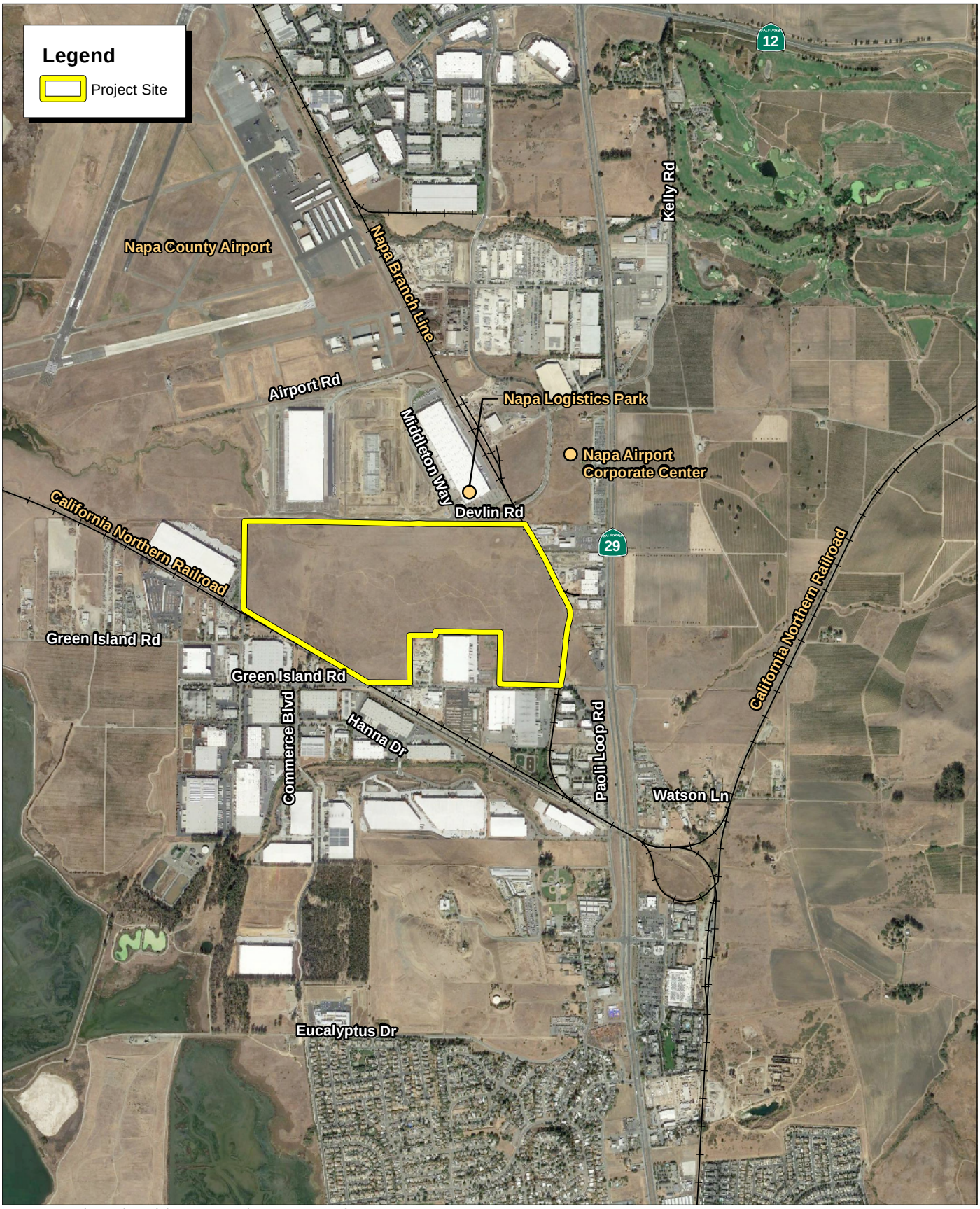

Source: Google Earth Aerial Imagery, 10/2020. County of Napa.

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2,000 1,000 0 2,000 Feet

Exhibit 2-2
Local Vicinity Map

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Photograph 1: View of Phase 1 (eastern) portion of project site.

Photograph 2: View of Phase 2 (western) portion of project site.

Photograph 3: View of the under construction segment of Devlin Road.

Source: FirstCarbon Solutions, 2021.

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Exhibit 2-3
Site Photographs

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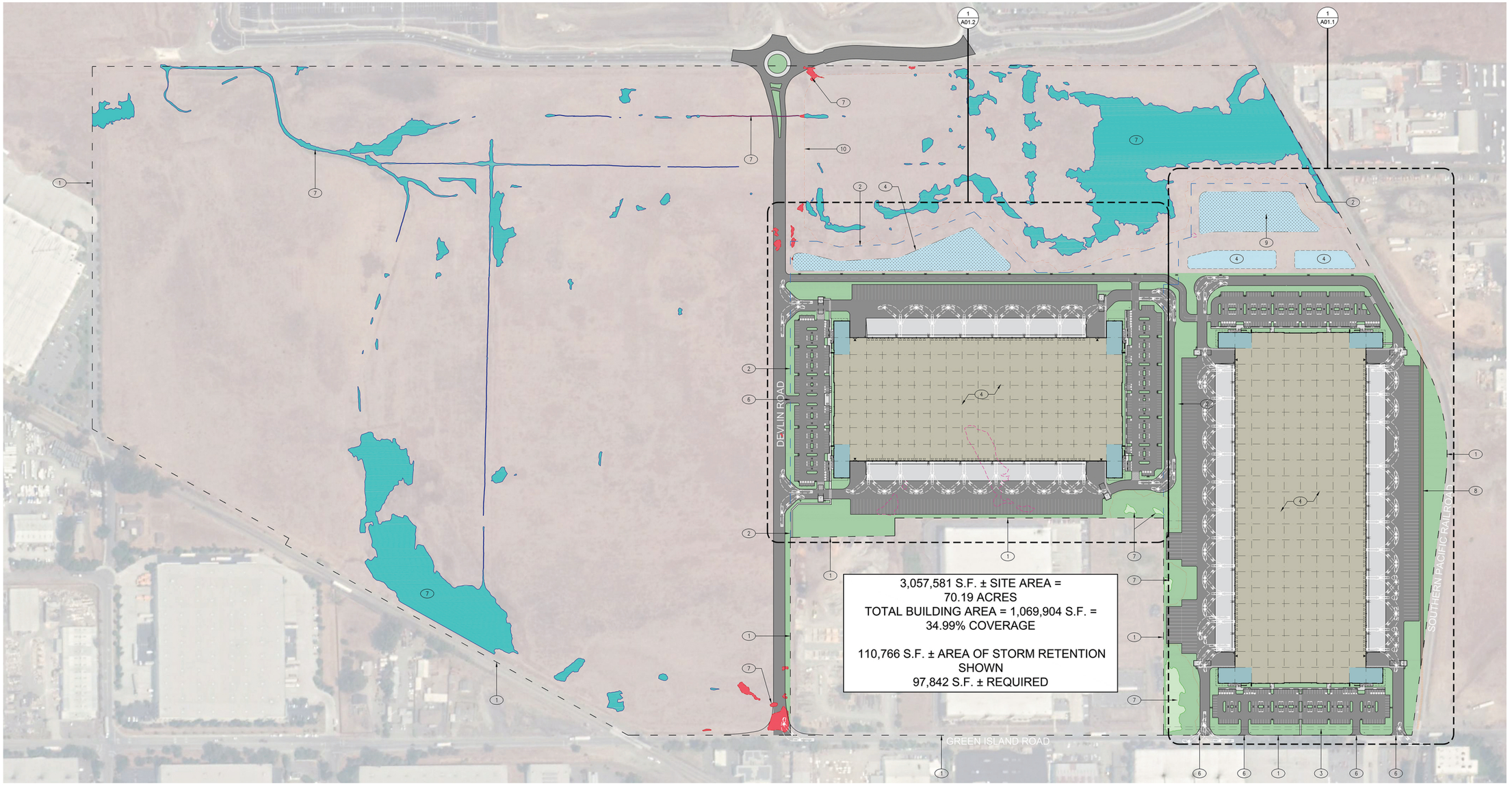

Source: RMW Architecture Interiors, 11/11/2020.

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Exhibit 2-4
Preliminary Site Plan – Phase 1

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BUILDING B

BUILDING A

BUILDING B

BUILDING A

Source: RMW Architecture Interiors, 11/11/2020.

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Exhibit 2-5
Conceptual Renderings

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CHAPTER 3: ENVIRONMENTAL IMPACT ANALYSIS

Organization of Issue Areas

This Draft Environmental Impact Report (Draft EIR) provides analysis of impacts for those environmental topics where it was determined in the Notice of Preparation, or through subsequent analysis, that the proposed project would result in "potentially significant impacts." Sections 3.1 through 3.13 discuss the environmental impacts that may result with approval and implementation of the proposed project.

Issues Addressed in this Draft EIR

The following environmental issues are addressed in Chapter 3:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services
- Transportation
- Utilities and Service Systems

Level of Significance

Determining the severity of project impacts is fundamental to achieving the objectives of the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15091 requires that decision-makers mitigate, as completely as is feasible, the significant impacts identified in the Final EIR. If the EIR identifies any significant unmitigated impacts, CEQA Guidelines Section 15093 requires decision-makers, approving a project, to adopt a statement of overriding considerations that explains why the benefits of the proposed project outweigh the adverse environmental consequences identified in the EIR.

The level of significance for each impact examined in this Draft EIR was determined by considering the predicted magnitude of the impact against the applicable threshold. Thresholds were developed using criteria from the CEQA Guidelines and checklist; State, federal, and local regulatory schemes; local/regional plans and ordinances; accepted practice; consultation with recognized experts; and other professional opinions.

Impact Analysis and Mitigation Measure Format

The format adopted in this EIR to present the evaluation of impacts is described and illustrated below.

Summary Heading of Impact

Impact AES-1:	**An impact summary heading appears immediately preceding the impact description (Summary Heading of Impact in this example). The impact number identifies the section of the report (AES for Aesthetics, Light, and Glare in this example) and the sequential order of the impact (1 in this example) within that section. To the right of the impact number is the impact statement, which identifies the potential impact.**

Impact Analysis

A narrative analysis follows the impact statement.

Level of Significance Before Mitigation

This section identifies the level of significance of the impact before any mitigation is proposed.

Mitigation Measures

In some cases, following the impact discussion, reference is made to state and federal regulations and agency policies that would fully or partially mitigate the impact. In addition, policies and programs from applicable local land use plans that partially or fully mitigate the impact may be cited.

Project-specific mitigation measures, beyond those contained in other documents, are set off with a summary heading and described using the format presented below:

MM AES-1 Project-specific mitigation is identified that would reduce the impact to the lowest degree feasible. The mitigation number links the particular mitigation to the impact it is associated with (AES-1 in this example); mitigation measures are numbered sequentially.

Level of Significance After Mitigation

This section identifies and explains the resulting level of significance of the impact following mitigation.

Abbreviations used in the mitigation measure numbering are:

Code	Environmental Issue
AES	Aesthetics, Light, and Glare
AIR	Air Quality
BIO	Biological Resources
CUL	Cultural and Tribal Cultural Resources
GEO	Geology, Soils, and Seismicity

Code	Environmental Issue
GHG	Greenhouse Gas Emissions and Energy
HAZ	Hazards and Hazardous Materials
HYD	Hydrology and Water Quality
LU	Land Use
NOI	Noise
PSU	Public Services
TRANS	Transportation
USS	Utilities and Service Systems

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3.1 - Aesthetics, Light, and Glare

3.1.1 - Introduction

This section describes the existing aesthetics, light, and glare setting and potential effects from project implementation on visual resources and the site and its surroundings. Descriptions and analysis in this section are based on-site reconnaissance by FirstCarbon Solutions (FCS), as well as review of the City of American Canyon General Plan.

3.1.2 - Environmental Setting

Visual Character

Regional Setting

American Canyon, population 20,837, is located in southern Napa County between the east bank of the Napa River and the Sulfur Springs Mountains foothills. State Route (SR) 29—known locally as Broadway Street—bisects the City from north to south and serves as the primary commercial corridor. Residential uses are generally located in the southern portion of the City, with commercial and industrial uses located in the northern portion near the Napa County Airport. American Canyon is characterized by a contemporary, low-rise, suburban appearance, with most development having occurred within the last 40 years.

Project Site

The approximately 208-acre project site contains undeveloped land. There are no structures on-site. Vegetation consists of grasses and weeds. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park wetland preserve. Small soil mounds are located in various places throughout the site.

The City of American Canyon owns an approximately 8-acre strip of land that bisects the site north to south. This strip of land would support the planned extension of Devlin Road from Middleton Way to Green Island Road, which was under construction as of Summer 2021.

Chapter 2, Project Description, Exhibit 2-3 provides site photographs.

Surrounding Land Uses

West

The California Northern Railroad line, connecting American Canyon and Sonoma, and the Biagi Brothers distribution warehouse form the western boundary of the project site. The project site has unobstructed views of the railroad tracks and warehouse.

North

Devlin Road and the Napa Logistics Park form the northern boundary of the project site. Napa Logistics Park contains more than 2 million square feet of distribution warehouses as well as a planned Pacific Gas and Electric Company (PG&E) regional operations and maintenance center.

Further north is the Napa County Airport. The project site has unobstructed views of Napa Logistics Park and partial views of the airport.

East

The Napa Branch Line, a railroad that connects American Canyon and Napa, forms the eastern boundary of the project site. East of the branch line are several industrial and commercial businesses that front SR-29. The project site has unobstructed views of the railroad tracks and the businesses that front SR-29.

South

Green Island Road, Crown Hill Stone Supply, and the Wine Direct Warehouse form the southern boundary of the project site. Further south are industrial and commercial businesses in the Green Island Business Park. The project site has unobstructed views of the businesses along the road.

Light and Glare

The project site does not currently contain any sources of light and glare. Parking lot lights that employ full cut-off fixtures are present at the adjoining Wine Direct Warehouse along Green Island Road. Surrounding developed land uses including the Napa Logistics Park, the Wine Direct Warehouse, and the Biagi Brothers distribution warehouse have exterior lighting for safety and security purposes.

3.1.3 - Regulatory Framework

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following goals, objectives, and policies relevant to aesthetics, light, and glare:

Goal 1B Provide for the orderly development of American Canyon that maintains its distinctive character.

Goal 1C Create a pattern and character of land use development that establishes American Canyon as a distinct “place” differentiated from adjacent urban areas, maintains a semi-rural character, and respects the environmental setting.

Objective 1.4 Provide for a pattern of development that (a) establishes distinct neighborhoods, districts, places of community activity and culture and open spaces that are interlinked and promote a cohesive image, (b) locates jobs, commerce, recreation, and other places of community activity within close proximity to all housing units, minimizing the need for vehicular use, (c) achieves a balance of uses to serve both sides of Highway 29, and (d) establishes an overall compact urban form surrounded by open space.

Objective 1.5 Maintain the character and quality of the natural environmental resources of the City and protect the population and development from the adverse impacts of environmental hazards.

Policy 1.22.4 Require that development be designed to achieve a high level of quality and compatibility with existing uses including the consideration of the following:

a. Architectural treatment of all building elevations;
b. Use of extensive landscape along the primary street frontages and parking lots; and
c. Enclosure of storage areas visible from principal highways (including Highway 29) and peripheral residential and commercial districts with decorative screening or other elements.

Policy 1.22.5 Require that industrial areas developed as research and development and office-oriented business parks be designed to convey a unified character by consideration of Policy 1.22.4 and the following:

a. Inclusion of pedestrian walkways, arcades, and/or other visual elements to interconnect individual buildings;
b. Differentiation of building facades by materials, color, architectural details and modulation of building volumes;
c. Incorporation of extensive landscape in parking areas, along building frontages, and other public areas;
d. Use of consistent and well-designed public and informational signage; and
e. Installation of elements that define the key entries to the industrial district.

3.1.4 - Methodology

FCS evaluated potential aesthetics, light, and glare impacts through site reconnaissance conducted in February 2021, as well as review of the City of American Canyon General Plan and project plans.

3.1.5 - Thresholds of Significance

Appendix G to the California Environmental Quality Act (CEQA) Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts to aesthetics are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect related to aesthetics if the proposed project would:

a) Have a substantial adverse effect on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. (Refer to Section 7, Effects Found not to be Significant.)

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point).

d) In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.

e) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.1.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Scenic Vistas

Impact AES-1:	**The proposed project would not have a substantial adverse effect on a scenic vista.**

Impact Analysis

Phases 1 and 2

The approximately 208-acre project site contains undeveloped land. There are no structures on-site. Vegetation consists of grasses and weeds. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park wetland preserve. Small soil mounds are located in various places throughout the site.

A scenic vista is defined as a viewing point that provides expansive views of a highly valued landscape available to the general public. Scenic resources are defined as those landscape patterns and features that are visually or aesthetically pleasing and that, therefore, contribute positively and define a distinct community or region. Neither the City of American Canyon nor the Napa County General Plan identifies the project site as a scenic vista or scenic resource. Additionally, the project site does not contain any scenic vistas or features associated with scenic vistas (e.g., ridgelines, peaks, overlooks), nor are any such views visible from the project site.

The project site is located in a portion of the City of American Canyon that is generally not visible from park and recreational areas, community gathering facilities, or residential areas. There are no prominent long-distance views of the project site, and, as such, the proposed project would not have the potential to obstruct views from high vantage points or sensitive viewpoints of the City.

In summary, the proposed project would not adversely affect views to or from a scenic vista. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Visual Character

Impact AES-2:	**The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings.**

Impact Analysis

The approximately 208-acre project site contains undeveloped land. There are no structures on-site. Vegetation consists of grasses and weeds. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park wetland preserve. Small soil mounds are located in various places throughout the site.

The project vicinity includes Napa Logistics Park, the Green Island Business Park, two railroad lines, and the Napa County Airport. Generally, the project vicinity can be characterized as an active, contemporary industrial area.

Phase 1

Phase 1 consists of the development of 1,069,904 square feet of high-cube warehouse on 94.7 acres of the eastern portion of the project site. Two warehouse buildings would be developed (627,976 square feet and 469,512 square feet). The larger building would be rail-served by the adjacent Napa Branch Line. Both buildings would provide docks, grade-level roll-up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter.

The high-cube warehouse buildings would be of Type VB construction, site cast, tilted concrete panels with a variety of architectural enhancements. The typical wall panels would be enhanced with reveals and a textured elastomeric, multicolored coating system. The roof would support mechanical equipment for the heating, ventilation, and air conditioning (HVAC) system screened with a roof parapet and/or with roof screens equal in height to the mechanical equipment. The areas around the building entries would also be enhanced with tinted glazing in aluminum frames with overhead steel-framed painted canopies. The placement of these enhancements would be focused at those locations most visible from the public roadways. Chapter 2, Project Description, Exhibit 2-5 depicts the building renderings.

The Phase 1 warehouses would be similar in appearance to the structures in the neighboring Napa Logistics Park and the Green Island Business Park.

Additionally, a 44.8-acre open space area containing No Name Creek and wetlands would be permanently preserved within the northern portion of the site. These are the most significant aesthetic features on the project site.

Phase 2

Phase 2 would support up to 1.3 million square feet of high-cube warehouse on 113.1 acres of the western portion of the project site. Phase 2 is conceptual and no design-level plans have been prepared at the time of this writing. It would be expected that the Phase 2 buildings would be similar in appearance to the Phase 1 buildings.

Conclusion

Although the development of the proposed project would fundamentally and irreversibly change the visual character of the project site, it would be compatible with surrounding uses and consistent with the City of American Canyon General Plan land use designation of "Industrial" for the project site. Therefore, the proposed project would not substantially degrade the visual quality of the project area or its surroundings, and the impact related to changed character would be considered less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Light and Glare

Impact AES-3:	**The proposed project may create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

Impact Analysis

Phases 1 and 2

The project site does not currently contain any sources of light and glare. Parking lot lights that employ full cut-off fixtures are present in the adjoining Wine Direct Warehouse along Green Island Road. Nearby developed land uses, including Napa Logistics Park and the industrial uses south of Green Island Road, have exterior lighting for safety and security purposes.

The development of the proposed project would result in the installation of new sources of light and glare on the project site. These new sources of light include additional street lighting along internal roadways, building-mounted light fixtures, and pole-mounted light fixtures within parking areas. Additionally, illuminated signage may be employed. Mitigation Measure (MM) AES-3 requires the project applicant to prepare and submit a photometric plan to the City of American Canyon for review and approval to demonstrate that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations

at the Napa County Airport. Downward-directed lighting and full cut-off fixtures would prevent the trespass of light and glare onto neighboring properties or conflict with aviation operations. With the implementation of this mitigation measure, potential light and glare impacts would be reduced to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM AES-3 Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.

Level of Significance After Mitigation

Less than significant impact.

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3.2 - Air Quality

3.2.1 - Introduction

This section describes existing air quality conditions regionally and locally as well as the relevant regulatory framework. This section also evaluates the possible impacts related to air quality that could result from the implementation of the project. The information included in this section is based on project-specific air quality modeling results utilizing California Emissions Estimator Model (CalEEMod) Version 2020.4.0, the American Meteorological Society (AMS)/United States Environmental Protection Agency (EPA) Regulatory Model (AERMOD) air dispersion model (Version 21112). Complete modeling output is provided in Appendix B. The following comments related to Air Quality were received during the Notice of Preparation (NOP) scoping period:

- The Environmental Impact Report (EIR) should carefully assess and mitigate the proposed project's impacts on air quality.
- Because of the proposed project's proximity to residences and schools already disproportionately burdened by multiple sources of air pollution, the EIR should address the potential cumulative health impacts associated with the construction and operation of the proposed project.
- The EIR should specifically quantify and discuss the potential cancer risks from on-site Transport Refrigeration Units.

3.2.2 - Environmental Setting

Regional Geography and Climate

The City of American Canyon is located within the San Francisco Bay Area Air Basin (Air Basin or SFBAAB). The Air Basin is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County. The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by mild, dry summers and mild, moderately wet winters, moderate daytime onshore breezes, and moderate humidity.

A semi-permanent, high-pressure area centered over the northeastern Pacific Ocean dominates the summer climate of the West Coast. Because this high-pressure cell is persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along the coast of California during summer are a northwest airflow and negligible precipitation. A thermal low-pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific High (a high-pressure cell) exerts stress on the ocean surface along the West Coast. This airflow pattern induces upwelling of cold water from below the surface. Upwelling produces a band of cold water off San Francisco that is approximately 80 miles wide. During July, the surface waters off San Francisco are 3°F (degrees Fahrenheit) cooler than those off Vancouver, British Columbia, more than 900 miles to the north. Air

approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific Ocean, is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce condensation, creating a high incidence of fog and stratus clouds along the Northern California coast in summer.

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the gap in the western Coast Ranges, known as the Golden Gate,[1] and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream, producing southwest winds at Berkeley and northwest winds at San José; a branch also curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Golden Gate, the Carquinez Strait, or San Bruno Gap. For example, the average wind speed at San Francisco International Airport from 3:00 a.m. to 4:00 p.m. in July is about 20 miles per hour (mph), compared with only about 8 mph at San José and less than 7 mph at the Farallon Islands.

The sea breeze between the coast and the Central Valley[2] commences near the surface along the coast in late morning or early afternoon; it may first be observed only through the Golden Gate. Later in the day, the layer deepens and intensifies while spreading inland. As the breeze intensifies and deepens, it flows over the lower hills farther south along the peninsula. This process frequently can be observed as a bank of stratus clouds "rolling over" the coastal hills on the west side of the Bay. The depth of the sea breeze depends in large part upon the height and strength of the inversion. The generally low elevation of this stable layer of air prevents marine air from flowing over the coastal hills. It is unusual for the summer sea breeze to flow over terrain exceeding 2,000 feet in elevation.

In winter, the SFBAAB experiences periods of storminess, moderate-to-strong winds, and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon, and otherwise light and variable winds.

A primary factor in air quality is the mixing depth (the vertical air column available for diluting contaminant sources). Generally, the air temperature decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation caused by the sun converting large amounts of energy to sensible heat at the ground, which warms the air at the surface. The warm air rises in the atmosphere, where it expands and cools. Sometimes, however, the temperature of air increases with height. This condition is known as a temperature inversion because the atmosphere's temperature profile is "inverted" from its usual state. Over the SFBAAB, the frequent occurrence of temperature inversions limits mixing depth and, consequently, limits the availability of air for dilution.

[1] A strait on the West Coast of North America that connects the San Francisco Bay to the Pacific Ocean.

[2] A flat valley that dominates the geographical center of California stretching 450 miles from north-northwest to south-southeast, inland from and parallel to the Pacific Ocean coast. It is bound by the Sierra Nevada to the east and the Coast Range to the west.

Air Pollutant Types, Sources, and Effects

Criteria Air Pollutants

Air pollutants are termed criteria air pollutants if they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Table 3.2-1 provides a summary of the types, sources, and effects of criteria air pollutants.

Table 3.2-1: Description of Criteria Pollutants of National and California Concern

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO_X), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).	Irritate respiratory system; reduce lung function; change breathing pattern; reduce breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; induce some immunological changes; increase mortality risk; damage to vegetation and property.
Particulate matter (PM_{10}) Particulate matter ($PM_{2.5}$)	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (one micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Suspended particulate matter sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; the use of metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Nitrogen dioxide (NO_2)	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5).	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related small particles and can result in PM-related health effects.	dioxide forms quickly from NO_X emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.	biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.
Carbon monoxide (CO)	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential woodburning, and natural sources.	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.
Sulfur dioxide (SO_2)	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 parts per million (ppm), the gas has a strong odor similar to rotten eggs. Sulfur oxides (SO_X) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below State and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human-caused sources include fossil fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded State or federal	Lead ore crushing, lead ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment,

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	standards at any monitoring station since 1982.	from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	learning deficiencies, and low IQs.

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Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of air quality conditions. TACs are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness or pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at very low concentrations. TACs can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches). For TACs that may cause

cancer, all concentrations present some risk. In other words, there is no threshold level below which some adverse health impacts are not expected to occur. This contrasts with the criteria pollutants such as nitrogen dioxide and carbon dioxide for which acceptable levels of exposure can be determined. The State and federal governments set ambient air quality standards.

TACs are separated into carcinogens and noncarcinogens based on the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals over a lifetime exposure or other prolonged duration. There is generally an assumed safe level of exposure for noncarcinogenic substances below which no negative health impact is believed to occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure level (REL).

To date, the California Air Resources Board (ARB) has designated nearly 200 compounds as TACs. The ARB has implemented control measures for several compounds that pose high risks and show potential for effective control. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being diesel particulate matter (DPM) from diesel-fueled engines. Common TACs of national and California concern include DPM, reactive organic gases (ROG), benzene, asbestos, hydrogen sulfide, sulfates, visibility-reducing particulates, vinyl chloride, and lead. Table 3.2-2 provides a summary of the types, sources, and effects of TACs.

Table 3.2-2: Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Diesel particulate matter (DPM)	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total PM mass, which consists of compounds such as hydrocarbons and their derivatives and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient PM pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.	Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
VOCs	ROGs, or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.	Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as TACs.
Benzene	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at one to 2 percent by volume. The primary route of human exposure is through inhalation.	Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.
Asbestos	Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties, such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of	Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained	Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	asbestos are chrysotile, amosite, and crocidolite.	in buildings in the United States.	during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.
Hydrogen Sulfide	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.
Sulfates	Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.	Sulfates can cause a decrease in ventilatory function, aggravation of asthmatic symptoms; and aggravation of cardio-pulmonary disease, as well as vegetation damage, degradation of visibility, property damage.
Visibility-Reducing Particles	Suspended PM is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; the use of metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure can result in reduced lung function, chronic bronchitis, changes in lung morphology, and death.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
		recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	
Vinyl Chloride	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, the California Air Resources Board (ARB) identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded State or federal standards at any monitoring station since 1982.	Lead ore crushing, lead ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure

Sources:
California Air Resources Board (ARB). 2021. Vinyl Chloride and Health. Website: https://ww2.arb.ca.gov/resources/vinyl-chloride-and-health. Accessed July 20, 2021.

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United States Environmental Protection Agency (EPA). 2016. Nitrogen Dioxide (NO_2) Pollution. Basic Information about NO_2. Website: https://www.epa.gov/no2-pollution/basic-information-about-no2#What%20is%20NO2. Accessed July 20, 2021.

Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

Regional Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the regional agency regulating air quality within the nine-county SFBAAB. The SFBAAB includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the western portion of Solano County, and the southern portion of Sonoma County.

Air Pollutant Standards and Attainment Designations

Air pollutant standards have been adopted by the EPA and the ARB for the following six criteria air pollutants that affect ambient air quality: ozone, NO_2, CO, SO_2, lead, and particulate matter (PM), which is subdivided into two classes based on particle size: PM with aerodynamic diameters equal to or less than 10 microns (PM_{10}), and PM with aerodynamic diameters equal to or less than 2.5 microns ($PM_{2.5}$). These air pollutants are called “criteria air pollutants” because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. California has also established standards for TACs such as visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3.2-3 presents the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for these aforementioned air pollutants. Note that there are no State or federal ambient air quality standards for ROGs, benzene, or DPM.

Table 3.2-3: Federal and State Air Quality Standards in the SFBAAB

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]
Ozone	1 Hour	0.09 ppm	—
	8 Hour	0.070 ppm	0.070 ppm[f]
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm
	Annual	0.030 ppm	0.053 ppm
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm
	8 Hour	9.0 ppm	9 ppm
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm
	3 Hour	—	0.5 ppm
	24 Hour	0.04 ppm	0.14 (for certain areas)
	Annual	—	0.030 ppm (for certain areas)
Lead[e]	30-day	1.5 µg/m^3	—
	Quarter	—	1.5 µg/m^3
	Rolling 3-month average	—	0.15 µg/m^3
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3
	Mean	20 µg/m^3	—
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3
	Annual	12 µg/m^3	12.0 µg/m^3
Visibility-reducing particles	8 Hour	See note below[d]	
Sulfates	24 Hour	25 µg/m^3	—
Hydrogen sulfide	1 Hour	0.03 ppm	—
Vinyl chloride[e]	24 Hour	0.01 ppm	—

Notes:
ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean
30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3-Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour nitrogen dioxide national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 part per billion (ppb). The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility-reducing particles: In 1989, the ARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]

[e] The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for implementing control measures at levels below the ambient concentrations specified for these pollutants.

[f] The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015, and became effective on December 28, 2015.

Source: California Air Resources Board (ARB). 2016. Ambient Air Quality Standards. May 4. Website: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed May 18, 2021.

Air quality monitoring stations operated by the ARB and BAAQMD measure ambient air pollutant concentrations in the SFBAAB. In general, the SFBAAB experiences low concentrations of most pollutants compared to federal or State standards.

Both the EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. These designations identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. "Attainment" status refers to those regions that are meeting federal and/or State standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or State standards for a specified criteria pollutant. "Unclassified" refers to regions with insufficient data to determine the region's attainment status for a specified criteria air pollutant. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the 3-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

Table 3.2-4 shows the current attainment designations for the SFBAAB. The SFBAAB is designated as nonattainment for the State ozone, PM_{10}, and $PM_{2.5}$, standards and the national ozone and $PM_{2.5}$ standards.

Table 3.2-4: San Francisco Bay Area Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	N/A
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
Sulfates	Attainment	N/A
Hydrogen Sulfates	Unclassified	N/A

Pollutant	State Status	National Status
Visibility-reducing Particles	Unclassified	N/A
Lead	N/A	Attainment
Notes: N/A = information not available. Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. January 5. Website: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed May 18, 2021.		

Air Quality Index

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest comparison is to the State and federal ozone standards. If concentrations are below the standard, it is safe to say that no health impact would occur to anyone. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3.2-5 provides a general description of the health impacts of ozone at different concentrations.

Table 3.2-5: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—0–50—Good	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 0–54 ppb	**Health Effects Statements**: None.
	Cautionary Statements: None.
AQI—51–100—Moderate	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 55–70 ppb	**Health Effects Statements**: Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI—101–150—Unhealthy for Sensitive Groups	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
Concentration 71–85 ppb	**Health Effects Statements**: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults, and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—151–200—Unhealthy Concentration 86–105 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI—201–300—Very Unhealthy Concentration 106–200 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. N.d. AQI Calculator: AQI to Concentration Calculator. Website: https://www.airnow.gov/aqi/aqi-calculator. Accessed May 18, 2021.	

Local Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. The air quality monitoring station closest to the project site is the Napa Valley College Air Monitoring Station, located approximately 5.5 miles north of the project site. Table 3.2-6 summarizes the recorded ambient air data at the representative monitoring stations for the years 2017 through 2019, which is the most current data available at the time of this analysis. As the Napa Valley College Air Monitoring Station does not have recorded data for 2017, the next closest monitoring station, Vallejo-304 Tuolumne Street Monitoring Station, approximately 6.5 miles south of the project site, was selected to identify the region's air quality in 2017. As Table 3.2-6 shows, the recorded data show exceedances of the California standards for ozone (1-hour and 8-hour) and PM_{10}, and national standards for 8-hour ozone, $PM_{2.5}$, and $PM_{10,}$ on multiple occasions from 2017 to 2019. No exceedances of either the State or national standards were recorded for CO, NO_2, or SO_2. No recent monitoring data for Napa County or the SFBAAB was available for CO or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 3.2-6: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2017	2018	2019
Ozone[1]	1 Hour	Max 1 Hour (ppm)	**0.105**	0.083	**0.095**
		Days > State Standard (0.09 ppm)	**1**	0	**1**
	8 Hour	Max 8 Hour (ppm)	**0.089**	0.068	**0.076**
		Days > State Standard (0.07 ppm)	**2**	0	**2**
		Days > National Standard (0.070 ppm)[2]	**2**	0	**2**
CO	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
NO_2[1]	Annual	Annual Average (ppm)	0.008	ND	0.001
	1 Hour	Max 1 Hour (ppm)	0.049	0.040	0.040
		Days > State Standard (0.18 ppm)	0	0	0
SO_2	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	11.5	12.7	13.5
	24 Hour	Max 24 Hour (µg/m^3)	ND	26.0	39.0
		Days > State Standard (50 µg/m^3)	ND	ND	ND
		Days > National Standard (150 µg/m^3)	ND	ND	0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	11.7	ND	6
	24 Hour	24 Hour (µg/m^3)	**101.9**	**117.9**	21.5
		Days > National Standard (35 µg/m^3)	**9**	ND	0

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
(1) San Pablo-Rumrill Boulevard
(2) On October 1, 2015, the EPA strengthened the NAAQS for ground-level ozone to 70 parts per million through the adoption of a new standard. The Final Rule went into effect on December 28, 2015.
Source: California Air Resources Board (ARB). 2018. iADAM: Top 4 Summary. Website: https://www.arb.ca.gov/adam/select8/sc8start.php. Accessed July 29, 2021.

Sensitive Receptors

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others are. Land uses such as residences, schools, day

care centers, hospitals, nursing and convalescent homes, and parks are considered the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would receive exposure to air pollution 24 hours per day, 350 days per year, for 70 years. BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities.

Project Vicinity

The closest off-site air pollution sensitive receptors near the project site in each direction include the following:

- A single-family residence approximately 200 feet southwest of the project site.
- A single-family residence approximately 3,150 feet west of the project site.
- A residential neighborhood approximately 2,510 feet south of the project site.
- A single-family residence approximately 1,790 feet east of the project site.
- A single-family residence approximately 1,860 feet northeast of the project site.
- Calvary Baptist Christian Academy approximately 4,040 feet south of the project site.

Project Site

The project site is vacant and no sensitive receptors currently exist on the project site.

Existing Emission Sources

Project Vicinity

The primary sources of air pollutants (both criteria air pollutant and TACs) in the project site vicinity include the various other surrounding industrial properties, building-related energy use, and motor-related vehicle trips associated with the local business use, particularly on State Route (SR) 29. The project site is located approximately 660 feet west of SR-29 and approximately 2,430 feet southeast of Napa County Airport. Other activities that result in emissions include space and water heating, landscape maintenance, and any surrounding industrial uses that can store, produce, decommission, or otherwise handle hazardous materials.

Project Site

The project site itself is currently vacant and does not produce any air pollutants.

3.2.3 - Regulatory Framework

Federal

Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970 and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are PM, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants because it regulates them by developing

human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards.[3] The federal standards are called NAAQS. The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO_2)
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal CAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

EPA Emission Standards for New Off-Road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the EPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA and the ARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State

California Air Quality Control Plan (State Implementation Plan)

An SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal air quality standards. The ARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention, administers the SIP for the State of California. California's SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to the ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality

[3] United States Environmental Protection Agency (EPA). 2014. Clean Air Act Requirements and History. Website: https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history. Accessed May 18, 2021.

monitoring), control measures and strategies, and enforcement mechanisms for attaining and maintaining air quality standards.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards.

California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation and required additional actions beyond the federal mandates. The ARB administers the CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six federal standards listed above and visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own more stringent regulations than similar federal regulations implementing the CAA for motor vehicles and other sources. Generally, the planning requirements of the CCAA are more stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with California and federal laws; approving local air quality plans; submitting SIPs to the EPA; monitoring air quality; determining and updating area designations and maps; conducting basic research aimed at providing a better understanding between emissions and public well-being, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California Health and Safety Code Section 39655 and California Code of Regulations Title 17 Section 93000 (Substances Identified as Toxic Air Contaminants)

The ARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the California Code of Regulations, "Substances Identified As Toxic Air Contaminants." A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness or pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there are thresholds set by regulatory agencies below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is DPM from diesel-fueled engines.

California Low-Emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 SIP. In 2012, the ARB adopted the LEV III amendments to California's LEV regulations. These amendments, also known as the Advanced Clean Car Program, include more stringent emission standards for model years 2017 through 2025 for criteria pollutants and greenhouse gas (GHG) emissions for new passenger vehicles.[4]

California On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. The ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others.[5]

California In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, the ARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than 5 consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_X emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014, for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and privately and publicly owned school buses with a gross vehicle weight of greater than 14,000 pounds. The regulation provides various flexibility options tailored to fleets operating low-use

[4] California Air Resources Board (ARB). 2013. Clean Car Standards—Pavley, Assembly Bill 1493. Website: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed May 18, 2021.

[5] California Air Resources Board (ARB). 2013. The California Almanac of Air Quality and Emissions—2013 Edition. Website: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed May 18, 2021.

vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.[6]

California Airborne Toxic Control Measures for Asbestos

The ARB has adopted Airborne Toxic Control Measures (ATCM) for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology to minimize emissions.

In July 2001, the ARB approved an ATCM for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires applying Best Management Practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district before ground-disturbing activities. The measure establishes specific testing, notification, and engineering controls before grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district before the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an ATCM for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near the project site with the areas more likely to contain naturally occurring asbestos are approximately 2 miles southeast of the project site.[7]

[6] California Air Resources Board (ARB). 2015. On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Website: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed May 18, 2021.

[7] United States Geological Survey (USGS). 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California Map.

California Airborne Toxic Control Measures for Transport Refrigerated Units

The ARB also has an ATCM for in-use diesel-fueled Transport Refrigeration Units (TRUs) and generator sets, which establishes performance targets for TRUs. TRUs are trailer-mounted units, powered by small diesel-fueled engines, which provide chilled air to tailers carrying perishable goods (e.g., produce, meats, and prescription drugs). The measure regulates PM emissions rates from TRUs powered by diesel internal combustion engines that range from 9 to 36 horsepower. According to the regulation, facilities with over 20 loading docks must submit a detailed report specifying the types of models and quantities of TRUs that would operate at the facility. The report is filed by the equipment operator and is submitted electronically to the ARB. By July 31, 2009, owners and operators of California-based TRUs were required to submit an application for an ARB identification number as part of the ARB Identification Numbering Requirements. By December 31, 2021, owners and operators of California-based TRUs must submit documentation demonstrating that TRUs with a model year 2013 or newer meet the Ultra Low-Emission TRU in-use standard by the end of the seventh year after the engine model year.

Verified Diesel Emission Control Strategies

The EPA and the ARB tiered off-road emission standards only apply to new engines and off-road equipment can last several years. The ARB has developed Verified Diesel Emission Control Strategies (VDECS), devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of DPM emissions and have been verified by ARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower-tiered equipment with installed controls.

California Diesel Risk Reduction Plan

The ARB Diesel Risk Reduction Plan has led to the adoption of new State regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions in 2020 by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020.[8]

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill 2588), also known as the Hot Spots Act. To date, the ARB has identified more than 21 TACs, and has adopted the EPA's list of Hazardous Air Pollutants (HAPs) as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between the ARB and local air districts, issues grants to replace or retrofit older engines and equipment with engines and equipment that exceed current regulatory requirements to reduce air

[8] California Air Resources Board (ARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles. Website: http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed May 18, 2021.

pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the San Francisco Bay Area Air Basin (Air Basin), the BAAQMD administers the Carl Moyer Program. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the Air Basin, the BAAQMD administers the Carl Moyer Program. The program establishes cost-effectiveness criteria for funding emission reductions projects, which under the final 2017 Carl Moyer Program Guidelines are $30,000 per weighted ton of NO_X, ROG, and PM.[9]

California Refrigerant Management Program

California's Refrigerant Management Program (RMP) regulates refrigerants used in larger facilities, primarily industrial and supermarket land uses. Refrigerants regulated under the RMP include any refrigerant that is an ozone depleting substance as defined in Title 40 of the Code of Federal Regulation, Part 82, and any compound with a global warming potential (GWP) value equal to or greater than 150 according to the GWPs specified in the United Nations Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report of 2007. According to the RMP, all supermarket and industrial refrigeration systems with a full recharge capacity of 50 pounds (22.7 kilograms) or greater will be required to limit the refrigerants used to no greater than 150 GWP beginning in 2022. Similarly, according to the RMP, all room air conditioning unit systems with a full recharge capacity of 50 pounds or greater will be required to limit the refrigerants used to no greater than 750 GWP beginning in 2023.[10]

Regional

BAAQMD California Environmental Quality Act Air Quality Guidelines

The BAAQMD is the primary agency responsible for ensuring that air quality standards (NAAQS and CAAQS) are attained and maintained in the SFBAAB through comprehensive planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB and prepares ozone attainment plans for the national ozone standard, clean air plans for the California standard, and PM plans to fulfill federal air quality planning requirements. The BAAQMD also inspects stationary sources of air pollution; responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA and the CCAA.

The BAAQMD developed quantitative thresholds of significance for its California Environmental Quality Act (CEQA) Guidelines in 2010, which were also included in its updated 2011 Guidelines. The BAAQMD's adoption of the 2010 thresholds of significance was later challenged in court. In an opinion issued on December 17, 2015, related to the BAAQMD CEQA Guidelines, the California Supreme Court held that CEQA does not generally require an analysis of the impacts on project

[9] California Air Resources Board (ARB). 2017. 2017 Carl Moyer Program Guidelines. Website: California Air Resources Board (ARB). 2017. 2017 Carl Moyer Program Guidelines. Accessed May 19, 2021.

[10] California Air Resources Board (ARB). 2020. Proposed Amendments to ARB's HFC Regulation. December 10. Website: https://ww3.arb.ca.gov/board/books/2020/121020/20-13-4pres.pdf. Accessed September 10, 2021.

residents and users of locating development in areas subject to environmental hazards unless the proposed project would exacerbate those existing environmental hazards (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377-378). The California Supreme Court also found that specific legislation within CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing (*Id*. at pp. 391-392). On N remand from the California Supreme Court, the Court of Appeal later held that public agencies remain free to voluntarily conduct this analysis not required by CEQA for their own public projects (*CBIA v. BAAQMD (2016) 2 Cal.App.5th 1067, 1083*).

In view of the California Supreme Court's opinion, the BAAQMD published a new version of its CEQA Guidelines in May 2017. The BAAQMD CEQA Guidelines state that local agencies may rely on thresholds designed to reflect the impact of locating development near areas of toxic air contamination where CEQA requires such an analysis or where the agency has determined that such an analysis would assist in making a decision about the proposed project. However, the thresholds are not mandatory, and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts. The BAAQMD's guidelines for implementing the thresholds are for informational purposes only, to assist local agencies.

BAAQMD Particulate Matter Plan

To fulfill federal air quality planning requirements, the BAAQMD adopted a $PM_{2.5}$ emissions inventory for the year 2010 at a public hearing on November 7, 2012. The Bay Area Clean Air Plan also included several measures for reducing PM emissions from stationary sources and woodburning. On January 9, 2013, the EPA issued a final rule determining that the Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal SIP planning requirements for the SFBAAB.[11] Despite this EPA action, the SFBAAB will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a redesignation request and a maintenance plan to the EPA and the EPA approves the proposed redesignation.

The Air Basin is designated nonattainment for the State PM_{10} and $PM_{2.5}$ standards, but the Air Basin is currently unclassified for the federal PM_{10} standard and nonattainment for federal $PM_{2.5}$ standards. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006 and designated the Air Basin as nonattainment for the new $PM_{2.5}$ standard effective December 14, 2009.

On December 8, 2011, the ARB submitted a "clean data finding" request to the EPA on behalf of the Bay Area. If the clean data finding request is approved, then EPA guidelines provide that the region can fulfill federal $PM_{2.5}$ SIP requirements by preparing either a redesignation request and a $PM_{2.5}$ maintenance plan, or a "clean data" SIP submittal. Because peak $PM_{2.5}$ levels can vary from year to year based on natural, short-term changes in weather conditions, the BAAQMD believes that it

[11] United States Environmental Protection Agency (EPA). 2013. Determination of Attainment for the San Francisco Bay Area Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements. January 9. Website: https://www.govinfo.gov/content/pkg/FR-2013-01-09/pdf/2013-00170.pdf. Accessed May 18, 2021.

would be premature to submit a redesignation request and $PM_{2.5}$ maintenance plan at this time. Therefore, the BAAQMD will prepare a "clean data" SIP to address the required elements, including:

- An emission inventory for primary $PM_{2.5}$, as well as precursors to secondary PM formation
- Amendments to the BAAQMD's New Source Review regulation to address $PM_{2.5}$

BAAQMD 2017 Clean Air Plan

In May 2017, the BAAQMD adopted the final Bay Area 2017 Clean Air Plan. The BAAQMD prepared the 2017 Clean Air Plan in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). The goals of the 2017 Clean Air Plan are to reduce regional air pollutants and climate pollutants to improve the health of Bay Area residents for the next decades. The 2017 Clean Air Plan aims to lead the region into a post-carbon economy, continue progress toward attaining all State and federal air quality standards, and eliminate health risk disparities from air pollution exposure in Bay Area communities. The Plan includes 85 distinct control measures to help the region reduce air pollutants and has a long-term strategic vision that forecasts what a clean air Bay Area will look like in the year 2050. The 2017 Clean Air Plan envisions a future whereby the year 2050:

- Buildings will be energy efficient—heated, cooled and powered by renewable energy.
- Transportation will be a combination of electric vehicles, both shared and privately owned, and autonomous public transit fleets, with a large share of trips by bicycling, walking, and transit.
- The Bay Area will be powered by clean, renewable electricity and will be a leading incubator and producer of clean energy technologies leading the world in the carbon-efficiency of our products.
- Bay Area residents will have developed a low-carbon lifestyle by driving electric vehicles, living in zero net energy homes, eating low-carbon foods, and purchasing goods and services with low-carbon content.
- Waste will be greatly reduced, waste products will be re-used or recycled, and all organic waste will be composted and put to productive use.

The focus of control measures includes aggressively targeting the largest source of GHG, ozone pollutants, and PM emissions: transportation. This includes more incentives for electric vehicle infrastructure, off-road electrification projects such as Caltrain and shore power at ports, and reducing emissions from trucks, school buses, marine vessels, locomotives, and off-road equipment. Additionally, the BAAQMD will continue to work with regional and local governments to reduce Vehicle Miles Traveled (VMT) through the further funding of rideshare, bike and shuttle programs.

BAAQMD Regulations

Regulation 2, Rule 1 (Permits–General Requirements)

The BAAQMD regulates new sources of air pollution and the modification and operation of existing sources through the issuances of authorities to construct and permits to operate. Regulation 2, Rule 1 provides an orderly procedure which the project would be required to comply with to receive

authorities to construct or permits to operate from the BAAQMD for new sources of air pollutants, as applicable.

Regulation 2, Rule 5 (New Source Review Permitting)

The BAAQMD regulates backup emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process.[12] Although emergency generators are intended for use only during periods of power outages, monthly testing of each generator is required; however, the BAAQMD limits testing to no more than 50 hours per year. Each emergency generator installed is assumed to meet a minimum of Tier 2 emission standards (before control measures). As part of the permitting process, the BAAQMD limits the excess cancer risk from any facility to no more than 10 per 1-million-population for any permits that are applied for within a 2-year period and would require any source that would result in an excess cancer risk greater than 1 per 1 million to install Best Available Control Technology (BACT) for Toxics.

Regulation 6, Rule 1 (Particulate Matter–General Requirements)

The BAAQMD regulates PM emissions through Regulation 6 by means of establishing limitations on emission rates, emissions concentrations, and emission visibility and opacity. Regulation 6, Rule 1 provides existing standards for PM emissions that could result during project construction or operation that the project would be required to comply with, as applicable, such as the prohibition of emissions from any source for a period or aggregate periods of more than 3 minutes in any hour which are equal to or greater than 20 percent opacity.

Regulation 6, Rule 6, (Particulate Matter–Prohibition of Trackout)

One rule by which the BAAQMD regulates PM includes Regulation 6, Rule 6, which prohibits PM trackout during project construction and operation. Regulation 6, Rule 6 requires the prevention or timely cleanup of trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sides such as landfills.

Regulation 8, Rule 3 (Architectural Coatings)

This rule governs the manufacture, distribution, and sale of architectural coatings and limits the ROG content in paints and paint solvents. Although this rule does not directly apply to the proposed project, it does dictate the ROG content of paint available for use during the construction.

Regulation 8, Rule 15 (Emulsified and Liquid Asphalts)

Although this rule does not directly apply to the proposed project, it does dictate the reactive organic gases content of asphalt available for use during the construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

Regulation 9, Rule 8 (Inorganic Gaseous Pollutants–Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines)

Under Regulation 9, Rule 8, the BAAQMD regulates the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. As such, any proposed stationary source equipment (e.g., backup

[12] Bay Area Air Quality Management District (BAAQMD). 2016. NSR [New Source Review] Permitting Guidance. Website: http://www.baaqmd.gov/permits/permitting-manuals/nsr-permitting-guidance. Accessed May 18, 2021.

generators, fire pumps) which would be greater than 50 horsepower would require a BAAQMD permit under Regulation 9, Rule 8 to operate.

Regulation 11, Rule 2 (Hazardous Pollutants–Asbestos Demolition, Renovation, and Manufacturing)

Under Regulation 11, Rule 2, the BAAQMD regulates emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures. Any of these activities which pose the potential to generate emissions of airborne asbestos are required to comply with the appropriate provisions of this regulation.

Regulation 1, Rule 301 (Odorous Emissions)

The BAAQMD is responsible for investigating and controlling odor complaints in the Bay Area. The agency enforces odor control by helping the public to document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year, averaged over 3 years, is considered to have a substantial effect on receptors.

Several BAAQMD regulations and rules apply to odorous emissions. Regulation 1, Rule 301 is the nuisance provision that states that sources cannot emit air contaminants that cause nuisance to several people. Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from 10 or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with four parts of odor-free air and specifies maximum limits on the emission of certain odorous compounds.

Lastly, the BAAQMD enforces the Portable Equipment Registration Program (PERP) ATCM on behalf of the ARB. Under the PERP, owners or operators of portable engines and other types of equipment which meet the qualifications of the ATCM can register their equipment to operate throughout California. However, owners and operators of portable engines which meet the qualifications of this ATCM who do not register their equipment under the PERP must obtain individual permits from local air districts. Permits issued under the PERP must be honored by all air districts throughout California.

Plan Bay Area

On July 18, 2013, ABAG and the MTC approved the Plan Bay Area. The Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, BAAQMD, MTC, and the San Francisco Bay Conservation and Development Commission. The plan's transportation policies focus on maintaining the extensive existing transportation network and utilizing these systems more efficiently to handle density in Bay Area transportation cores.[13] Assumptions for land use development come from local and regional planning documents. Emission forecasts in the Bay Area Clean Air Plan rely on projections of VMT, population, employment, and land use projections made by local jurisdictions

[13] Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC). 2013. Plan Bay Area. Website: https://www.planbayarea.org/previous-plan. Accessed April 1, 2021.

during development of Plan Bay Area. The Plan Bay Area 2040 was adopted July 2017 and updates Plan Bay Area.

Plan Bay Area 2040, published by the MTC and ABAG, is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. Plan Bay Area 2040 functions as the sustainable communities' strategy mandated by Senate Bill (SB) 375. As a regional land use plan, Plan Bay Area 2040 aims to reduce per capita GHG emissions by promoting more compact, mixed use residential and commercial neighborhoods located near transit. Plan Bay Area 2040 is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area (adopted by MTC in 2013) but with updated planning assumptions that incorporate key economic, demographic, and financial trends from the last 4 years.

Local

City of American Canyon General Plan

The City of American Canyon adopted its General Plan in 1994, which contains objectives and policies that help address air quality and reduce the community's vulnerability to air pollution. The following objectives and policies from the City's General Plan are relevant to air quality and apply to the proposed project:

Goal 8F Reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources.

Objective 8.22 Minimize transportation-related energy consumption.

Policy 8.22.1 Encourage the development of mixed use, pedestrian friendly employment/residential centers that help minimize vehicle trips in American Canyon and contribute to a reduction in energy consumption.

Policy 8.22.3 Require that Development Plans provide for linkages between bicycle and pedestrian circulation systems and transit and employment centers, in accordance with established areawide plans.

Policy 8.22.4 Maintain a system of traffic signals and controls that minimizes waiting time and vehicle speed changes through routes.

Policy 8.22.5 Require that Development Plans provide for High-Occupancy Vehicles (HOV) and public transportation, where feasible, through the provision of appropriate transit areas and park-and-ride locations along public transportation routes.

Objective 8.23 Reduce Energy consumption in buildings.

Policy 8.23.1 Require that developers employ energy-efficient subdivision and site planning methods as well as building design. Measures to be considered include building orientation and shading, landscaping, building reflectance, use of active and passive solar heating and hot water system, etc. In establishing these energy related design

requirements, the City shall balance energy-efficient design with good planning principles.

Objective 1.37 Consider initiatives to reduce direct and indirect greenhouse gas (GHG) emissions from transportation sources, and from new, renovated, and existing development in the City.

Policy 1.37.6 Reduce vehicle engine idling in American Canyon by educating the broader community (i.e., businesses, commuters, residents) on the greenhouse gas impacts caused by engine idling, and implementing feasible commercial vehicle regulations.

3.2.4 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts to air quality are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. On the subject of air quality, Appendix G states that, "[w]here available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations." As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G and input from relevant air districts. The City has chosen to do so for this project.

Additional guidance on the significance of air quality impacts is found in CEQA Guidelines Section 15065, subdivision (a)(4), which provides that a lead agency shall find that a project may have a significant effect on the environment if "the environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly." According to the California Supreme Court, this "mandatory finding of significance" applies to potential effects on public health from environmental impacts such as those associated with air pollutant emissions from projects. (*California Business Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 386-392.)

In light of the foregoing, the proposed project would have a significant effect related to air quality if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations (and thereby possibly cause substantial adverse effects on human beings, directly or indirectly); or

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Significance Criteria

The preceding thresholds of significance are stated in general terms. It is therefore desirable to formulate additional, more precise thresholds based on guidance from the BAAQMD, as is encourage in Appendix G to the CEQA Guidelines. As explained earlier, BAAQMD's May 2017 CEQA Air Quality Guidelines were prepared to assist in evaluating air quality impacts of projects and plans proposed within the Bay Area. [14] The guidelines provide recommended procedures for evaluating potential air quality impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and GHGs. The analysis below was prepared using these BAAQMD CEQA Guidelines.

Regional Significance Criteria

Table 3.2-7 shows the BAAQMD's criteria for regional significance for project construction and operations.

Table 3.2-7: BAAQMD Regional (Mass Emissions) Air Pollutant Significance Thresholds

Pollutant	Construction Phase	Operational Phase	
	Average DailyEmissions (pounds/day)	Average DailyEmissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
PM_{10} and $PM_{2.5}$ Fugitive Dust	Best Management Practices	None	None

Notes:
ROG = reactive organic gas
NO_X = oxides of nitrogen
PM_{10} = particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
Source: Bay Area Air Quality Management District (BAAQMD) 2017. May. California Environmental Quality Act Air Quality Guidelines.

In developing the above significance thresholds, the BAAQMD considers the emission levels for which a project's individual emissions would be cumulatively considerable. If a project were to exceed the emission thresholds in Table 3.2-7, that project's emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality

[14] Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed March 17, 2021.

conditions.[15] Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with PM include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions thresholds shown in Table 3.2-7, it is speculative to determine how exceeding regional thresholds would affect the number of days the region is in nonattainment—as mass emissions are not linearly correlated with concentrations of emissions—or how many additional individuals in the Air Basin would be affected by the health effects cited above.

In *Sierra Club v. County of Fresno (Friant Ranch, LP)* (2018) 6 Cal.5th 502, 510, 517-522, the California Supreme Court held generally that an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." A possible example of such a connection would be to calculate a project's "impact on the days of nonattainment per year" (*Id*. at pp. 521). But the court recognized that there might be scientific limitations on an agency's ability to make the connection between air pollutant emissions and public health consequences in a credible fashion, given limitations in technical methodologies (*Id*. at pp. 520-521). Thus, the court acknowledged that another option for an agency preparing an EIR might be "to explain why it was not feasible to provide an analysis that connected the air quality effects to human health consequences" (*Id*. at p. 522).

Here, the BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of emissions in the Air Basin. At present, the BAAQMD has not provided any methodology to assist local governments in reasonably and accurately assessing the specific connection between mass emissions of ozone precursors (e.g., ROG and NO_X) and other pollutants of concern on a regional basis and any specific effects on public health or regional air quality concentrations that might result from such mass emissions. The City has therefore concluded that it is not feasible to predict how mass emissions of pollutants of regional concern from the proposed project could lead to specific public health consequences, changes in pollutant concentrations, or changes in the number of days for which the SFBAAB will be in nonattainment for regional pollutants.

Ozone concentrations, for instance, depend upon various complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations related to the NAAQS and CAAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare air quality management plans that detail regional programs to attain the Ambient Air Quality Standards (AAQS). However, if a project within the BAAQMD exceeds the regional significance thresholds, the proposed project could

[15] Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. Accessed: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

contribute to an increase in health effects in the basin until the attainment standards are met in the Air Basin.

On the other hand, it is technically feasible to predict with reasonable accuracy the potential localized health consequences of localized pollutants such as TACs and $PM_{2.5}$. As discussed below, the consultants who prepared this section prepared a Health Risk Assessment (HRA) that addresses the potential for additional incidences of cancer resulting from both the construction-related emissions and the operational emissions of the proposed project.

Consistency with Air Quality Plan

The applicable air quality plan is BAAQMD's 2017 Bay Area Clean Air Plan, which identifies measures to:

- Reduce emissions and reduce ambient concentrations of air pollutants;
- Safeguard public health by reducing exposure to the air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and
- Reduce GHG emissions to protect the climate.

A project would be determined to conflict with or obstruct implementation of an applicable air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process.

Local CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the CAAQS for CO, which is 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). However, with the turnover of older vehicles, the introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in the attainment of the CAAQS and NAAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, the BAAQMD does not require a CO hotspot analysis if all the following criteria are met:

- The project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans; and
- The project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g.,

tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).[16]

Community Risk and Hazards

The BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level.

- The proposed project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the nearby school and residential sensitive receptors. The thresholds for construction-related local community risk and hazard impacts are the same as for project operations. The BAAQMD has adopted screening tables for air toxics evaluation during construction.[17] Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, considering each project's specific construction-related characteristics and proximity to off-site receptors, as applicable.[18]
- The proposed project involves the construction of new industrial warehouse facilities and would be a source of operational TACs and $PM_{2.5}$ from trucking activity. The BAAQMD thresholds related to siting new sources of TACs and $PM_{2.5}$ near existing or planned sensitive receptors are applicable.

Since the City of American Canyon does not have a qualified risk reduction plan, a site-specific analysis of TACs and $PM_{2.5}$ impacts on sensitive receptors was conducted. The thresholds identified below are applied to the proposed project's construction and operational phases.

Community Risk and Hazards: Project

Project-level emissions of TACs or $PM_{2.5}$ from individual sources that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be a significant cumulatively considerable contribution.
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant cumulatively considerable contribution.

[16] Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed July 20, 2021.

[17] Bay Area Air Quality Management District (BAAQMD). 2010. Air Toxics NSR Program, Health Risk Screening Analysis Guidelines. Website: https://www.baaqmd.gov/~/media/Files/Engineering/Air%20Toxics%20Programs/hrsa_guidelines.ashx. Accessed July 20, 2021.

[18] Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed 18, 2021.

Community Risk and Hazards: Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the proposed project, meets any of these conditions:

- Has excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0.
- Exceeds 0.8 µg/m^3 annual average $PM_{2.5}$.

In February 2015, the California Office of Environmental Health Hazard Assessment (OEHHA) adopted new HRA guidance that includes several efforts to be more protective of children's health. These updated procedures include age sensitivity factors to account for the higher sensitivity of infants and young children to cancer-causing chemicals, and age-specific breathing rates.[19]

Odors

The BAAQMD thresholds for odors are qualitative based on BAAQMD Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health, or safety of any such persons or the public; or which causes, or has a natural tendency to cause, injury, or damage to business or property. Under BAAQMD Rule 1-301, the BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. Table 3.2-8 shows the screening distances for various land uses that are considered to have objectionable odors.[20]

Table 3.2-8: BAAQMD Odor Screening-level Distances Thresholds

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile

[19] California Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments. February. Website: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed May 18, 2021.

[20] Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed May 18, 2021.

Land Use/Type of Operation	Project Screening Distance
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles
Source: Bay Area Air Quality Management District (BAAQMD) 2017.	

Approach to the Analysis

Emission factors represent the emission rate of a pollutant over a given time or activity; for example, grams of NO_X per VMT or grams of NO_X per horsepower-hour of equipment operation. The ARB has published emission factors for on-road mobile vehicles/trucks in the Emission Factors (EMFAC) mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. Activity levels measure how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or VMT per day. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was developed in collaboration with the South Coast Air Quality Management District and other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with construction and operation from various land uses.

The modeling follows BAAQMD guidance where applicable from its CEQA Air Quality Guidelines. The following criteria air pollutants and precursors are assessed in this analysis:

- Reactive organic gases
- Nitrogen oxides (NO_X)
- Carbon monoxide (CO)
- Particulate matter equal to or less than 10 microns in diameter (PM_{10})
- Particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the proposed project would emit ozone precursors ROG and NO_X. However, the proposed project would not directly emit ozone since it is formed in the atmosphere during the photochemical reactions of the ozone precursors.

At the time of this analysis, the construction of Phase 1 of the proposed project was anticipated to begin in early 2022 and be completed 10 months later. Construction of Phase 2 of the proposed project was expected to begin immediately following the completion of Phase 1 construction and be completed 10 months later. If the construction schedule moves to later years, construction emissions would likely decrease because of improvements in technology and more stringent regulatory requirements. In general, this analysis also included estimated project trip generation and trip length provided by W-Trans (Appendix H). As the proposed project is a speculative warehouse development which could accommodate cold storage and accompanying TRUs, this analysis considers two project scenarios: a cold warehouse project scenario and a dry warehouse project scenario. Where appropriate, both project scenarios are presented herein to determine project impacts.

Construction-related Criteria Pollutants

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from both on-site and off-site activities. On-site emissions consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and the application of architectural coatings would release ROG emissions. Off-site emissions result from motor vehicle exhaust from delivery vehicles, worker traffic and road dust (PM_{10} and $PM_{2.5}$).

Equipment Tiers and Emission Factors

Equipment tiers refer to a generation of emission standards established by the EPA and ARB that apply to diesel engines in off-road equipment. The “tier” of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the greater the tier it is likely to have. Excluding engines greater than 750 horsepower, Tier 1 engines were manufactured generally between 1996 and 2003. Tier 2 engines were manufactured between 2001 and 2007. Tier 3 engines were manufactured between 2006 and 2011. Tier 4 engines are the newest and some incorporate hybrid electric technology; they have been manufactured since 2007.

Construction emissions are generally calculated as the product of an activity factor and an emission factor. The activity factor for construction equipment is a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or the amount of fuel consumed in a given amount of time. The emission factor relates the process activity to the amount of pollutant emitted. Examples of emission factors include grams of emissions per miles traveled and grams of emissions per horsepower-hour. The operation of a piece of equipment is tempered by its load factor, which is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity. This analysis uses the CalEEMod default load factors for off-road equipment.

Operation-related Criteria Pollutants

The operational-phase emissions are based on the development of the proposed industrial park. The modeling accounts for the average daily vehicle and truck trips and VMT, energy usage, water demand, and wastewater and solid waste generation. For purposes of this analysis, hours of operation for the proposed project are 24 hours per day, 7 days per week.

Transportation

On-road transportation sources are based on passenger vehicle and truck trip generation rates and VMT provided in the Traffic Impact Analysis (TIS) prepared by W-Trans for the proposed project (see Appendix H). According to the VMT information provided therein, the proposed project would result in an average employee daily VMT of 16.24 miles. As this VMT would represent all travel to and from the project site for employees, an average of 8.12 miles per vehicle trip was utilized in this analysis to estimate associated emissions from employee passenger vehicle activity. However, as provided in the TIS, the proposed project would also generate truck traffic for deliveries and shipments. As indicated by the project applicant, the most probable port of origin for freight deliveries and shipments would be the Port of Oakland, approximately 32.8 miles from the project site. Therefore, truck travel distances utilized in this analysis were assumed to be 32.8 miles per trip.

Furthermore, the proposed project would include locomotive operations beginning with operation of Phase 1. The quantity and frequency of rail shipments to the project site are currently unknown; therefore, various assumptions are utilized in this analysis to characterize future operations. For instance, according to the United States Bureau of Transportation Statistics, the average weight of a loaded railcar ranges from 63 to 67 tons;[21] therefore, for the purposes of this analysis, a loaded railcar being shipped to the proposed project is assumed to weigh 65 tons on average. Assuming an average travel distance of 50 miles and an average loaded railcar weight of 65 tons,[22] this would represent nearly two loaded, 20-railcar locomotive deliveries per week. Please refer to the locomotive emissions estimations contained in Appendix B for more details.

CalEEMod, Version 2020.4.0 was used to quantify passenger vehicle and truck emissions using vehicle emission rates based on vehicle emissions data obtained from the ARB EMFAC2017 Version 1.0.2 web database and adjusted based on methodology provided in Appendix B of the CalEEMod User's Guide.[23] The passenger vehicle trips were assumed to be distributed among the light-duty auto (LDA), light-duty truck 1 (LDT1), light-duty truck 2 (LDT2), and medium-duty vehicle (MDV) EMFAC2007 vehicle categories, proportional to that respective vehicle category's share of those four-passenger vehicle categories within the CalEEMod for Napa County.

[21] United States Bureau of Transportation Statistics. 2012. Railcar Weights. Website: https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02/railcar_weights#:~:text=The%20average%20weight%20of%20a,trends%20among%20selected%20freight%20commodities. Accessed July 29, 2021.

[22] United States Department of Transportation (USDOT), Bureau of Transportation Statistics. 2012. Railcar Weights. Website: https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02/railcar_weights#:~:text=The%20average%20weight%20of%20a,trends%20among%20selected%20freight%20commodities. Accessed August 2, 2021.

[23] California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2020.4.0 Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

Truck and TRU emissions were calculated utilizing the ARB's EMFAC2017 Version 1.0.3 and OFFROAD web databases, respectively, and adjusted based on methodology provided in Appendix B. Please refer to the fleet mix adjustment calculations contained in Appendix B for more details.

Other Operational Emissions

Solid Waste Disposal. Indirect emissions from waste generation are based on the CalEEMod default solid waste generation rates, which are based on data from the California Department of Resources, Recycling, and Recovery (CalRecycle).

Water/Wastewater. GHG emissions from this sector are associated with the embodied energy used to supply treat and distribute water, and then treat wastewater and fugitive GHG emissions from wastewater treatment. Indoor water consumption is based on CalEEMod default indoor water use rates.

Area Sources. Area and stationary sources are based on the CalEEMod defaults for use of consumer products and cleaning supplies.

Energy. Emissions from this sector are principally from use of natural gas for space and water heating at the proposed buildings.

Stationary Sources. Stationary sources are based on the anticipated stationary source equipment included in the proposed project. Given the type and size of the proposed project, the project applicant anticipates the use of a backup diesel generator and diesel-fueled fire pump for each of the proposed buildings; however, the exact specifications for this equipment is unknown at the time of this analysis. To account for potential operational emissions generated from the non-emergency use of this equipment, the proposed project was assumed to include three backup diesel generators and three diesel-fueled fire pumps, each assumed to be rated at 50 horsepower and operate for a four-hour maintenance period one day per month, totaling an estimated 48 hours of operation per year.

Construction- and Operation-related Toxic Air Contaminants

TACs are air pollutants in minuscule amounts in the air that could increase the chances of experiencing health problems if a person receives exposure to them. Exposures to TAC emissions can have both chronic long-term (over a year or longer) and acute short-term (over a period of hours) health impacts. Construction-period TAC emissions could contribute to increased health risks to nearby residents or sensitive receptors.

This analysis assesses the potential health impacts to surrounding sensitive receptors resulting from TAC emissions during project construction. The TACs of greatest concern are those that cause serious health problems or affect many people. Health problems can include cancer, respiratory irritation, nervous system problems, and birth defects. Some health problems occur soon after a person inhales TACs. These immediate effects may be minor, such as watery eyes; or they may be serious, such as life-threatening lung damage. Other health problems may not appear until many months or years after a person's first exposure to the TAC. Cancer is one example of a delayed health problem.

Fine particle pollution can be emitted directly or formed secondarily in the atmosphere. $PM_{2.5}$ health impacts are important because their size can be deposited deep in the lungs, causing respiratory

effects. For purposes of this analysis, exhaust emissions of DPM are represented as exhaust emissions of $PM_{2.5}$. Studies indicate that DPM poses the greatest health risk among airborne TACs. A 10-year ARB research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk. DPM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel-fueled internal combustion engines emit DPM, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. The CalEEMod emissions model has been used to estimate DPM emissions during construction and operation of the proposed project.

Odors

The impact analysis qualitatively evaluates the types of land uses proposed to evaluate whether major sources of anticipated odors would be present and, if so, whether those sources would likely generate objectionable odors. According to the BAAQMD's CEQA Air Quality Guidelines, a project that involves the siting of a new odor source would consider the screening-level distances and the complaint history of the odor sources, described below. Projects that would site a new odor source farther than the screening-level distances provided in Table 3.2-8 would not likely result in a significant odor impact.

3.2.5 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

Consistency with Air Quality Management Plan

Impact AIR-1:	**The proposed project would conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

The BAAQMD is responsible for reducing emissions from area, stationary, and mobile sources in the SFBAAB to achieve National and California AAQS. The BAAQMD 2017 Clean Air Plan is a regional and multiagency effort to reduce air pollution in the Air Basin. A consistency determination with the Air Quality Management Plan (AQMP) plays an important role in local agency project review by linking local planning and individual projects to the 2017 Clean Air Plan. It fulfills the CEQA goal of informing decision-makers of the proposed project's environmental effects under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the 2017 Clean Air Plan.

The BAAQMD compiles the regional emissions inventory for the SFBAAB. In part, the regional population, housing, and employment projections developed by the ABAG are based on cities' general plan land use designations. These projections form the foundation for the emissions inventory of the 2017 Clean Air Plan. These demographic trends are incorporated into Plan Bay Area, compiled by ABAG and the MTC, to determine priority transportation projects and VMT in the Bay Area. Projects consistent with the local general plan are considered consistent with the regional air

quality plan. Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the 2017 Clean Air Plan.

The proposed project would build a 2.4-million-square-foot logistics center on approximately 161 acres of the project site. The remaining approximately 47 acres would be preserved as open space. The 94.7-acre area east of what will be Devlin Road would support two high-cube warehouse buildings totaling 1,069,904 square feet (Phase 1). Phase 2, the 113.1-acre area west of Devlin Road, would develop the remaining 1.3 million square feet of high-cube warehouse. The project site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial." As previously described, demographics trends such as employment and population growth were estimated in ABAG's Plan Bay Area 2040 based on local general plan land use patterns, which the BAAQMD utilized in part to inform the emissions inventory and projections contained in the 2017 Clean Air Plan. As a result, the ABAG regional population, housing, and employment estimates for this project site would be reasonably accounted for because the proposed project is consistent with these General Plan land use designations. Thus, the proposed project would generally be consistent with the underlying general plan land use designation and would not have the potential to substantially affect housing, employment, and population projections in the region that are the basis of the 2017 Clean Air Plan projections.

Table 3.2-9 identifies the control measures in the 2017 Clean Air Plan required by BAAQMD to reduce emissions for a wide range of stationary and mobile sources and the project's consistency analysis with these control measures. As shown in Table 3.2-9, the proposed project would not conflict with the control measures of the 2017 Clean Air Plan.

Table 3.2-9: Consistency With 2017 Clean Air Plan Control Measures

Type	Measure Number/Title	Consistency Analysis
Stationary Source Control Measure	SS 1–Fluid Catalytic Cracking in Refineries SS 2–Equipment Leaks SS 3–Cooling Towers SS 4–Refinery Flares SS 5–Sulfur Recovery Units SS 6–Refinery Fuel Gas SS 7–Sulfuric Acid Plants SS 8–Sulfur Dioxide from Coke Calcining SS 9–Enhanced NSR Enforcement for Changes in Crude Slate SS 10–Petroleum Refining Emissions Tracking SS 11–Petroleum Refining Facility-Wide Emission Limits SS 12–Petroleum Refining Climate Impacts Limit SS 13–Oil and Gas Production, Processing and Storage SS 14–Methane from Capped Wells SS 15–Natural Gas Processing and Distribution	**Consistent**. Stationary sources are regulated directly by the BAAQMD, which routinely adopts/revises rules or regulations to implement the Stationary Source (SS) control measures to reduce stationary source emissions. Therefore, any new stationary sources associated with the proposed project would be required to comply with BAAQMD's regulations. Based on the proposed warehousing use for the project site, it is not anticipated that the proposed project would result in any new major stationary source emissions. Additionally, in the event stationary equipment is installed on-site, it is anticipated that the equipment would be small-quantity emitters and would require review by BAAQMD for

Type	Measure Number/Title	Consistency Analysis
	SS 16–Basin-Wide Methane Strategy SS 17–GHG BACT Threshold SS 18–Basin-Wide Combustion Strategy SS 19–Portland Cement SS 20–Air Toxics Risk Cap and Reduction from Existing Facilities SS 21–New Source Review for Toxics SS 22–Stationary Gas Turbines SS 23–Biogas Flares SS 24–Sulfur Content Limits of Liquid Fuels SS 25–Coatings, Solvents, Lubricants, Sealants and Adhesives SS 26–Surface Prep and Cleaning Solvent SS 27–Digital Printing SS 28–LPG, Propane, Butane SS 29–Asphaltic Concrete SS 30–Residential Fan Type Furnaces SS 31–General Particulate Matter Emission Limitation SS 32–Emergency Backup Generators SS 33–Commercial Cooking Equipment SS 34–Wood Smoke SS 35–PM from Bulk Material Storage, Handling and Transport, Including Coke and Coal SS 36–PM from Trackout SS 37–PM from Asphalt Operations SS 38–Fugitive Dust SS 39–Enhanced Air Quality Monitoring SS 40–Odors	permitted sources of air which would ensure consistency with the 2017 Clean Air Plan.
Transportation Control Measures	TR 1–Clean Air Teleworking Initiative TR 2–Trip Reduction Programs TR 3–Local and Regional Bus Service TR 4–Local and Regional Rail Service TR 5–Transit Efficiency and Use TR 6–Freeway and Arterial Operations TR 7–Safe Routes to Schools and Safe Routes to Transit TR 8–Ridesharing, Last-Mile Connection TR 9–Bicycle and Pedestrian Access and Facilities TR 10–Land Use Strategies TR 11–Value Pricing TR 12–Smart Driving TR 13–Parking Policies TR 14–Cars and Light Trucks TR 15–Public Outreach and Education TR 16–Indirect Source Review TR 17–Planes TR 18–Goods Movement TR 19–Medium and Heavy-Duty Trucks TR 20–Ocean Going Vessels	**Consistent**. Transportation (TR) control measures are strategies to reduce vehicle trips, vehicle use, VMT, vehicle idling, and traffic congestion to reduce motor vehicle emissions. Although most of the TR control measures are implemented at the regional level—that is, by MTC or California Department of Transportation (Caltrans)—the 2017 Clean Air Plan relies on local communities to assist with the implementation of some measures. Electrical conduits would be provided in the parking lot to accommodate future electric vehicle parking spaces. The proposed project would also be subject to the Bay Area's Commuter Benefits Program, which requires all employers in BAAQMD's jurisdiction that have 50 or more full-time

Type	Measure Number/Title	Consistency Analysis
	TR 21–Commercial Harbor Craft TR 22–Construction, Freight and Farming Equipment TR 23–Lawn and Garden Equipment	employees to offer commuter benefits to their employees.
Energy and Climate Control Measures	EN 1–Decarbonize Electricity Production EN 2–Renewable Energy Decrease Electricity Demand	**Consistent**. The Energy and Climate (EN) control measures are intended to reduce energy use as a means of reducing adverse air quality emissions. Additionally, the proposed buildings would comply with 2019 Building Energy Efficiency Standards' solar requirements and would be constructed to support future roof-mounted solar systems. Moreover, compliance with the 2019 Building Energy Efficiency Standards would improve energy efficiency by an overall 30 percent compared to the 2016 Building Energy Efficiency Standards.[24]
Buildings Control Measures	BL 1–Green Buildings BL 2–Decarbonize Buildings BL 3–Market-Based Solutions BL 4–Urban Heat Island Mitigation	**Consistent**. The Buildings (BL) control measures focus on working with local governments to adopt the best GHG emissions control practices and policies. As discussed above for the EN control measures, the proposed buildings would comply with 2019 Building Energy Efficiency Standards—i.e., constructed to support a roof-mounted solar system and achieving greater energy efficiency compared to the 2016 Building Energy Efficiency Standards.
Agriculture ControlMeasures	AG 1–Agricultural Guidance and Leadership AG 2–Dairy Digesters AG 3–Enteric Fermentation AG 4–Livestock Waste	**Not Applicable**. Agricultural (AG) practices in the Bay Area account for a small portion, roughly 1.5 percent, of the Bay Area GHG emissions inventory. The GHGs from agriculture include methane, nitrous oxide, and carbon dioxide. The proposed project would not involve any agricultural activities or operations.
Natural and WorkingLands Control Measures	NW 1–Carbon Sequestration in Rangelands NW 2–Urban Tree Planting NW 3–Carbon Sequestration in Wetlands	**Consistent**. The control measures for the Natural and Working Lands (NW) sector focus on increasing carbon sequestration on rangelands and wetlands. The proposed project would include the planting of various ornamental and shade trees throughout

[24] California Energy Commission (CEC). 2018. 2019 Building Energy Efficiency Standards Frequently Asked Questions. Website: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf. Accessed July 29, 2021.

Type	Measure Number/Title	Consistency Analysis
		the project site. Additionally, the proposed project would include an approximately 45-acre Wetland Preserve to include existing wetlands as well as established/created wetlands intended to offset wetland impacts of buildout development of the project site. These actions would support the State's working lands and would therefore make the proposed project consistent with this measure.
Waste Management Control Measures	WA 1–Landfills WA 2–Composting and Anaerobic Digesters WA 3–Green Waste Diversion WA 4–Recycling and Waste Reduction	**Consistent**. The Waste Management (WA) control measures include strategies to increase waste diversion rates through efforts to reduce, reuse, and recycle. The proposed project would comply with Assembly Bill (AB) 341, which requires mandatory commercial recycling for businesses that generate four cubic yards or more of commercial solid waste per week. Additionally, the proposed project would be required to reduce construction waste by 75 percent and use 30 percent recycled content during the construction of the proposed facility. Therefore, the proposed project would not conflict with these WA control measures.
Water Control Measures	WR 1–Limit GHGs from publicly owned treatment works (POTWs) WR 2–Support Water Conservation	**Consistent.** The 2017 Clean Air Plan includes measures to reduce water use. The proposed project would include water efficiency measures required under CALGreen. In addition, the proposed project would include water-efficient indoor fixtures consistent with the requirements of CALGreen and water-efficient landscaping outdoors.
Super GHG ControlMeasures	SL 1–Short-Lived Climate Pollutants SL 2–Guidance for Local Planners SL 3–GHG Monitoring and Emissions Measurements Network	**Consistent**. Super-GHGs include methane, black carbon, and fluorinated gases. These compounds are sometimes referred to as short-lived climate pollutants because their lifetime in the atmosphere is generally fairly short. Measures to reduce super-GHGs are addressed on a sector-by-sector basis in the 2017 Clean Air Plan. As discussed under Impact AIR-2, the proposed project would be required to implement Mitigation Measure (MM) AIR-2d, which

Type	Measure Number/Title	Consistency Analysis
		would require the use of a trucking fleet utilizing model year 2010 trucks or newer. This requirement would contribute to reducing black carbon. Furthermore, the proposed project would comply with AB 341, which mandates commercial recycling for businesses that generate four cubic yards or more of commercial solid waste per week, which could contribute to reducing methane by diverting waste from landfills.
Further Study ControlMeasures	FSM SS 1–Internal Combustion Engines FSM SS 2–Boilers, Steam Generator and Process Heaters FSM SS 3–GHG Reductions from Non Cap-and-Trade Sources FSM SS 4–Methane Exemptions from Wastewater Regulation FSM SS 5–Controlling start-up, shutdown, maintenance, and malfunction (SSMM) Emissions FSM SS 6–Carbon Pollution Fee FSM SS 7–Vanishing Oils and Rust Inhibitors FSM SS 8–Dryers, Ovens and Kilns FSM SS 9–Omnibus Rulemaking to Achieve Continuous Improvement FSM BL 1–Space Heating FSM AG 1–Wineries	**Consistent**. The majority of the Further Study Control Measures (FSM) apply to sources regulated directly by the BAAQMD. Because the BAAQMD is the implementing agency, any new sources of stationary and area sources in the project site would be required to comply with these additional study control measures in the 2017 Clean Air Plan.
Notes: AG = Agricultural BL = Buildings EN = Energy and Climate FSM = Further Study Measures NW = Natural and Working Lands SL = Super GHG (Short-Lived) SS = Stationary Sources TR = Transportation WA = Waste Management WR = Water Control Measures Source: Bay Area Air Quality Management District (BAAQMD). 2017, April 19. Final 2017 Clean Air Plan, Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed July 27, 2021.		

As shown in Table 3.2-9, the proposed project would not conflict with the clean air measures contained in the Clean Air Plan after mitigation. Nonetheless, the BAAQMD's CEQA Air Quality Guidelines further recommend determining a project's consistency with the 2017 Clean Air Plan, in part, by determining a project's consistency with the significance thresholds presented in Table

3.2-7.[25] As discussed under Impact AIR-2, the proposed project would generate emissions which exceed the BAAQMD's significance thresholds after the implementation of applicable and feasible mitigation and would result in a significant and unavoidable impact. Because the proposed project would exceed these thresholds after implementation of feasible mitigation, the proposed project would be considered by the BAAQMD to be a substantial emitter of criteria air pollutants. This impact would be significant and unavoidable.

As discussed under Impact AIR-2, the proposed project would generate criteria pollutant and ozone precursor emissions during construction and operation. The BAAQMD does not have a bright-line emissions threshold for determining potentially significant impacts related to construction fugitive dust. Instead, the BAAQMD determines a project to result in a potentially significant impact if that project were not to implement construction BMPs to minimize the extent of fugitive dust emissions, such as soil erosion, sediment migration, roadway dust re-entrainment, and soil trackout, during project construction. In the absence of specific information related to the proposed project's intended implementation of construction BMPs to minimize fugitive dust emissions, the proposed project is assumed to not include any construction BMPs. Therefore, Mitigation Measure (MM) AIR-2a would be required to ensure implementation of construction BMPs recommended by the BAAQMD irrespective of the emissions reductions achieved by those BMPs.

As discussed under Impact AIR-2, unmitigated project construction ROG emissions would exceed BAAQMD significance thresholds. Specifically, architectural coating activities during project construction would principally contribute to the exceedance. As such, MM AIR-2b would require project construction to utilize low-VOC (i.e., ROG) architectural coating products containing no greater than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during architectural coating activities. Implementation of MM AIR-2b would result in reducing ROG emissions from 68 average pounds per day to 33 average pounds per day, which is below the BAAQMD significance threshold of 54 pounds per day for ROG emissions.

As discussed under Impact AIR-2, unmitigated project operation would result in ROG and NO_X emissions which exceed BAAQMD significance thresholds. ROG emissions generated during project operation would principally be generated by consumer products, which cannot be sufficiently controlled by the proposed project due to the possible use of cleaning products, hairsprays, and other personal care products by employees. As ROG emissions generated under the control of the proposed project during project operation would principally be generated by the periodic reapplication of architectural coatings, MM AIR-2c would be required to ensure the use of low-VOC (i.e., ROG) architectural coating products that contain no more than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during project operation. Additionally, as NO_X emissions generated during project operation would principally be generated by the operation of the trucking fleet, irrespective of whether the fleet would accommodate the use of TRUs, MM AIR-2d would be required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe NO_X emissions.

[25] Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed December 15, 2021.

Under a dry storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 13 tons per year and 70 average pounds per day to approximately 12 tons per year and 64 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 16 tons per year and 90 average pounds per day to approximately 15 tons per year and 85 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day.

Under a dry storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 40 tons per year and 217 average pounds per day to approximately 35 tons per year and 192 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 71 tons per year and 388 average pounds per day to approximately 66 tons per year and 362 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day.

Consequently, implementation of MM AIR-2a and MM AIR-2b would sufficiently reduce project construction emissions to less than significant levels; however, implementation of MM AIR-2c and MM AIR-2d would not be sufficient to reduce project operation emissions to less than significant levels. Therefore, the proposed project would generate emissions which exceed the BAAQMD's significance thresholds after the implementation of applicable and feasible mitigation and would result in a significant and unavoidable impact. As previously discussed, the BAAQMD's CEQA Air Quality Guidelines recommend determining a project's consistency with the 2017 Clean Air Plan, in part, by determining a project's consistency with the BAAQMD significance thresholds. Because the proposed project would exceed significance thresholds after mitigation, resulting in a significant and unavoidable impact, the proposed project would be inconsistent with the 2017 Clean Air Plan. Therefore, this impact would be significant unavoidable impact after the incorporation of identified mitigation.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement Mitigation Measures MM AIR-2a**,** MM AIR-2b**,** MM AIR-2c**,** MM AIR-2d.

Level of Significance After Mitigation

Significant unavoidable impact.

Cumulative Criteria Pollutant Emissions Impacts

Impact AIR-2: **The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard.**

Impact Analysis

This impact is related to the cumulative effect of a project's regional criteria pollutant emissions. By its nature, air pollution is largely a cumulative impact resulting from emissions generated over a large geographic region. The nonattainment status of regional pollutants results from past and present development within the Air Basin, and this regional impact is a cumulative impact. Therefore, new development projects (such as the proposed project) within the Air Basin would contribute to this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in nonattainment of regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when evaluated in combination with past, present, and future development projects.

Potential localized and regional impacts would result in exceedances of State or federal standards for NO_X, particulate matter (PM_{10} and $PM_{2.5}$), or CO. NO_X emissions are of concern because of potential health impacts from exposure to NO_X emissions during both construction and operation and as a precursor in the formation of airborne ozone. PM_{10} and $PM_{2.5}$ are of concern during construction because of the potential to emit exhaust emissions from the operation of off-road construction equipment and fugitive dust during earth-disturbing activities (construction fugitive dust). CO emissions are of concern during project operation because operational CO hotspots are related to increases in on-road vehicle congestion and potential health effects.

ROG emissions are also important because of their participation in the formation of ground-level ozone. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children.

The cumulative analysis focuses on whether a specific project would result in cumulatively considerable emissions. According to Section 15064(h)(4) of the CEQA Guidelines, the existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the project's incremental effects would be cumulatively considerable. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed the BAAQMD regional thresholds of significance for construction and operations on a project level. The significance thresholds represent the allowable amount of emissions each project can generate without generating a cumulatively considerable contribution to regional air quality impacts. Therefore, a project that would not exceed the BAAQMD thresholds of significance on the project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts. Construction and operational emissions are discussed separately below.

Construction

During construction, fugitive dust would be generated from site grading and other earthmoving activities. The majority of this fugitive dust would remain localized and deposited near the project site; however, fugitive dust's potential impacts exist unless control measures are implemented to reduce this source's emissions. Exhaust emissions would also be generated from the operation of the off-road construction equipment and on-road construction vehicles.

Construction Fugitive Dust

The BAAQMD does not recommend a numerical threshold for fugitive dust PM emissions. Instead, the BAAQMD bases the determination of significance for fugitive dust on a consideration of the control measures to be implemented, referred to as BMPs. If all appropriate emissions control measures are implemented for a project as recommended by the BAAQMD, then fugitive dust emissions during construction are not considered significant. Therefore, the BAAQMD determines a project to result in a potentially significant impact if that project were not to implement construction BMPs to minimize the extent of fugitive dust emissions, such as soil erosion, sediment migration, roadway dust re-entrainment, and soil trackout, during project construction. In the absence of specific information related to the proposed project's intended implementation of construction BMPs to minimize fugitive dust emissions, the proposed project is assumed to not include any construction BMPs. Therefore, MM AIR-2a would be required to ensure implementation of construction BMPs recommended by the BAAQMD irrespective of the emissions reductions achieved by those BMPs. With the incorporation of this mitigation, short-term construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation would be less than significant for fugitive dust.

Construction Air Pollutant Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

CalEEMod, Version 2020.4.0, was used to estimate the proposed project's construction emissions. CalEEMod provides a consistent platform for estimating construction and operational emissions from various land use projects and is the model recommended by the BAAQMD for estimating project emissions. Estimated construction emissions are compared with the applicable thresholds of significance established by the BAAQMD to assess ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ construction emissions to determine significance for this impact.

At the time of this analysis, the construction of Phase 1 of the proposed project was anticipated to begin in early 2022 and be completed 10 months later. Construction of Phase 2 of the proposed project was expected to begin immediately following the completion of Phase 1 construction and be completed 10 months later. If the construction schedule moves to later years, construction emissions would likely decrease because of improvements in technology and more stringent regulatory requirements.

Construction activities such as grading, excavation, and travel on unpaved surfaces would generate dust and lead to elevated concentrations of PM_{10} and $PM_{2.5}$. According to the project site plans dated November 11, 2020, an estimated 5,400 cubic yards are anticipated to be imported during Phase 1 grading activities, and, according to telephone correspondence with the project applicant, Phase 2 is assumed to balance grading activities on-site. As the BAAQMD dust control measures would be required to ensure fugitive dust impacts are less than significant, the emission estimates shown

below account for the implementation of MM AIR-2a. The operation of construction equipment results in exhaust emissions, which include ROG and NO_X. Table 3.2-10 presents construction-period emissions that would result from the development of the proposed project.

Table 3.2-10: Unmitigated Construction Emissions

Construction Activity	Criteria Pollutant Emissions (Tons)			
	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Project Phase 1				
Site Preparation (2022)	<0.01	0.02	<0.01	<0.01
Grading (2022)	0.03	0.39	0.01	0.01
Building Construction (2022)	0.54	4.00	0.10	0.09
Paving (2022)	0.05	0.06	<0.01	<0.01
Architectural Coating (2022)	5.90	0.01	<0.01	<0.01
Project Phase 2				
Site Preparation (2022)	<0.01	0.02	<0.01	<0.01
Grading (2022)	0.03	0.33	0.01	0.01
Building Construction (2022)	0.10	0.70	0.02	0.01
Building Construction (2023)	0.47	3.42	0.07	0.06
Paving (2023)	0.06	0.06	<0.01	<0.01
Architectural Coating (2023)	7.32	0.01	<0.01	<0.01
Total Construction Emissions (Tons)	**14.51**	**9.03**	**0.22**	**0.21**
Average Daily Emissions				
Total Construction Emissions (Pounds)	29,029	18,065	437	411
Average Daily Construction Emissions (Pounds/Day)	**68**	**42**	**1**	**1**
BAAQMD Significance Thresholds	54	54	82	54
Significant Impact?	**Yes**	**No**	**No**	**No**

Notes:
This analysis relies on a 427-day construction schedule, consistent with the construction schedule and modeling results contained in Appendix B.
ROG = reactive organic gases NOx = nitrogen oxides
PM_{10} = particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
BAAQMD = Bay Area Air Quality Management District
Source: Appendix B.

As shown in Table 3.2-10, ROG emissions generated mainly during architectural coating activities during project construction would exceed BAAQMD significance thresholds, requiring the implementation of MM AIR-2b, which would require the use of low-VOC (i.e., ROG) architectural coating products during project construction. Table 3.2-11 displays emissions generated during

project construction incorporating the implementation of MM AIR-2b. As shown therein, MM AIR-2b would reduce ROG emissions to below the applicable BAAQMD significance thresholds during project construction by implementing the use of architectural coating products that contain no greater than 50 grams of VOC (i.e., ROG) per liter of product. As a result, MM AIR-2b would result in reducing ROG emissions from 68 average pounds per day to 33 average pounds per day, which is below the BAAQMD significance threshold of 54 pounds per day for ROG emissions during project construction. Therefore, project construction emissions would be less than significant with the implementation of MMs AIR-2a and AIR-2b.

Table 3.2-11: Mitigated Construction Emissions

Construction Activity	Criteria Pollutant Emissions (Tons)			
	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Project Phase 1				
Site Preparation (2022)	<0.01	0.02	<0.01	<0.01
Grading (2022)	0.03	0.39	0.01	0.01
Building Construction (2022)	0.54	4.00	0.10	0.09
Paving (2022)	0.05	0.06	<0.01	<0.01
Architectural Coating (2022)	2.59	0.01	<0.01	<0.01
Project Phase 2				
Site Preparation (2022)	<0.01	0.02	<0.01	<0.01
Grading (2022)	0.03	0.33	0.01	0.01
Building Construction (2022)	0.10	0.70	0.02	0.01
Building Construction (2023)	0.47	3.42	0.07	0.06
Paving (2023)	0.06	0.06	<0.01	<0.01
Architectural Coating (2023)	3.22	0.01	<0.01	<0.01
Total Construction Emissions (Tons)	**7.09**	**9.03**	**0.22**	**0.21**
Average Daily Emissions				
Total Construction Emissions (Pounds)	14,190	18,065	437	411
Average Daily Construction Emissions (Pounds/Day)	**33**	**42**	**1**	**1**
BAAQMD Significance Thresholds	54	54	82	54
Significant Impact?	**No**	**No**	**No**	**No**

Notes:
This analysis relies on a 427-day construction schedule, consistent with the construction schedule and modeling results contained in Appendix B.
ROG = reactive organic gases NO_X = nitrogen oxides
PM_{10} = particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
BAAQMD = Bay Area Air Quality Management District
Source: Appendix B.

Operation

Operational Air Pollutant Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

Operational emissions would include area, energy, and mobile sources. Area sources would include emissions from architectural coatings, consumer products, and landscape equipment. Energy sources include emissions from the combustion of natural gas for water heaters and other heat sources. Mobile sources include exhaust and road dust emissions from the automobiles that would travel to and from the project site. Mobile sources also include exhaust from trailer-mounted TRUs which would accompany any freight truck carrying refrigerated goods. Stationary sources include emissions from stationary source equipment, such as backup generators, that would require a permit issued by the BAAQMD. Pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$.

Project operations were analyzed at full buildout immediately following the completion of construction for Phase 2 in August 2023 as a conservative estimate of operational emissions beginning in the earliest year of full operation. According to the Traffic Impact Study (TIS) prepared for the proposed project,[26] during full operation, the proposed project is expected to generate an estimated 528 daily truck trips and 2,832 daily passenger vehicle trips. According to the site plan set for the proposed project, dated November 11, 2020, Phase 1 of the proposed project would construct a warehouse that will connect to the existing railroad bordering the eastern boundary of the project site. Because of the lack of information regarding the potential future tenants, the proposed warehouse space is analyzed for a cold storage scenario and a dry storage scenario.

The cold storage project scenario would also include the operation of TRUs. In the absence of specific project information, all TRUs analyzed herein utilize weighted averages for emission factors retrieved from the ARB's OFFROAD2017 database for in-state truck TRUs, in-state van TRUs, in-state gen-set TRUs, in-state trailer TRUs, out-of-state gen-set TRUs, out-of-state trailer TRUs, and locomotive TRUs, all utilizing aggregate horsepower bins. These vehicle categories were selected as they encompass all possible TRU emission factors contained in the ARB's OFFROAD2017 database. As each truck is assumed to be accompanied by a TRU under the cold storage scenario and each of the 528 truck trips is one-way, this analysis assumes a truck and TRU population of 266. Each TRU is assumed to spend an average of four hours running on-site for unloading and loading purposes,[27] and an average of two hours off-site traveling to and from the Port of Oakland—the closest major freight origin.

Furthermore, in the absence of more specific information, the locomotive emission estimates contained herein assume a monthly average of 500,000 ton-miles of product and material locomotive deliveries. Assuming an average travel distance of 50 miles and an average loaded railcar weight of 65 tons,[28] this would represent nearly two loaded, 20-railcar locomotive deliveries per week.

[26] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

[27] California Air Resources Board (ARB). 2021. Appendix I Health Analyses: Transport Refrigeration Units. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/appi.pdf. Accessed August 19, 2021.

[28] United States Department of Transportation (USDOT). Bureau of Transportation Statistics. 2012. Railcar Weights. Website: https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02/railcar_weights#:~:text=The%20average%20weight%20of%20a,trends%20among%20selected%20freight%20commodities. Accessed August 2, 2021.

Operational emission estimates for the proposed project are contained in Table 3.2-12. For detailed assumptions used to estimate emissions, see Appendix B.

Table 3.2-12: Unmitigated Operational Emissions

Emissions Source	ROG	NO_X	PM_{10} Total	$PM_{2.5}$ Total
	Tons per Year			
Dry Storage Project Scenario				
Area	10.93	<0.01	<0.01	<0.01
Energy	0.04	0.40	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.92	36.51	1.17	0.59
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	–	–	–	–
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	*12.74*	*39.54*	*4.32*	*1.49*
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*70*	*217*	*24*	*8*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Cold Storage Project Scenario				
Area	10.93	<0.01	<0.01	<0.01
Energy	0.05	0.44	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.92	36.51	1.17	0.59
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	3.71	31.15	0.43	0.40
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	*16.46*	*70.73*	*4.76*	*1.89*
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**

Emissions Source	ROG	NO_X	PM_{10} Total	$PM_{2.5}$ Total
	Tons per Year			
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*90*	*388*	*26*	*10*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**

Notes:
[1] Totals may not add up due to rounding. Calculations use unrounded results. 365 working days per year is assumed to estimate average daily emission rates.
lb. = pounds ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ND = No Data
Source: CalEEMod Output (see Appendix B).

Table 3.2-12 indicates that the proposed project would result in operational-related criteria air pollutants or ozone precursors which would exceed the BAAQMD's thresholds of significance, specifically with respect to ROG and NO_X emissions. As area sources would generate the majority of operational ROG emissions, MM AIR-2c would be required to ensure the use of low-VOC architectural coatings for any reapplication of paints and coatings and the use of electric landscaping equipment, including chainsaws, lawnmowers, and leaf blowers during project operation. In addition, as the trucking fleet would generate the majority of operational NO_X emissions, MM AIR-2d would be required to ensure that a more fuel-efficient, lower-emission trucking fleet—one which demonstrates a model year 2014 or newer for all heavy-duty trucks upon first implementation—is utilized during project operation. Model year 2014 was selected because it is the first homogenous model year for a trucking fleet in Napa County to demonstrate a reduction in NO_X emissions when compared with unmitigated emission estimates. This is considered a feasible trucking mitigation measure as the ARB's Truck and Bus Regulation[29] would otherwise require trucks greater than a 26,000-pound gross vehicle weight rating which operate in California be no older than 2010 model year by the time the proposed project would become operational in 2023. This would allow the proposed project to utilize trucks which are 9 years old and would not constitute an infeasible financial burden.

Table 3.2-13 displays emissions generated by project operation with the implementation of MMs AIR-2c and AIR-2d. As shown therein, under a dry storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 13 tons per year and 70 average pounds per day to approximately 12 tons per year and 64 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year

[29] California Air Resources Board (ARB). 2019. Truck and Bus Regulation Compliance Requirement Overview. June 18. Website: https://www.arb.ca.gov/msprog/onrdiesel/documents/fsregsum.pdf?_ga=2.176823522.653555524.1631722616-611272733.1590599157. Accessed September 16, 2021.

and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 16 tons per year and 90 average pounds per day to approximately 15 tons per year and 85 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day.

Under a dry storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 40 tons per year and 217 average pounds per day to approximately 35 tons per year and 192 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 71 tons per year and 388 average pounds per day to approximately 66 tons per year and 362 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day.

Table 3.2-13: Mitigated Operational Emissions

Emissions Source	ROG	NO_X	PM_{10} Total	$PM_{2.5}$ Total
	Tons per Year			
Dry Storage Project Scenario				
Area	10.18	<0.01	<0.01	<0.01
Energy	0.04	0.40	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.67	31.93	1.13	0.56
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	–	–	–	–
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	*11.74*	*34.95*	*4.28*	*1.46*
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*64*	*192*	*23*	*8*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Cold Storage Project Scenario				

Emissions Source	ROG	NO_X	PM_{10} Total	$PM_{2.5}$ Total
	Tons per Year			
Area	10.18	<0.01	<0.01	<0.01
Energy	0.05	0.44	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.67	31.93	1.13	0.56
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	3.71	31.15	0.43	0.40
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	15.46	66.14	4.71	1.86
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*85*	*362*	*26*	*10*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**

Notes:
[1] Totals may not add up due to rounding. Calculations use unrounded results. 365 working days per year is assumed to estimate average daily emission rates.
lb. = pounds ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ND = No Data
Source: CalEEMod Output (see Appendix B).

As previously discussed, unmitigated project operation would result in ROG and NO_X emissions which exceed BAAQMD significance thresholds. ROG emissions generated during project operation would principally be generated by consumer products, which cannot be sufficiently controlled by the proposed project due to the possible use of cleaning products, hairsprays, and other personal care products by employees. As ROG emissions generated under the control of the proposed project during project operation would principally be generated by the periodic reapplication of architectural coatings, MM AIR-2c would be required to ensure the use of low-VOC (i.e., ROG) architectural coating products that contain no more than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during project operation. Additionally, as NO_X emissions generated during project operation would principally be generated by the operation of the trucking fleet, irrespective of whether the fleet would accommodate the use of TRUs, MM AIR-2d would be

required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe NO_X emissions.

It is important to note that the principal source for operational ROG emissions would be the use of consumer products by employees and visitors. Consumer products in this context consist of cleaning solvents and personal care products, such as hairspray. CalEEMod, Version 2020.4.0, utilizes a Statewide average VOC (i.e., ROG) per building square foot metric, irrespective of land use type, derived from the ARB's Statewide 2008 Consumer Product Inventory.[30] Because of this assumption built into the emissions modeling, nonresidential land uses, such as the proposed project, are likely to result in fewer operational ROG emissions generated by the use of consumer products than what is demonstrated in this analysis. Nonetheless, more accurate information is not available for the use of consumer products during project operation, thus this assumption must be relied upon for purposes of this analysis. In addition, because consumer products would be consumed by employees and visitors on-site and the use of those products would not be under the control of the property owner or tenant, consumer products cannot be guaranteed to be regulated through mitigation. As such, mitigation targeting the use of consumer products was omitted from this analysis.

Operational Carbon Monoxide Hotspot

The CO emissions from traffic generated by the proposed project are a concern at the local level. Congested intersections can result in high, localized concentrations of CO.

The BAAQMD recommends a screening analysis to determine whether a project has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is necessary. The proposed project would result in a less than significant impact to air quality for local CO if all the following screening criteria are met:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; and
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As indicated in the TIS prepared for the proposed project,[31] no intersections impacted by the proposed project would experience traffic volumes of 44,000 vehicles per hour. According to the TIS, the study intersection which would experience the most traffic volume during the 'Existing Plus Project Traffic Volumes' scenario during AM and PM peak-hours would be the intersection of South

[30] California Air Pollution Control Officers Association (CAPCOA). 2021. CalEEMod Appendix E Technical Source Documentation. Website: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-e2020-4-0.pdf?sfvrsn=6. Accessed December 15, 2021.

[31] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Kelly Road and CA-29. As discussed therein, that intersection would experience an estimated 3,622 AM peak-hours vehicle trips and 3,338 PM peak-hour vehicle trips with the implementation of the proposed project. Therefore, the proposed project would not result in any nearby intersection having peak-hour traffic volumes exceeding 44,000 vehicles per hour.

Nonetheless, CO hotspots can occur when a transportation facility's design or orientation prevents the adequate dispersion of CO emissions from vehicles, resulting in the accumulation of local CO concentrations. The design or orientation of a transportation facility that may prevent the dispersion of CO emissions include tunnels, parking garages, bridge underpasses, natural or urban canyons, below-grade roadways, or other features where vertical or horizontal atmospheric mixing is substantially limited. Adjacent roadways that would receive new vehicle trips generated by the proposed project do not include roadway segments where vertical or horizontal atmospheric mixing is substantially limited.

Finally, the proposed project would not conflict with a program, plan, ordinance, or policy of the circulation system, including transit, roadway, bicycle, and pedestrian facilities. As discussed in Section 3.12, Transportation, all studied roadway segments and intersections would operate at acceptable levels of service with traffic generated by the proposed project in combination with existing traffic levels. Additionally, as described in Section 3.12, Transportation, because the proposed project would operate at acceptable levels of service consistent with the City of American Canyon standards, then the proposed project would be consistent with an adopted congestion management program. Therefore, based on the above criteria, the proposed project would not exceed the CO screening criteria and would have a less than significant impact related to CO.

The proposed project would generate criteria pollutant and ozone precursor emissions during construction and operation. The BAAQMD does not have a bright-line emissions threshold for determining potentially significant impacts related to construction fugitive dust. Instead, the BAAQMD determines a project to result in a potentially significant impact if that project were not to implement construction BMPs to minimize the extent of fugitive dust emissions, such as soil erosion, sediment migration, roadway dust re-entrainment, and soil trackout, during project construction. In the absence of specific information related to the proposed project's intended implementation of construction BMPs to minimize fugitive dust emissions, the proposed project is assumed to not include any construction BMPs. Therefore, MM AIR-2a would be required to ensure implementation of construction BMPs recommended by the BAAQMD irrespective of the emissions reductions achieved by those BMPs.

Unmitigated project construction ROG emissions would exceed BAAQMD significance thresholds. Specifically, architectural coating activities during project construction would principally contribute to the exceedance. As such, MM AIR-2b would require project construction to utilize low-VOC (i.e., ROG) architectural coating products containing no greater than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during architectural coating activities. Implementation of MM AIR-2b would result in reducing ROG emissions from 68 average pounds per day to 33 average pounds per day, which is below the BAAQMD significance threshold of 54 pounds per day for ROG emissions.

Unmitigated project operation would result in ROG and NO_X emissions which exceed BAAQMD significance thresholds. ROG emissions generated during project operation would principally be generated by consumer products, which cannot be sufficiently controlled by the proposed project due to the possible use of cleaning products, hairsprays, and other personal care products by employees. As ROG emissions generated under the control of the proposed project during project operation would principally be generated by the periodic reapplication of architectural coatings, MM AIR-2c would be required to ensure the use of low-VOC (i.e., ROG) architectural coating products that contain no more than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during project operation. Additionally, as NO_X emissions generated during project operation would principally be generated by the operation of the trucking fleet, irrespective of whether the fleet would accommodate the use of TRUs, MM AIR-2d would be required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe NO_X emissions.

Under a dry storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 13 tons per year and 70 average pounds per day to approximately 12 tons per year and 64 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 16 tons per year and 90 average pounds per day to approximately 15 tons per year and 85 average pounds per day, which exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day.

Under a dry storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 40 tons per year and 217 average pounds per day to approximately 35 tons per year and 192 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 71 tons per year and 388 average pounds per day to approximately 66 tons per year and 362 average pounds per day, which exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day.

Consequently, implementation of MM AIR-2a and MM AIR-2b would sufficiently reduce project construction emissions to less than significant levels; however, implementation of MM AIR-2c and MM AIR-2d would not be sufficient to reduce project operation emissions to less than significant levels. Therefore, the proposed project would generate emissions which exceed the BAAQMD's significance thresholds after the implementation of applicable and feasible mitigation and would result in a significant and unavoidable impact. Therefore, this impact would be significant unavoidable after implementation of identified mitigation.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM AIR-2a The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction:

- All active construction areas shall be watered at least two times per day.
- All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.
- All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

MM AIR-2b Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product.

MM AIR-2c Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or

volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.

MM AIR-2d Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy-duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement.

To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.

Level of Significance After Mitigation

Significant unavoidable impact.

Sensitive Receptors Exposure to Pollutant Concentrations

Impact AIR-3:	**The proposed project would not expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis

The proposed project could expose sensitive receptors to elevated pollutant concentrations if it causes or contributes significantly to elevated pollutant concentration levels. As described in Section 3.2.2, Environmental Setting, beneath Table 3.2-6, the closest sensitive receptors include a single-family residence located approximately 200 feet south of the project site, as well as Calvary Baptist Christian Academy. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects. As the proposed project would constitute the development of approximately 2.4 million square feet of industrial warehouse space and the operation of heavy-duty trucking fleets, a construction and operational HRA was prepared for the proposed project and is contained in Appendix B. The results of the HRA are summarized below.

Construction and Operation

Construction and Operational Related Diesel Particulate Matter

Because the proposed project could accommodate the construction and operation of 2.4 million square feet of cold storage space and the subsequent operation of TRUs in addition to truck and passenger vehicle activities, the HRA herein analyzes the cold storage project scenario as a conservative assessment. As shown in Table 3.2-14, health risks resulting from the construction and operation of a cold storage project scenario were found to be less than the BAAQMD's project-level significance thresholds.

Table 3.2-14 presents a summary of the results of the HRA prepared for the proposed project during project construction and operation. As previously discussed, the proposed project would develop Phase 1, which would become operational immediately following the completion of construction activities. As Phase 1 would become operational, Phase 2 of the proposed project would begin construction, resulting in an overlap of construction and operational emissions. As such, the HRA analyzes the proposed project's Phase 1 construction DPM emissions for the first year, Phase 1 operational and Phase 2 construction DPM emissions for the second year, and Phase 1 and 2 operational DPM emissions for the remainder of the 30-year exposure duration, consistent with the BAAQMD's Health Risk Assessment Guidelines.[32] The HRA also analyzes the proposed project's Phase 1 construction DPM emissions for the first year; Phase 1 operational and Phase 2 construction DPM emissions for the second year; Phase 1 and 2 operational DPM emissions of school receptor exposure at the Calvary Baptist Christian Academy; and the proposed project's operational DPM emission concentrations for the remainder of the 13-year exposure duration for a K-12 school, consistent with the BAAQMD's Health Risk Assessment Guidelines.

Because the proposed project could accommodate the construction and operation of 2.4 million square feet of cold storage space and the subsequent operation of TRUs in addition to truck and passenger vehicle activities, the HRA herein analyzes the cold storage project scenario as a conservative assessment. As shown in Table 3.2-14, health risks resulting from the construction and operation of a cold storage project scenario were found to be less than the BAAQMD's project-level significance thresholds.

Table 3.2-14: Summary of Construction Health Risks at the Maximum Impacted Receptor

Impact Scenario	Cancer Risk[1] (risk per million)	Chronic Non-Cancer Hazard Index[2]	TAC Concentration[3] (µg/m³)
Residential MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.44	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	1.44	<0.01	0.01
Scenario 3 (Phase 1, Phase 2 Operation)	0.22	0.01	0.04

[32] Bay Area Air Quality Management District (BAAQMD). 2016. BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines. December. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en. Accessed September 16, 2021.

Impact Scenario	Cancer Risk[1] (risk per million)	Chronic Non-Cancer Hazard Index[2]	TAC Concentration[3] (µg/m³)
Total (30 Year Duration)	*2.10*	*0.01*	*0.05*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**
School MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.01	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	0.03	<0.01	<0.01
Scenario 3 (Phase 1, Phase 2 Operation)	<0.20	<0.01	<0.01
Total (30 Year Duration)	*0.24*	*<0.01*	*<0.01*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**

Notes:
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
REL = reference exposure level DPM = diesel particulate matter TAC = toxic air contaminants
MIR = Maximally Impacted Sensitive Receptor µg/m³ = micrograms per cubic meter
[1] Cancer risk is identified by multiplying the risk sum from HARP2 by 1,000,000.
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the DPM REL of 5 µg/m³.
[3] TAC concentration taken from AERMOD is always at the MIR identified from the project air dispersion models. The residential MIR was located at 38.20613°N -122.25739°E and the school MIR was identified as the Calvary Baptist Christian Academy.
Emissions Source: Appendix B.
Thresholds Source: Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 15, 2021.

As shown in Table 3.2-14, the proposed project would not result in significant health impacts to the maximally impacted residential or school receptors under the cold storage scenario. Therefore, the proposed project would have a less than significant health risk impacts.

Community Health Risk Assessment

A community HRA was conducted in accordance with BAAQMD recommendations. The cumulative health risk values were determined by adding the health risk values from refined modeling of the proposed project to the screening-level health risk values from each individual stationary and mobile source within a 1,000-foot radius of the site. The HRA concluded that the main source of a cumulative community health risk within 1,000 of the project site are the existing sources. The analysis results presented in the HRA, contained in Appendix B, are shown in Table 3.2-15. As shown therein, health risks to nearby sensitive receptors would not exceed the BAAQMD community health risk significance thresholds. As the proposed project did not result in an exceedance of project-level BAAQMD significance thresholds, the proposed project would not result in a potentially significant impact and the proposed project's impacts would not be cumulatively considerable. Therefore, this impact would be less than significant.

Table 3.2-15: Summary of Construction Health Risks at the Maximum Impacted Receptor

Source	Source Type	Distance from MIR[1] (feet)	Cancer Risk (per million)	Chronic HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project					
Residential MIR	Diesel Construction Equipment, Trucking Fleets, and Passenger Vehicles	1,860	2.10	0.01	0.05
Existing Stationary Sources (BAAQMD Facility Number)[2]					
California Stonecraft Facility ID 24284	Polyester Resin Operation	1,455	ND	<0.01	ND
William Kreysler and Assoc Inc Facility ID 12852	Polyester Resin Operation, Solvent Cleaning	1,440	ND	<0.01	ND
City of American Canyon/Accounts Payable Facility ID 14432	Generators	450	0.12	0.00	0.00
All Bay Mill and Lumber Co Facility ID 4793	Woodworking	2,085	ND	ND	0.11
Ikea Facility ID 200845	Generators	1,750	61.11	0.02	0.08
Roadways					
Existing Local Roadway Network		–	0.11	ND	<0.01
Rail					
Existing Rail Lines (California Northern Railroad)		140	4.87	ND	0.01
Freeways					
Existing Freeways (Highway 29)		225	5.58	ND	0.10
Cumulative Health Risks					
Cumulative Maximum with Project DPM Emissions			**73.89**	**0.03**	**0.35**
BAAQMD's Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceedance?			**No**	**No**	**No**

Notes:
MIR = Maximally Impacted Sensitive Receptor BAAQMD = Bay Area Air Quality Management District
$\mu g/m^3$ = micrograms per cubic meter HI = health index
DPM = diesel particulate matter $PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
ND = No Data
[1] The residential MIR located at 38.20613°N -122.25739°E was identified as the primary MIR here as it would experience the greatest health impact between residential and school receptors.
[2] Assumes emissions remain constant with time. Values represent the greatest identified among all MIRs presented in this analysis, including the two previously identified residences and the previously identified school.
Source: Appendix B.

Carbon Monoxide Hotspot

As discussed in Impact AIR-2, the proposed project would not generate sufficient vehicle traffic during project operation to substantiate creating a CO hotspot. Therefore, this impact would be less than significant with regard to exposing sensitive receptors to substantial concentrations of CO emissions. As such, the proposed project would result in less than significant impacts related to exposing sensitive receptors to substantial pollutant concentrations.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None Required.

Level of Significance After Mitigation

Less than significant impact.

Objectionable Odors Exposure

Impact AIR-4:	**The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**

Impact Analysis

Construction

During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. It is anticipated that by the time such emissions reach any sensitive receptor sites, they would be diluted to well below any air quality or odor concern level. Therefore, construction odor impacts would be less than significant.

Operation

The proposed project would construct and operate a logistics center including at least three warehouse buildings intended for distribution centers. Operation of this type of project would likely not generate objectionable odors that may affect a substantial number of nearby receptors. The types of uses that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. Though the specific uses of the buildings have not been determined, it is not anticipated that a wastewater treatment plant or solid waste transfer station would be accommodated at the project site.

As shown previously in Table 3.2-8, food manufacturing plants and chemical manufacturing have odor screening distances of one mile and two miles, respectively, from the facility to sensitive receptors. Sensitive receptors surrounding the project site within these screening distances are generally to the south and consist of school and residential land uses. Thus, as the future tenants

propose the land use for distribution and/or sortation facilities, implementation of the proposed project would not create or expose a substantial number of people to objectionable odors, a potentially significant impact. As such, this impact would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less than significant impact.

3.3 - Biological Resources

3.3.1 - Introduction

This section describes the existing biological setting and potential effects from project implementation on the project site and the surrounding area. This section also identifies mitigation measures to reduce these potential effects to less than significant levels. Descriptions and analysis in this section are based in part on a Biological Resources Report performed by Huffman-Broadway Group, Inc. (HBG) in May 2021, provided in Appendix C.

3.3.2 - Environmental Setting

Climate

The project site is located in the City of American Canyon, which is part of the greater north San Francisco Bay Area. Like other portions of Northern California, American Canyon experiences a Mediterranean climate characterized by warm, dry summers and cool, wet winters. The project area typically exhibits annual low/high temperatures between 40-80°F (degrees Fahrenheit) and an annual average rainfall of approximately 20 inches.

Hydrology

The 208-acre project site is currently undeveloped land. The headwaters of No Name Creek occur within the northwestern portion of the project site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park Wetland Preserve. The drainage is hydrologically connected to Fagan Slough, which flows into the Napa River. The majority of wetlands that occur throughout the site and are supported by direct precipitation.

Topography and Soils

The majority of the project site is relatively flat at approximately 40 feet mean sea level and a total elevation variance of 30 feet. The project site generally slopes at about 0 to 2 percent with two highpoints to the southeast and southwest of the gradually sloping north toward No Name Creek. Although the remaining portions of the project site are relatively flat, grazing and inundation in topographic low areas has created a hummocky landscape with depressional microrelief. As a result, there are small seasonal wetlands and swales scattered throughout the site. Other large, and deep wetlands occur on the eastern and southern portions of the site. In the southeastern portion of the project site a berm confines surface water sheet flows creating several inundated depressional features.

Soil survey information for the project site was obtained from the National Resources Conservation Service Web Soil Survey.[1] Three different soil types were mapped by the Natural Resources Conservation Service (NRCS) within the project site. The mapped soil units include Clear Lake clay

[1] Natural Resources Conservation Service (NRCS). 2021. Official Soil Series Descriptions. United States Department of Agriculture (USDA). Website: http://www.nrcs.usda.gov/. Accessed May 2021.

drained (116), 0 to 2 percent slopes, Haire loam (146), 2 to 9 percent slopes, and Haire clay loam (148), 2 to 9 percent slopes. Exhibit 3.3-1 provides a soils map.

Plant Communities

Plant communities are assemblages of plant species growing in an area of similar biological and environmental factors. The project site contains three plant communities, as shown in Exhibit 3.3-2: Annual Grassland, Seasonal Wetlands (also referred to as palustrine emergent wetlands according to Cowardin classification) and Vernal Pool. This identification of habitat types on the property matches the findings of Monk & Associates as stated in their wetland delineation technical letter report submitted to the United States Army Corps of Engineers (USACE)[2] and Helm Biological Consulting as described in their rare plant survey. An inventory of plant species found on the project site during biological studies conducted by Monk & Associates is provided in the HBG report (Appendix C).

Annual Grassland

The Annual Grassland on the project site consist of naturalized annual grasslands, dominated by introduced annual grasses and forbs,. Dominant non-native annual grass species on the project site include Italian ryegrass (*Festuca perennis*), Mediterranean barely (*Hordeum marinum* ssp. *gussoneanum*), medusa head (*Elymus caput-medusae*), and soft chess (*Bromus hordeaceus*). Common non-native forbs found on the project site include bird's foot trefoil (*Lotus corniculatus*), subterranean clover (*Trifolium subterranean*), broadleaf filaree (*Erodium botrys*), English plantain (*Plantago lanceolata*), yellow glandweed (*Parentucellia viscosa*), Mediterranean linseed (*Bellardia trixago*), spring vetch (*Vicia sativa*), and bristly ox-tongue (*Helminthotheca echioides*). Native forbs and wildflowers were also present and include yellow owl's clover (*Triphysaria versicolor* ssp. *faucibarbata*), hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*), and coastal tarweed (*Deinandra corymbosa*). Other common species noted by HBG Biologists during winter surveys in 2020 included species such as Harding grass (*Phalaris aquatica),* rip-gut brome (*Bromus diandrus*), field bindweed (*Convolvulus arvensis*), and sweet fennel (*Foeniculum vulgare*), and scattered coyote brush (*Baccharis pilularis*) and Himalaya berry (*Rubus armeniacus*) around the edges of the property.

Seasonal Wetland

The seasonal wetland habitat is referenced throughout this document and the supporting studies as palustrine emergent wetlands or seasonal wetlands. The seasonal wetlands on the property are vegetated with a variety of native and non-native species adapted for life in saturated soil conditions. Monk & Associates and Helm Biological Consulting noted the vegetation in the seasonal wetlands as being dominated by mix of native and non-native species such as Italian ryegrass, rabbit's foot grass (*Polypogon monspeliensis*), ditch beard grass (*Polypogon interruptus*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), Baltic rush (*Juncus balticus* ssp. *ater*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), saltgrass (*Distichlis spicata*), pennyroyal (*Mentha pulegium*), rough cocklebur (*Xanthium strumarium*), tall flat-sedge (*Cyperus eragrostis*), and swamp timothy (*Crypsis schoenoides*), and in some areas of deeper inundation,

[2] Monk & Associates. 2016. Request for a Confirmed/Approved Jurisdictional Determination Aquatic Resources Delineation Report, Giovannoni Property, City of American Canyon, Napa County, California. Letter from Hope Kingma of Monk & Associates to Holly Costa of the San Francisco Regulatory Division of the United States Army Corps of Engineers August 29, 2016.

broadleaf cattail (*Typha latifolia*). Plants noted in the seasonal wetlands during winter surveys conducted by HBG included species such as annual hairgrass (*Descampsia danthanoides*), Mediterranean barley, saltgrass, pennyroyal, rough cocklebur, tall flat-sedge, and swamp timothy, and in some areas of deeper inundation, broadleaf cattail.[3]

Vernal Pool

Vernal pools on the property are dominated with a variety of native species adapted for life in seasonally flooded depressions. Monk and Associates and Helm Biological Consulting[4] noted the vegetation in the vernal pool wetlands as being dominated by primarily native species such as annual semaphore grass (*Pleuropogon californicus* var. *californicus*), and creeping spikerush (*Eleocharis macrostachya*). Other subdominant species included: water pygmy weed (*Crassula aquatica*), common spike rush (*Eleocharis macrostachya*), smooth goldfields (*Lasthenia glaberrima*), Jepson's button celery (*Eryngium aristulatum* var. *aristulatum*), and hyssop loosestrife (*Lythrum hyssopifolia*), along with a few non-native wetland species such as rabbit's foot grass and brass buttons (*Cotula coronopifolia*).

Wildlife

The project site provides limited habitat for wildlife species, mostly those adapted to open areas and farm fields and disturbed environments. Grasses and herbaceous plants within the project site provide limited nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. Seasonal wetlands provide wildlife with a seasonal water source that supports various animal species during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. No Name Creek would be considered a wildlife corridor, but the property is nearly entirely surrounded by development so the extent of wildlife corridors on the property is limited.

A number of wildlife species were documented during a winter season survey conducted at the project site by HBG on December 10, 2020. All species documented at the site are common to abundant in the region and would be expected in the non-native grasslands and seasonal wetlands present at the site. Bird species documented included various species adapted to grasslands and open areas including Canada goose (*Branta canadensis*), California gull (*Larus californicus*), mourning dove (*Zenaida macroura),* Eurasian collared-dove (*Streptopelia decaocto*), rock pigeon (*Columba livia*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), black phoebe (Sayo*rnis nigricans*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), red-winged blackbird (*Agelaius phoeniceus),* and western meadowlark (*Sturnella neglecta*). Other species in taller vegetation and landscaping around the edges of the site and just off-site included California scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos)*, European starling (*Sturnis vulgaris*), white-crowned sparrow (*Zonotrichia*

[3] Monk & Associates. 2016. Request for a Confirmed/Approved Jurisdictional Determination Aquatic Resources Delineation Report, Giovannoni Property, City of American Canyon, Napa County, California. Letter from Hope Kingma of Monk & Associates to Holly Costa of the San Francisco Regulatory Division of the United States Army Corps of Engineers August 29, 2016.

[4] Helm Biological Consulting. 2021. Protocol-Level Special-Status Plant Survey at the Giovannoni Logistics Center Project, Napa County, California. August 2021.

leucophrys), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). Raptors (birds of prey) observed foraging over the grasslands and wetlands of the project site were fairly common during the winter survey and included American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), and turkey vulture (*Cathartes aura*).[5]

HBG conducted a spring season site reconnaissance surveys on April 16 and May 24, 2021, on the project site. Many of the bird species observed included species observed during the winter, but additional resident species observed during the April and May visits included ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), great blue heron (*Ardea herodia*), great egret (*Ardea alba*), and killdeer (*Charadrius vociferus*). Additional species added during the spring survey included spring arrivals of migrant species. Breeding season raptor observations included foraging northern harrier (a State designated Species of Special Concern for nesting habitat that was also observed foraging over the site in winter), as well as foraging by State listed threatened Swainson's hawk (*Buteo swainsoni*). A California Fully Protected golden eagle (*Aquila chrysaetos*) was also observed over the project site being harassed by the Swainson's hawk and flying low exhibiting foraging behavior. These three special-status raptor species have nested in this part of Napa County in the past, and it is entirely possible these individuals could be nesting somewhere in the vicinity of the project site. HBG drove about 10 miles of local roads surrounding the project site during both the April and May 2021 field reviews to inspect trees for raptor nest structures. No Swainson's hawk nest structures were observed. Additional species observed in the spring survey included cliff swallow (*Petrochelidon pyrrhonota*) and barn swallow (*Hirundo rustica*).

During their biological studies related to the Green Island Road Widening and Devlin Road Extension projects in 2018 and 2019, Monk & Associates observed several species of waterfowl and shorebirds in the on-site seasonal wetlands. These species were not observed during the December 10, 2020, or April 16, 2021, surveys by HBG as surface ponding was lacking on the site then due to the paucity of rain. These species included mallard (*Anas platyrhynchos*), American wigeon (*Anas americana),* greater yellowlegs (*Tringa melanoleuca*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), and Wilson's snipe (*Gallinago delicata*).

No amphibians were documented on the property by HBG, but Pacific treefrog (*Pseudacris regilla*) was noted by Monk & Associates Biologists while studying the Green Island Road Extension. Reptile sightings at the site by HBG included western fence lizard (*Sceloperus occidentalis);* other reptiles likely include Pacific gopher snake (*Pituophis catenifer)* and common garter snake (*Thamnophis sirtalis elegans)*. Observed evidence of mammals on the site by HBG were black-tailed jackrabbit (*Lepus californicus*), dens of Botta's pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*), several California ground squirrels (*Otospermophilus beecheyi*) in a rubble pile in the southwestern portion of the site, and three mule deer (*Odocoileus hemionus*) in the southeastern portion of the property. Monk & Associates apparently observed raccoon (*Procyon lotor*) while conducting studies for the Devlin Road Extension project.[6] Other expected mammals would be those

[5] Huffman-Broadway Group, Inc. 2021. Biological Resources Report, Giovannoni Logistics Center, American Canyon, California. San Rafael, California. 52 pp. plus attachments. Prepared for Buzz Oates Construction, Inc., Sacramento, California. May 2021.

[6] Monk & Associates. 2018. Biological Resource Analysis, Devlin Road/Vine Trail Extension project, City of American Canyon, California. Prepared for GHD Inc., Santa Rosa, California. October 15, 2018

adapted to disturbed, urban environments such as Virginia opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and striped skunk, (*Mephitis mephitis*).

Special-Status Species

Special-status species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. The California Environmental Quality Act (CEQA) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of Regulations Section 15380. Special-status species also include those species listed by the California Department of Fish and Wildlife (CDFW) as Species of Concern which face extirpation in California if current population and habitat trends continue, those identified as Fully Protected in the California Fish and Game Code (a designation that provides additional protection to those animals that are rare or face possible extinction), and bird species designated as Bird Species of Conservation Concern by the United States Fish and Wildlife Service (USFWS). These State and federal Species of Concern must be evaluated in the context of evaluation under CEQA. Under Title 14, California Code of Regulations Section 15380, mentioned above, many Biologists and the lead agencies for whom they work evaluate impacts to plant species on California Native Plant Society (CNPS) Lists 1 and 2. Special-status species included in CEQA review also include bat species that have been designated with conservation priority by the Western Bat Working Group.

The CDFW maintains records for the distribution and known occurrences of special-status species and sensitive habitats in the California Natural Diversity Database (CNDDB). The CNDDB is organized into map areas based on 7.5-minute topographic quadrangle maps produced by the United States Geologic Survey (USGS). All known occurrences of special-status species are mapped onto quadrangle maps maintained by the CNDDB. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The project site is within the *Cuttings Wharf* 7.5-minute Topographic Quadrangle Map.

Special-Status Plant Species

A list of special-status plants with potential to occur on the project site was developed from the CNDDB. A complete list of special-status plant species occurring in the vicinity of the property is included in the HBG report (Appendix C). The table includes all species of flora mentioned in the CNDDB within approximately 10 miles of the site.

No special-status plants have been mapped on or adjacent the project site. However, according to the CNPS Inventory and the CDFW CNDDB, a number of special-status plant species are known to occur in the project site vicinity. No special-status plants were identified on the project site by Monk & Associates while conducting various studies on the property in 2016, including an aquatic resources delineation and other evaluations conducted during the March to July flowering season of

2016.[7] No special-status plants or milkweed species (*Asclepias* ssp.) were identified on the project site by Helm Biological Consulting while conducting the protocol-level special-status plant survey conducted on April 7, 2021, May 4, 2021, and May 17, 2021.

Special-Status Wildlife

Animal species noted in the CNDDB as occurring within a 10-mile radius of the site, or that are known to occur in the general vicinity based on the knowledge of HBG Biologists, are discussed in in the HBG report (Appendix C). A number of special-status animal species are noted in the CNDDB as occurring in the general vicinity of the project site with habitat requirements similar to the habitats present on the project site. These species include vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (*Rana draytonii),* western pond turtle (*Emmys marmorata*), Swainson's hawk, golden eagle, northern harrier, burrowing owl (*Athene cunicularia*) and tricolored blackbird (*Aegelaius tricolor*). The CDFW is also concerned over rapid declines in populations of monarch butterflies (*Danuas plexippus*) and a discussion of this species in relation to the proposed project is also discussed in the 2021 HBG report.[8]

None of the other animal species discussed in the table have the potential to occur on the site. This finding is made based on the habitat requirements of species listed in the table and is based on field review of habitats present at the site and the immediate vicinity and an evaluation of the suitability of on-site habitats to support these species.

Wetlands

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

Region 1 of the USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan covers 33 species of plants and animals that occur exclusively or primarily within a vernal pool ecosystem in California and southern Oregon. The recovery plan goals include protecting and conserving intact vernal pools and vernal pool complexes within the recovery planning area to maintain viable populations of listed species and species of concern and prevent additional threats from emerging over time. The recovery plan includes designated "core" areas that are specific sites necessary to recover these endangered or threatened species or to conserve the species of concern addressed in this recovery plan.

The project site is near two core areas referred to as the "Napa River Core Area." One core area is located approximately 2.5 miles northeast of the project site at the Highway 12 and 121 interchange. The second Napa River Core Area is adjacent to the project site near the northwest boundary of the Wetland Preserve area. The project site itself is not within a core area.

The project site does support 0.13-acre of vernal pool habitat located within the 45-acre Wetland Preserve area and 1.13-acres of vernal pool habitat within the Phase 2 project footprint.

[7] Monk & Associates. 2016. Request for a Confirmed/Approved Jurisdictional Determination Aquatic Resources Delineation Report, Giovannoni Property, City of American Canyon, Napa County, California. Letter from Hope Kingma of Monk & Associates to Holly Costa of the San Francisco Regulatory Division of the United States Army Corps of Engineers August 29, 2016.

[8] Huffman-Broadway Group, Inc. 2021. Biological Resources Report, Giovannoni Logistics Center, American Canyon, California. San Rafael, California. 52 pp. plus attachments. Prepared for Buzz Oates Construction, Inc., Sacramento, California. May 2021.

Aquatic Resources Delineation Results

The Aquatic Resources Delineation Map prepared by Monk & Associates was submitted to the San Francisco District of the USACE on August 29, 2016, and was confirmed by letter from the USACE dated November 8, 2016. The wetlands found on the project site as mapped by Monk & Associates and verified by the USACE are provided in Attachment 4 of the HBG report. The mapped areas classified as wetlands exhibited a dominance of hydrophytic vegetation, as well as hydric soils and wetland hydrology. Hydrological indicators in mapped wetlands included the presence of oxidized rhizospheres along living roots (C3), surface soil cracks (B6), algal matting (Biotic Crust B12), aquatic invertebrates (B13), and vegetation suppression (indicating long-term inundation) within these wetland areas. Evidence of hydric soils included Redox Dark Surface F6 and Depleted Matrix F3 as defined in the approved regional supplement for the Arid West Region and the Field Indicators of Hydric Soils in the United States.

The majority of the seasonal wetlands on the project site gradually drain north toward No Name Creek. No Name Creek, within the project site, does not exhibit an ordinary high water mark (OHWM), and is therefore categorized as a seasonal wetland. No Name Creek flows off the project site to the west and enters the adjacent Napa River Core Area before draining into Fagan Slough, a tidal water of the United States. Fagan Slough is tributary to the Napa River, a traditional navigable water that flows to San Pablo Bay. Therefore, the 11.93 acres of seasonal wetlands in the north and southwest corner of the site are regulated as "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) and are subject to USACE jurisdiction (see Attachment 4 of the HBG report). Several features in the southeastern portion of the project site are mapped as "isolated" seasonal wetlands since they do not have hydrologic connectivity to any water of the United States. The "isolated" features are contained within discrete topographic depressions, surrounded by uplands and berms that are higher in elevation, thereby isolating these features from any water of the United States. A total of 0.84 acre of "isolated" features that are mapped on the project site are not subject to USACE jurisdiction as shown on Exhibit 6.

The total area of USACE jurisdictional wetlands mapped on the project site is 11.93 acres. The total area of "isolated" wetlands mapped on the project site is 0.84 acre. HBG has determined that the areas mapped as isolated wetlands and not subject to jurisdiction of the USACE under the federal CWA would be subject to the wetland criteria of the State Porter-Cologne Water Quality Control Act and the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) as a water of the State. A total of 12.77 acres of wetlands would be subject to the regulatory jurisdiction of the San Francisco Bay RWQCB as waters of the State. The portion of the project site along the northern boundary of the site contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the CDFW under Fish and Game Code Section 1602.

3.3.3 - Regulatory Framework

Federal

Clean Water Act–Section 404

The USACE regulates discharges of dredged or fill material into waters of the United States under Section 404 of the CWA. "Discharge of fill material" is defined as the addition of fill material into waters of the United States, including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 Code of Federal Regulations [CFR] § 328.2(f)). In addition, Section 401 of the CWA (33 United States Code [USC] 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the United States Environmental Protection Agency (EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the USACE to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States. Section 404(b) requires that the USACE issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b)(1) guidelines require that the USACE only authorize the "least environmentally damaging practicable alternative" and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate State water quality standards.

Waters of the United States include both wetlands and "other waters of the United States." Wetlands and other waters of the United States are described by the EPA and USACE regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). The EPA and USACE define wetlands as " . . . those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (EPA regulations at 40 CFR § 230.3(t); USACE regulations at 33 CFR § 328.3(b)). Both natural and man-made wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the United States include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the USACE 1987 Wetlands Delineation Manual (1987 Manual); the USACE 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the United States is defined by an OHWM in non-tidal waters (33 CFR § 328.3€) and by the high tide line within tidal waters (33 CFR § 328.3(d)). The OHWM is defined by the USACE as "that line on shore

established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR § 328.3(e)). Tidal waters are also under the jurisdiction of the USACE. The landward limits of jurisdiction in tidal waters extend to the high tide line or " . . . when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters" (33 CFR § 328.4(b)). High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 CFR § 328.3(d)).

Solid Waste Agency of Northern Cook County and Rapanos

In the U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC),* No. 99-1178 (2001)*,* some isolated wetlands may be excluded from the USACE Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Subsequent to SWANCC, the U.S. Supreme Court decided on *Rapanos v. United States* and *Carabell v. United States*, 126 U.S. 2208 (2006) (herein referred to as Rapanos). In 2007, guidance was given to EPA regions and USACE districts to implement the Supreme Court's decision that addresses the jurisdiction over waters of the United States under the CWA. The Rapanos guidance requires the USACE to conduct detailed analysis of the functions and values of wetlands and other waters of the United States potentially on-site and in some cases off-site, to determine whether there is a nexus to traditional navigable waters and to evaluate the significance of the nexus to the traditional navigable water. Neither the Court nor the recently issued guidance draw a clear line with respect to the geographic reach of jurisdiction, particularly in drainages where flows are ephemeral and where wetlands are adjacent to but not directly abutting relatively permanent water.

Navigable Waters Protection Rule

In 2020, the Trump administration obtained approval of the Navigable Waters Protection Rule (NWPR) that altered the reach of the regulations interpreting the scope of nation's CWA. The NWPR has four categories of jurisdictional waters and 12 categories of excluded waters/features. There is no stand-alone interstate waters category and no case-specific significant nexus analysis. Key changes were made for defining tributary, adjacent wetland, ditches, lakes, ponds, and impoundments. New definitions for defining typical year versus normal, perennial, intermittent, ephemeral, snowpack, and ditches. No change was made to the definition of wetlands or the methodology for defining wetlands. Under the NWPR, waters of the United States includes (1) territorial seas and traditional navigable waters; (2) tributaries; (3) lakes and ponds, and impoundments of jurisdictional waters; and (4) adjacent wetlands.

A ruling in the U.S. District Court for the District of Arizona on August 30, 2021, in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency,* may result in the Final NWPR being overturned permanently. The EPA and USACE are reviewing the U.S. District Court's order vacating and remanding the NWPR, have halted implementation of the NWPR, and are currently interpreting "waters of the United States" consistent with the pre-2015 waters of the United States definition and EPA and USACE regulatory policies and guidance regime until further notice.

Clean Water Act–National Pollution Discharge Elimination System Requirements

In 1972, the CWA was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related stormwater discharges under the NPDES Program. On November 16, 1990, the EPA published final regulations that establish stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES permit.

The State Water Board has developed a general construction stormwater permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent (NOI) to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) that would prevent construction pollutants from entering stormwater and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that include no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development (LID) design features. The Construction General Permit is implemented and enforced by California's nine RWQCBs.

The RWQCBs have also adopted requirements for NPDES stormwater permits for medium and large municipalities, and the State Water Board has adopted a General Permit for the discharge of stormwater from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan (SWMP) to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act

The United States Congress passed the Endangered Species Act in 1973 to protect those species that are endangered or threatened with extinction. The Endangered Species Act is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The Endangered Species Act establishes an official listing process for plants and animals considered in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532 and 1536).

The Endangered Species Act prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532). Taking can result in civil or criminal penalties. Federal regulation 50 Code of Federal Regulations 17.3 further defines the term "harm" in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Therefore, the Endangered Species Act is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision.

In the event that listed species are involved and a USACE permit is required for impacts to jurisdictional waters, the USACE must initiate consultation with the USFWS or the National Marine Fisheries Service (NOAA Fisheries) pursuant to Section 7 of the Endangered Species Act (16 USC 1536; 40 CFR § 402). Section 7 of the Endangered Species Act requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). In the regulations found at 50 Code of Federal Regulations 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." Critical habitat is defined in Endangered Species Act Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." Critical habitat designations identify, with the best available knowledge, those biological and physical features (primary constituent elements) which provide for the life history processes essential to the conservation of the species.

If formal consultation is required, USFWS or NOAA Fisheries will issue a Biological Opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the proposed project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the Endangered Species Act provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 Code of Federal Regulations Part 13 General Permit Procedures and 50 Code of Federal Regulations Part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the MBTA. Excluded species include non-native species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the United States Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the MBTA does not prohibit the accidental or "incidental" taking or killing of migratory birds. In response to the Trump administration's attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on

incidental take. Just days before leaving office, the Trump administration finalized its pullback of MBTA regulations, despite the ruling of the federal court. On his first day in office, President Biden placed Trump's changes to the MBTA on hold, pending further review.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NOAA Fisheries, and the State's wildlife agency (CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NOAA Fisheries, and the CDFW review applications for permits issued under Section 404 and provide comments to the USACE about potential environmental impacts.

USFW–S-Survey Guidelines for the Listed Large Branchiopods

The USFWS has published recovery plans for vernal pool species in Southern California and in Northern California and southern Oregon. These recovery plans list actions that will assist in the recovery of the vernal pool species, which include separate actions to develop survey guidelines and to conduct directed species status surveys or monitoring surveys.

The USFWS issued *Survey Guidelines for the Listed Large Branchiopods* dated May 31, 2021. These guidelines were created to provide a method to best detect the presence of the listed large branchiopods in a vernal pool or similar wetland feature. The guidelines are issued as guidance to Section 10(a)(1)(A) permittees. Because taking (killing, injuring, harming, or harassing) endangered or threatened species is strictly prohibited under the Endangered Species Act, a Section 10(a)(1)(A) recovery permit must be obtained prior to initiating any surveys or studies that might result in the take of endangered or threatened large branchiopods. These guidelines provide a survey method for wet season and dry season surveys.

State

Section 401 of the Federal Clean Water Act/Porter-Cologne Water Quality Control Act

Pursuant to Section 401 of the federal CWA, projects that require a USACE permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with State water quality standards before the USACE permit is valid. State water quality is regulated/administered by the California State Water Resources Control Board (State Water Board) and its nine RWQCBs. A water quality certification from a RWQCB must be consistent with not only the CWA, but with CEQA, the California Endangered Species Act (CESA), and the State Water Board requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the United States" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code § 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within

the State's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States" and all surface waters that are not "waters of the United States" (e.g., non-jurisdictional wetlands; groundwater; and the territorial seas).

The State Water Boards *State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State* adopted April 2, 2019 (the Procedures) along with the *Implementation Guidance for the Procedures* dated April 2020 (the Implementation Guidance) defines a wetland as an area that under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, state that the permitting authority (e.g., RWQCB) shall rely on any wetland area delineation from a final aquatic resource report verified by the USACE. If the USACE does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters, but these delineations shall be verified by RWQCB's staff during application review. Similarly, if the USACE does not require a delineation, but similar information is prepared for the CDFW, the applicant can submit that information to the RWQCB, which shall determine if it is sufficient for the RWQCB's purposes. In addition, as a matter of policy, the State Water Board/RWQCBs consider wetlands and waters determined to be non-jurisdictional by the USACE/EPA under SWANCC or Rapanos guidance or the NWPR to remain jurisdictional as waters of the State subject to State Water Board/RWQCB jurisdiction.

The Procedures along with the Interim Guidance also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any waters of the State and include elements of the CWA Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to the State Water Board regulation of discharges of dredged or fill material to all waters of the State. Typically, the USACE requires a CWA 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acre. The Procedures require an alternatives analyses to be completed in accordance with a three-tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The State Water Board has also developed a general construction stormwater permit to implement the requirements of the federal NPDES permit. Projects approved by a RWQCB must, therefore, include the pre-construction requirement for a SWPPP and the post-construction requirement for a SWMP.

California Endangered Species Act

The State of California enacted CESA in 1984. The CESA is similar to the Endangered Species Act but pertains to State listed endangered and threatened species. CESA requires State agencies to consult with the CDFW when preparing CEQA documents. CESA generally prohibits the taking of State listed endangered or threatened plant and wildlife species; however, for projects resulting in impacts to State listed species, the CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures

to fully mitigate impacts to State listed species. The CDFW exercises authority over mitigation projects involving State listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in State statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. The CDFW cannot issue an ITP until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the proposed project has complied with CEQA.

California Department of Fish and Wildlife–Lake and Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify the CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, the CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. The CDFW cannot issue a Streambed Alteration Agreement until CEQA compliance has been achieved, usually through the CEQA Lead Agency providing documentation in the form of a Notice of Determination that the Lead Agency has complied with CEQA by preparing a negative declaration or Environmental Impact Report (EIR).

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water" (Title 14 California Code of Regulations [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code*.[9] In making jurisdictional determinations, the CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically mentioned in the Fish and Game Code provisions governing Lake and Streambed Alteration Agreement, but the CDFW often asserts jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

[9] California Department of Fish and Game (CDFG). 1994. A Field Guide to Lake and Streambed Alteration Agreements. Sacramento, California. November 1, 1994.

California Department of Fish and Wildlife–Fish and Game Code Section 3503, 3503.5, and 3513.

The State of California also incorporates the protection of nongame birds and birds of prey, including their nests, in Sections 3503, 3503.5, and 3513 of the California Fish and Game Code. Under Fish and Game Code Section 3503.5, it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Fish and Game Code Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. In December of 2018, California issued new guidance specifying that State law includes "a prohibition on incidental take of migratory birds, notwithstanding any federal reinterpretation of the Migratory Bird Treaty Act" by the Department of Interior.

California Department of Fish and Wildlife–Sensitive Plant Communities

The CDFW has designated special-status natural communities which are considered rare in the region, rank as threatened or very threatened, support special-status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW that provide special functions or values. Documentation pertaining to these communities, as well as special-status species (including Species of Special Concern), is kept by the CDFW as part of the CNDDB. All known occurrences of sensitive habitats are mapped onto 7.5-minute USGS topographic quadrangle maps maintained by the CNDDB. Sensitive plant communities are also identified by the CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife–Species of Special Concern

The CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of "Species of Special Concern" developed by the CDFW. Even though these species may not be formally listed under the Endangered Species Act or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife–Fully Protected Animal Species

The classification of Fully Protected was an effort by California Legislature in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Protection of Fully Protected Species is described in four sections of the Fish and Game Code (Fish and Game Code [FGC] §§ 3511, 4700, 5050, and 5515). These statutes prohibit take or possession of Fully Protected Species at any time. The CDFW is unable to authorize incidental take of Fully Protected Species when activities are proposed in areas inhabited by these species, except pursuant to an approved Natural Community Conservation Plan. Most Fully Protected Species have also been listed as threatened or endangered species under State endangered species laws and regulations. Permits may be issued for the take of Fully Protected Bird species for necessary scientific research and relocation of the species for the protection of livestock (as per California FGC § 3511(a)(1)).

California Department of Fish and Wildlife–Swainson's Hawk Nesting Survey Guidelines

For locating nesting Swainson's hawk, the CDFW recommends using the "*Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*" dated May 31, 2000. This set of survey recommendations was developed by the Swainson's Hawk Technical Advisory Committee to maximize the potential for locating nesting Swainson's hawk, and thus, reducing the potential for nest failures as a result of project activities/disturbances. In summary, surveys should be conducted in a manner that maximizes the potential to observe the adult Swainson's hawk, as well as the nest/chicks. To meet the CDFW recommendations for mitigation and protection of Swainson's hawk, surveys should be conducted for a 0.5-mile radius around all project activities, and if active nesting is identified within the 0.5-mile radius, consultation with the CDFW to determine nesting buffers is required under these guidelines. The guidelines provide specific recommendations regarding the number of surveys based on when the proposed project is scheduled to begin and the time of year the surveys are conducted.

California Department of Fish and Wildlife–Special-status Native Plant Survey Protocol

For conducting botanical surveys to detect special-status plant species, the CDFW developed survey protocols identified in "*Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*" dated March 20, 2018. Botanical field surveys provide information used to determine the potential environmental effects of proposed projects on special-status plants as required by law (e.g., CEQA, CESA, and the Endangered Species Act). According to the protocol, botanical field surveys should be conducted in a manner which maximizes the likelihood of locating special-status plants and sensitive natural communities that may be present. Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. "Focused surveys" that are limited to habitats known to support special-status plants or that are restricted to lists of likely potential special-status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine whether they are special-status plants.

California Department of Fish and Wildlife–Staff Report on Burrowing Owl Mitigation

The CDFW issued survey protocols for conducting burrowing owl breeding and nonbreeding season surveys and pre-construction surveys in the *Staff Report on Burrowing Owl Mitigation* dated March 7, 2012.

In summary, for breeding season surveys a minimum of four survey visits shall be conducted: (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least 3 weeks apart, between April 15 and July 15, with at least one visit after June 15. The survey shall be conducted in all portions of the project site that fit the description of habitat in Appendix A of the staff report. Surveys shall be walked in straight-line transects spaced 7 meters to 20 meters apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 100 meters, the surveyor shall scan the entire visible project area for burrowing owl using binoculars and record all potential burrows used by burrowing owl as determined by the presence of one or more burrowing owl, pellets, prey remains, whitewash, or decoration. For nonbreeding season

surveys, the methods described above for breeding season surveys shall be followed, but at least four visits shall be spread evenly and conducted throughout the nonbreeding season.

Pre-construction surveys, referred to as "take avoidance surveys" in the staff report, are intended to detect the presence of burrowing owl on a project site at a fixed period in time and inform necessary take avoidance actions. Take avoidance surveys may detect changes in owl presence such as colonizing burrowing owl that have recently moved onto the site, migrating owl, resident burrowing owl changing burrow use, or young of the year that are still present and have not dispersed. In summary, survey methodology for pre-construction surveys should be conducted no less than 14 days prior to initiating ground disturbance activities.

California Native Plant Society

The CNPS, a nongovernmental organization, has no regulatory authority but provides information that is often used by regulatory bodies. The CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review, especially for those plant species including in Lists 1 and 2. The following identifies the definitions of the CNPS listings:

- **Rank 1A:** Plants presumed extirpated in California and either rare or extinct elsewhere.
- **Rank 1B:** Plants Rare, Threatened, or Endangered in California and elsewhere.
- **Rank 2A:** Plants presumed extirpated in California but more common elsewhere.
- **Rank 2B:** Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
- **Rank 3:** Plants about which more information is needed.
- **Rank 4:** Watch List: Plants of limited distribution.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following goals, objectives, and policies relevant to biological resources on the project site:

Goal 8 Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area.

Objective 8.1 Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.

Policy 8.1.1 Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.

Policy 8.1.4 Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend appropriate mitigation measures that the developer and/or government agency can implement.

Objective 8.2 Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savanna, and wetland and riparian habitats, with new development in the City.

Policy 8.2.1 Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savanna, and riparian habitats (see Figure 8-1) [General Plan], or with areas potentially occupied by vernal pools (see Figure 8-2) [General Plan] shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining Figure 8-1 [General Plan] for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified Biologist to determine whether sensitive habitats exist on-site, in instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.

Objective 8.3 Protect natural drainages and riparian corridors within the American Canyon Planning Area.

Policy 8.3.1 Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards:

a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.

b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g" (below).

c. Where riparian corridors are retained, they shall be protected by an adequate buffer with a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy (see Policy 8.3.2).

d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible.

e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages, or corridors from built environment.

f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible.

g. Future development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.

h. Future development shall mitigate unavoidable adverse impacts to waters of the United States, wetlands, and riparian habitats (pursuant to the federal Clean Water Act and the California Fish and Game Code, Section 1600 *et seq*.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Wildlife and/or United States Army Corps of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be affected, subject to State and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (off-site but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.

Policy 8.3.5 Establish a network of open spaces along the City's natural drainages and riparian corridors and link significant biological habitats. Any recreational use of these areas shall be designed to avoid damaging sensitive habitat areas.

Policy 8.3.6 Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths and greenbelts along their lengths throughout the City.

Objective 8.4 Protect local vernal pools as well as the habitats of endangered species living within American Canyon's Planning Area.

Policy 8.4.1 Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within American Canyon's Planning Area.

Policy 8.4.2 Preserve, where possible, the habitat of several in-fact endangered species, including those shown on Figure 8-2 and listed in Table 8-1, as well as those that may be considered by the City in the future.

Policy 8.4.3 Encourage activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering.

3.3.4 - Methodology

Biological Resources Report

The description of the biological setting for the property is based on field visits to the site by HBG Senior Environmental Scientist, Gary Deghi, Senior Wetland Scientist, Robert Perrera, and Wildlife Biologist, Emilie Strauss, between December of 2020 and April of 2021. In addition, HBG independently reviewed and incorporated a number of studies previously prepared for the proposed project by other consultants and conducted additional specialized studies using species experts as part of work in preparing this document.

Previously prepared biological studies pertaining to the site included an aquatic resources delineation prepared by Monk & Associates and surveys for federally listed vernal pool brachiopods conducted by both LSA Associates and Monk & Associates.[10,11,12] HBG included a habitat assessment for the federally listed threatened California red-legged frog prepared by Dr. Mark Jennings and a botanical field surveys, floristic in nature, were conducted by Dr. Brent Helm during the 2021 flowering season. These floristic surveys were conducted when the plants of interest were in bloom or otherwise visible.[13,14] Also relevant to the biological evaluation were Biological Resource Reports prepared by Monk & Associates for two separate Initial Study/Mitigated Negative Declarations (IS/MNDs) prepared by the City of American Canyon for projects with project boundaries either shared with or adjacent to the project site. These include Biological Resource Reports for the Devlin Road Extension project and the Green Island Road Reconstruction and Widening project.[15,16]

Aquatic Resources Delineation

Monk & Associates conducted an aquatic resources delineation on the project site in 2016. Field work for the delineation was conducted during the period of April 15 to May 26, 2016. Monk & Associates Biologists used the USACE 1987 Wetlands Delineation Manual in conjunction with the regional supplement for the Arid West Region to prepare this wetland delineation. A jurisdictional determination request and the Aquatic Resources Delineation Map were prepared in compliance with the USACE 2016 Minimum Standards for Acceptance of Aquatic Resources Delineation Reports and the 2016 Updated Map and Drawing Standards for the South Pacific Division Regulatory Program.[17]

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[10] Monk & Associates. 2016. Request for a Confirmed/Approved Jurisdictional Determination Aquatic Resources Delineation Report, Giovannoni Property, City of American Canyon, Napa County, California. Letter from Hope Kingma of Monk & Associates to Holly Costa of the San Francisco Regulatory Division of the United States Army Corps of Engineers August 29, 2016.

[11] LSA Associates. 2016. Results of 2016 Dry Season Listed Branchiopod Surveys for the Giovannoni Property and Devlin Road/Vine Trail Extension, Napa County, California, (USFWS Reference No. 2012-TA-0388). November 23, 2016.

[12] Monk & Associates. 2017. Vernal Pool Branchiopod Surveys on the Giovannoni Property and the Devlin Road and Vine Trail Extension project site, City of American Canyon, Napa County, California. United States Fish and Wildlife Service File No. 2012-TA-0388. Prepared for United States Fish and Wildlife Service, Sacramento Field Office. March 31, 2017.

[13] Jennings, Mark. 2021. Habitat Assessment for the California Red-legged Frog at the Proposed Giovannoni Logistics project site, American Canyon, California. Prepared by Rana Resources for Huffman-Broadway Group, Inc. March 11, 2021.

[14] Helm, Brent. 2021. Protocol Level Special Status Native Plant Surveys at the Giovannoni Logistic Center Project, Napa County, California. Prepared by Helm Biological Consulting. August 9, 2021.

[15] Monk & Associates. 2018. Biological Resource Analysis, Devlin Road/Vine Trail Extension project, City of American Canyon, California. Prepared for GHD Inc., Santa Rosa, California. October 15, 2018.

[16] Monk & Associates. 2019. Biological Resources Analysis, Green Island Road Reconstruction and Widening project, City of American Canyon, California. Prepared for City of American Canyon, California.

[17] Monk & Associates. 2016. Request for a Confirmed/Approved Jurisdictional Determination Aquatic Resources Delineation Report, Giovannoni Property, City of American Canyon, Napa County, California. Letter from Hope Kingma of Monk & Associates to Holly Costa of the San Francisco Regulatory Division of the United States Army Corps of Engineers August 29, 2016.

Vegetation, hydrology, and soils information were taken at 142 data points. Data points were mapped using a Trimble Pro-XR Global Positioning System (GPS) having sub-meter accuracy. The delineation map was made from the GPS files using ArcMap 10.2. All spatial data were projected into the California State Plane, NAD 83 coordinate system, Zone 2. Using GPS technology, the boundaries (within 30 inches) of each delineated wetland was transferred to an aerial photograph of the project site.

3.3.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study checklist that includes questions for determining whether impacts to biological resources are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. They also reflect the requirements of laws other than CEQA that protect biological resources (e.g., the federal CWA, the Porter-Cologne Water Quality Control Act, the Endangered Species Act and CESA, and the Natural Community Conservation Planning Act). As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project.

Additional guidance on the significance of biological resource impacts is found in CEQA Guidelines Section 15065, subdivision (a)(1), which provides that a lead agency shall find that a project may have a significant effect on the environment if "[t]he project has the potential to: . . . substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; [or]substantially reduce the number or restrict the range of an endangered, rare or threatened species[.]" The "mandatory findings of significance" are also found in the Appendix G sample Initial Study checklist, though near the end.

In light of the foregoing, the proposed project would have a significant effect related to biological resources if the proposed project would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.

c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

g) Substantially reduce the habitat of a fish or wildlife species.

h) Cause a fish or wildlife population to drop below self-sustaining levels.

i) Threaten to eliminate a plant or animal community.

j) Substantially reduce the number or restrict the range of an endangered, rare or threatened species.

3.3.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

Special-Status Species

Impact BIO-1:	**The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.**

Impact Analysis

Phases 1 and 2

Special-status Plants

A determination regarding whether special-status plant species are present in proposed development areas can only be made based on systematic rare plant surveys conducted during the flowering period of target plant species. HBG retained Dr. Brent Helm of Helm Biological Consulting, a division Tansley Team, Inc., to conduct botanical surveys for the presence of special-status plant species with the potential to occur at the site. These botanical surveys utilized CDFW protocols identified in "*Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*" dated March 20, 2018.

A 10-mile radius search using the CNDDB was generated to determine special-status plant species that may be near the project site. Helm Biological Consulting determined 23 special-status plant species were associated with habitats that are known to occur the project site. Helm Biological Consulting conducted botanical surveys during the spring of 2021 and survey dates were chosen based on when the special-status plants would be in bloom or otherwise visible. Field surveys for special-status plants incorporated floristic survey methods, as recommended by CDFW protocols. Floristic survey methods require identification of all plant species located on-site. Each species encountered was identified to the extent necessary to determine whether it had any legally

protected status. Floristic surveys were conducted to ensure that special-status plant species were not inadvertently overlooked because they were not targeted for surveys.

Based on the Helm Biological Consulting botanical survey results, no special-status plant species occur on the project site. Therefore, no impacts to special-status species would occur from construction of the proposed project. No mitigation is warranted for special-status plants.

Special-status Animals

Monarch Butterfly

No trees are present on the project site so there is no possibility for the presence of a monarch butterfly overwintering site at the project site. Several Biologists, including most recently Helm Biological Consulting, have studied the site or portions of the site, and none have reported the presence of milkweed plants of the genus *Asclepias*[18] that serve as the larval host plant for monarchs. No suitable habitat for monarch butterflies is found on the site, therefore, no potentially significant impacts to monarch butterflies would result from construction of the proposed project.

Vernal Pool Fairy Shrimp

LSA Inc. conducted dry season vernal pool fairy shrimp surveys in summer of 2016, and Monk & Associates, Inc. conducted wet season vernal pool fairy shrimp surveys in winter of 2016-2017. Survey methods were conducted in accordance with the USFWS revised *Survey Guidelines for the Listed Large Branchiopods (May 31, 2015).* No vernal pool fairy shrimp were observed during the dry or wet season surveys. Based upon completed surveys using these guidelines for vernal pool fairy shrimp, it is clear that the federally listed threatened vernal pool fairy shrimp does not occur on the project site. Therefore, no impacts to vernal pool fairy shrimp would result from construction of the proposed project. No mitigation is warranted for vernal pool fairy shrimp for the proposed project.

California Red-legged Frog

A habitat assessment prepared for the project site by Rana Resources found that the project site lacks habitat necessary to support the California red-legged frog. All records of the California red-legged frog from the CNDDB in the project area are from areas east of State Route (SR) 29, which forms a barrier to potential movements of the California red-legged frog onto the site. Additionally, the project site is completely isolated from all areas to the east by SR-29 by urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of SR-29. Finally, there is no suitable breeding or rearing habitat for California red-legged frog on-site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. California red-legged frog do not occupy the project site, and the proposed project would have no significant impacts on California red-legged frogs. No mitigation is warranted for this species for the proposed project.

Western Pond Turtle

Suitable habitat for western pond turtle does not occur on the site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Surrounding uplands of suitable shrub/woodlands and

[18] Helm Biological Consulting. 2021. Protocol-Level Special-Status Plant Survey at the Giovannoni Logistics Center Project, Napa County, California. August 2021.

appropriate basking sites are also lacking. Western pond turtle does not occupy the project site. No impacts to western pond turtle would result from development of the proposed project. Mitigation measures for western pond turtle are not warranted for the proposed project.

Swainson's Hawk

There are no trees located on the project site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the project site. Swainson's hawk was observed foraging on the site during surveys conducted in April and May 2021. Development of the proposed project would remove some foraging area for this species. Development of the proposed project would also provide and preserve in perpetuity approximately 45 acres of open space that would include habitat currently suitable for foraging by the Swainson's hawk as indicated by the observation of a Swainson's hawk foraging in the site in spring 2021. The adjacent Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides foraging habitat for Swainson's hawk. Between these two preservation areas abutting and directly adjacent to the project site approximately 82 acres of suitable habitat would be available for the Swainson's hawk. In addition there are several large open space preserves within 2 and 5 miles of the project site that combined provide approximately 2,000 acres of suitable foraging habitat. Based upon the limited number of Swainson's hawk records within a 10-mile radius of the project site, there is sufficient foraging habitat in and within the vicinity of the project site. Based upon the limited number of known Swainson's hawk to occur within a 10 mile radius of the project site and the acreage of existing foraging habitat currently protected, the proposed project would not result in significant impacts to foraging habitat directly, indirectly, or cumulatively, therefore no mitigation is warranted for Swainson's hawk foraging habitat.

Although eucalyptus and other large trees located within about 0.25 mile from the project site provide potential nesting habitat, no nesting by Swainson's hawk (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by Helm Biological Consulting in April and May 2021. If an active Swainson's hawk nest is found on or adjacent to the project site or within the area of influence of the project site (which is generally considered within 1,000 feet), the CDFW could require that project-related disturbance at active nest sites be reduced or eliminated during the period from March 1—September 15.[19] If Swainson's hawk was found to be nesting within a zone of influence during the construction period, potential impacts to this species could occur, including disturbance to nesting birds and possible mortality of adults and/or young. If the qualified Raptor Biologist[20] determines nest disturbances are anticipated to occur that could result in mortality of adults and/or young, a Fish and Game Section 2081 ITP authorization would be required. Pre-construction nesting surveys, as described in MM BIO-1a, are warranted to ensure that the proposed project will not impact Swainson's hawk. With the implementation of this mitigation

[19] California Department of Fish and Wildlife (CDFW). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31, 2000. 4 pages.

[20] A qualified Raptor Biologist is an individual who shall have a minimum of 5 years of academic and professional experience in biological sciences and be able to recognize raptor species that may be present at and near the project site and be familiar with the foraging and nesting habits and behaviors of these species.

measure any potential impacts to nesting Swainson's hawk would be reduced to less than significant levels.

Golden Eagle

There are no trees located on the project site, and no large trees capable of supporting nesting by golden eagle in the immediate vicinity of the project site; however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagle that may nest away from the project site. A single golden eagle was observed exhibiting foraging behavior on the site in spring 2021. Although eucalyptus and other large trees located within about 0.25 mile from the project site provide potential nesting habitat, no nesting by golden eagle (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by Helm Biological Consulting in April and May 2021.

As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 mile from the project site cannot be ruled out. If a golden eagle were found to be nesting within a zone of influence of the project site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Pre-construction surveys for golden eagle, as described in Mitigation Measure (MM) BIO-1b, are warranted to ensure that construction activities do not result in impacts to nesting individuals of this species. With the implementation of this mitigation measure any potential impacts to nesting golden eagle would be reduced to less than significant levels.

Northern Harrier

Suitable nesting habitat for the northern harrier (a State Designated Species of Special Concern) occurs within the non-native grasslands and seasonal wetlands and swales found within the project site. Northern harrier individuals were observed foraging over the project site during both winter and spring (breeding) seasons during surveys conducted by Helm Biological Consulting. If a northern harrier were found to be nesting on the project site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Nesting by northern harrier has not been documented on the project site, but nesting by this species at the site is possible. Pre-construction surveys for northern harrier, as described in MM BIO-1c, are warranted to ensure that construction activities do not result in impacts to nesting harriers. With the implementation of this mitigation measure any potential impacts to nesting northern harriers would be reduced to less than significant levels.

Burrowing Owl

A small number of burrowing owl have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the project site and about 2.5 miles south.[21] No burrowing owl or occupied California ground squirrel burrows were observed on the project site during a field reviews conducted by Helm Biological Consulting in December 2020 and April and May 2021 or during previous biological studies conducted by Monk & Associates, LSA

[21] California Department of Fish and Wildlife (CDFW). 2020. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed May 2021.

Associates, or Rana Resources. The only observed ground squirrel were from the area around the perimeter of Clark's Rocks. It remains possible that ground squirrel could establish colonies on the site in the future prior to project construction, providing new occupiable habitats for burrowing owl. As a result, future use of the site by burrowing owl cannot be ruled out. Therefore, the proposed project shall implement MM BIO-1d to ensure that no burrowing owl would be impacted by construction activities.

Tricolored Blackbird

No impact to tricolored blackbird nesting colonies would occur as a result of the development of the project site. Although tricolored nesting colonies have been documented about 0.25 mile from the project site as recently as 1993, Helm Biological Consulting has concluded that vegetative characteristics of preferred nesting habitat for tricolored blackbird does not occur at the project site. Suitable nesting habitat for tricolored blackbird does not occur within the project site, therefore, no impacts to tricolored blackbird nesting colonies would result from implementation of the proposed project.

Conclusion

Implementation of these mitigation measures would avoid the "take" of Swainson's hawk and golden eagle defined by CESA; avoid disturbing a northern harrier or burrowing owl active nest, and avoid harming a burrowing owl during the nonbreeding season if it is occupying a burrow within the project site, thus reducing potential impacts to a level considered less then significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM BIO-1a Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall follow California Department of Fish and Wildlife (CDFW) guidelines for conducting surveys for Swainson's hawk that were developed by the Swainson's Hawk Technical Advisory Committee to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.

If no nesting Swainson's hawk are found during the first non-optional survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there is a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

MM BIO-1b No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project site vicinity. Pre-construction surveys shall include investigation of all potential nesting trees within a 0.5-mile radius around all project activities. If active golden eagle nests are identified within any trees within a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be modified by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

MM BIO-1c Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier if construction is scheduled during the nesting season (February 1 through September 1). To determine whether northern harrier is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests. An active northern harrier nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be modified considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the

nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Biologist.

MM BIO-1d Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted. The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

- If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.
- If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.

Level of Significance After Mitigation

Less than significant impact.

Sensitive Natural Communities or Riparian Habitat

Impact BIO-2:	**The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.**

Impact Analysis

Phases 1 and 2

The proposed project development east of Devlin Road would impact approximately 0.496 acre of palustrine emergent wetlands and the proposed Phase 2 project west of Devlin Road would impact approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools for a total of 3.70 acres of wetland impacts. Plans for wetland mitigation, including the preservation of an approximately 45-acre Wetland Preserve to include existing 7.58 acres of seasonal wetlands and 0.13 acre of vernal pools as well as established/created seasonal wetlands and vernal pools intended to offset wetland impacts of buildout development of the project site. To offset the loss of the 0.496 acre of seasonal

wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland or vernal pool area, the applicant shall establish/create 0.992 acre of seasonal wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and of 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.

The portion of the project site along the northern boundary contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the CDFW under Fish and Game Code Section 1602. As the area of No Name Creek is contained within the approximately 45-acre Wetland Preserve, no impacts to the palustrine emergent wetland swale/seasonal wetland associated with No Name Creek would occur from either Phase 1 proposed project in the area east of Devlin Road or Phase 2 project west of Devlin Road. No impacts would occur to areas that would be subject to CDFW jurisdiction under Fish and Game Code Section 1602, therefore, there would be no requirement to obtain a Streambed Alteration Agreement from the CDFW.

Conclusion

Implementation of these mitigation measures would offset permanent impacts to the palustrine emergent wetlands and vernal pools and ensure there is no-net loss of wetland area, thus reducing potential impacts to a level considered less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM BIO-2 To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.

Level of Significance After Mitigation

Less than significant impact.

Wetlands and Jurisdictional Features

Impact BIO-3:	**The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Impact Analysis

Phases 1 and 2

Region 1 of the USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan covers 33 species of plants and animals that occur exclusively or primarily within a vernal pool ecosystem in California and southern Oregon. The recovery plan goals include protecting and conserving intact vernal pools and vernal pool complexes within the recovery planning area to maintain viable populations of listed species and species of concern and prevent additional threats from emerging over time. The recovery plan includes designated "core" areas that are specific sites necessary to recover these endangered or threatened species or to conserve the species of concern addressed in this recovery plan.

The project site is near two core areas referred to as the "Napa River Core Area." One core area is located approximately 2.5 miles northeast of the project site at the Highway 12 and 121 interchange. The second Napa River Core Area is adjacent to the project site near the northwest boundary of the Wetland Preserve area.

The project site itself is not within a core area and does not support vernal pool complexes that support plants and animals targeted in the USFWS recovery plan, therefore no direct adverse impacts to the Napa River Core Area would occur as a result of implementation of Phases 1 and 2. Phase 1 of the proposed project would preserve, in perpetuity, approximately 45 acres along the northern boundary. The 45-acre Wetland Preserve supports 7.58 acres of seasonal wetlands and 0.13 acre of vernal pools but would also include establishment/creation of approximately 3.56 acres of seasonal wetlands and 1.13 acres of vernal pools. Once the 45-acre Wetland Preserve is placed under a conservation easement, the additional wetlands are established/created, and an endowment to manage the land is funded, this 45-acre Wetland Preserve may provide beneficial impacts, long-term in duration, to the adjacent Napa River Core Area and recovery plan by providing protected wetland and vernal pool habitat within close proximity to the Napa River Core Area that may be suitable, once wetlands are established/created for the listed species and species of concern addressed in the recovery plan.

Based on the project site being located outside of the Napa River Core Area, the absence of listed species targeted in the recovery plan, and the proposed preservation of the Wetland Preserve, no adverse impacts to the Napa River Core Area would occur from construction of the proposed project. No mitigation is warranted for the Napa River Core Area.

Phase 1

Development of Phase 1 of the proposed project within the area east of Devlin Road would result in impacts to wetlands subject to USACE jurisdiction as a water of the United States and subject to San Francisco Bay RWQCB jurisdiction as a water of the State. Grading activities associated with the proposed project would result in the permanent placement of fill material (soil) into 0.496 acre of palustrine emergent wetlands considered waters of the State; refer to Exhibit 3.3-3. Of this 0.496 acre of impacts to waters of the State, the USACE has determined 0.492 acre are isolated and not considered waters of the United States. Therefore, the proposed project would also impact 0.004 acre of palustrine emergent wetlands considered waters of the United States. The City of American Canyon processed a separate Nationwide Permit for impacts to 0.21 acre on the 8.3-acre project site for the Devlin Road/Vine Trail Extension project.

An enumeration of the wetland impacts within the proposed project development is detailed in Table 3.3-1.

Table 3.3-1 Wetland Impacts

Isolated Wetland (IW)	Square Feet/Acres
IW-2	97/0.002
IW-3	229/0.005
IW-4	3117/0.072
IW-5	17019/0.391
IW-6	935/0.022
USACE Jurisdictional Wetlands	
W-89	189/0.004
Total	**21,586/0.496**
Source: Huffman-Broadway Group, Inc. 2021.	

Grading activities would result in the permanent placement of fill material (soil) into 0.496 acre of palustrine emergent wetlands considered waters of the State under the Porter-Cologne Water Quality Control Act. Of the 0.496 acre of waters of the State, the USACE has determined 0.492 acre are isolated and not considered waters of the United States under the federal CWA, so the proposed project would also impact the remaining 0.004 acre of palustrine emergent wetlands considered waters of the United States. These impacts would require that the applicant apply for and obtain a Nationwide Permit from the USACE for discharge within 0.004 acre of wetlands under CWA Section 404 jurisdiction along with an accompanying Section 401 Water Quality Certification from the San Francisco Bay RWQCB. The applicant would also need to apply for and obtain a separate Waiver of Waste Discharge from the San Francisco Bay RWQCB for impacts to 0.496 acre of waters of the State, as described in MM BIO-3a. Exhibit 3.3-4 depicts the Wetlands Mitigation Plan.

Phase 2

The development of the remaining 85.9-acre area on the west side of the Devlin Road Extension, which consists of Phase 2 of the proposed project, would impact approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pool wetlands considered both waters of the State and waters of the United States, assuming buildout of Phase 2; refer to Exhibit 3.3-5. Impacts to approximately 3.7 acres of wetlands for a possible Phase 2 project would require that the applicant submit a separate application for an Individual Permit from the USACE to include a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines to include a detailed evaluation of both on-site and off-site alternatives for the proposed project. Such a development on the Phase 2 portion of the project site would also require a CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB for the USACE permit to be valid and would also require a Waiver of Waste Discharge Requirements for San Francisco Bay RWQCB pursuant to the Porter-Cologne Water Quality Control Act, as described in MM BIO-3b.

As described in MM BIO-3d, a detailed Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay RWQCB for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan includes the preservation of the approximately 45-acre Wetland Preserve as well as the creation of approximately 3.56 acres of palustrine emergent wetlands and 1.13 acres of vernal pools within the Wetland Preserve.

Conclusion

Implementation of these mitigation measures would offset permanent impacts in-kind to the palustrine emergent wetland and in-kind to the vernal pools and ensure there is no-net loss of wetland area, thus reducing potential impacts to a level considered less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM BIO-3a Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act (CWA) Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3b Prior to issuance of the Phase 2 grading permit, the project applicant shall apply for and obtain an Individual Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for the placement of fill material within approximately 3.7 acres of wetlands/waters of the United States under Clean Water Act (CWA) Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for the discharge of fill material within approximately 3.7 acres of waters of the State. To offset the loss of 3.7 acres of permanent wetland impacts and to ensure there is no-net loss of wetland area or permanent loss of functions and values, the applicant shall establish/create 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pools (1:1 ratio), at a minimum of 1 year prior to the start of construction, on the 45-acre Wetland Preserve. The

established/created wetlands and vernal pools shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3c Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part of Phase 2. The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3d Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J–Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board *Implementation Guidance* dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332)

The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum:

1. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve.

2. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio.
3. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur.
4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards.
5. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc.
6. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface therefore a 5-year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.
7. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan.
8. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.

Performance Standards

Performance Standards shall include at a minimum the following:

Years 1, 2, 3, 4 and 5 Performance Standards for Wetland Hydrology

Each year wetland hydrology shall be measured during the winter when surface and/or subsurface hydrology would be observable. A minimum of 1 data point shall be taken in each of the established/created wetlands. In addition, wetland hydrologic indicators shall be recorded each spring during the vegetation monitoring period.

Year 1:

Performance standard would be met for Year 1-5 if:

- The created wetlands remain inundated to a minimum depth of 0.5 inch or greater for at least 7 days and/or saturated for at least 14 days and/or at least one primary or two secondary wetland hydrology indicators listed in the *Arid West Region Wetland Determination Data Forms* are recorded.

Contingency Measures:

If the annual performance standard is not being met for any given monitoring year the Permittee shall prepare an analysis of the cause(s) of failure and, if determined necessary, implement remedial action. If the Plan Area has not met the performance standard, the Permittee's maintenance and monitoring obligations shall continue until the RWQCB and CDFW give final project confirmation. Remedial action may include re-grading to achieve wetland hydrology, which would improve hydric soil formation.

Years 1, 2, 3, 4, and 5 Performance Standards for Increase in Colonization of Wetland Vegetation

Each year during the spring or early summer wetland vegetation cover shall be measured by conducting a site visit and recording absolute cover and dominant plant species observed within the wetland buffer area. A minimum of 1 data point shall be taken in each of the established/created wetlands. The colonization of wetland vegetation shall be measured by determining overall absolute plant cover values each year. This shall be accomplished by measuring absolute cover values within a 5-foot radius sample plot at each data point. Performance Standards for each monitoring year are listed below.

Year 1:

Performance standard would be met for Year 1 if:

- At least one hydrophytic plant species colonizes the established/created seasonal wetlands and vernal pools; and
- The average absolute cover of wetland vegetation within an established/created seasonal wetlands and vernal pools is 5 percent or greater.

Year 2:

Performance standard would be met for Year 2 if:

- At least one hydrophytic plant species colonizes the established/created seasonal wetlands and vernal pools; and
- The average absolute cover of wetland vegetation within an established/created seasonal wetlands and vernal pools is 10 percent or greater.

Year 3:

Performance standard would be met for Year 3 if:

- At least two hydrophytic plant species colonizes the established/created seasonal wetlands;
- At least two native hydrophytic plant species colonizes the established/created vernal pools and at least one is a vernal pool habitat indicator species; and
- The average absolute cover of wetland vegetation within an established/created seasonal wetlands and vernal pools is 20 percent or greater and comprised of native and naturalized species.

Year 4:

Performance standard would be met for Year 4 if:

- At least two hydrophytic plant species colonize the established/created seasonal wetlands.
- At least two native hydrophytic plant species colonizes the established/created vernal pools and at least one is a vernal pool habitat indicator species.
- The average absolute cover of wetland vegetation within an established/created seasonal wetland and vernal pool is 30 percent or greater.
- Invasive wetland plant species do not comprise greater than 5 percent of the total absolute cover. Invasive plants shall be defined as species rated as “high” by California Invasive Plant Council (Cal-IPC).

Year 5:

Performance standard would be met for Year 5 if:

- At least two hydrophytic plant species documented during the CRAM assessment for the palustrine emergent wetlands impacted on the Phase 1 project site colonize the established/created seasonal wetlands.
- At least two native vernal pool habitat indicator species documented during the CRAM assessment for the vernal pool on the Phase 2 project site colonizes the established/created vernal pools.
- The average absolute cover of wetland vegetation within the established/created seasonal wetland (non-vernal pool wetlands) is 40 percent or greater; and the average absolute cover of wetland vegetation within the established/created vernal pools is 40 percent or greater of which greater than 50 percent of the vegetation cover consists of two or more dominate native vernal pool habitat indicator plants.

- Invasive wetland plant species do not comprise greater than 5 percent of the total absolute cover. Invasive plants shall be defined as species rated as "high" by Cal-IPC.

Contingency Measures:

If the annual performance standard is not being met for any given monitoring year the Permittee shall prepare an analysis of the cause(s) of failure and, if determined necessary, implement remedial action. Remedial action may include hydroseeding with native species, or addition of supplemental topsoil or mulch to promote growth.

Year 5 No-Net-Loss Performance Standard for Phase 1 Impacts

Performance standard would be met for Year 5 when;

- A wetland delineation is performed and verified by the USACE and confirms a minimum of 0.992 acre of wetlands have been established/created within the Wetland Preserve.

Year 5 No-Net-Loss Performance Standard for Phase 2 Impacts

The Phase 2 no-net-loss performance standard would be measured when an application for the Phase 2 project is submitted to the RWQCB and USACE, and the Phase 2 project is approved. Once Phase 2 has been approved by the RWQCB and USACE, this performance standard may be modified depending on the level of wetland impacts authorized by the RWQCB and USACE, meaning this performance standard may decrease if the wetlands impacted for Phase 1 are less than 3.7 acres.

Performance standard would be met for Year 5 when;

- A wetland delineation is performed and verified by the USACE and confirms a minimum of 2.57 acres of seasonal wetland and 1.13 acres of vernal pools have been established/created within the Wetland Preserve.

Year 5 Long-Term Protection and Long-Term Funding

Performance standard would be met for Year 5 once:

- The Wetland Preserve has been placed under a conservation easement; and
- A long-term financing mechanism (e.g., non-wasting endowment, trusts, contractual arrangement etc.) to fund implementation of the long-term management of the Wetland Preserve has been secured.

Level of Significance After Mitigation

Less than significant impact.

Fish and Wildlife Movement Corridors

Impact BIO-4:	**The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.**

Impact Analysis

Phases 1 and 2

Although a number of wildlife species, including a variety of bird species that potentially include special-status species, were observed on the property during field surveys, neither the development of the proposed project would result in significant impacts to movement of any native resident or migratory fish or wildlife species, migratory wildlife corridors or use of wildlife nursery sites on the site. Mitigation measures to address impacts to sensitive habitats, most notably seasonal wetlands and vernal pools, are included herein that include the preparation and implementation of a detailed Compensatory Wetland Mitigation Plan. The site design includes the preservation of the approximately 45-acre Wetland Preserve that will preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of existing vernal pools but would also include creation of approximately 3.56 acres of additional seasonal wetlands and 1.13 acres of vernal pools.

Any species of fauna that may be displaced during preparation of the site for development of the proposed project should find nearby available habitats, including habitats within the approximately 45-acre Wetland Preserve or adjacent and adjacent 37-acre preserve for the Napa Logistics project on the adjacent property. The major wildlife corridor along No Name Creek will remain unaffected as the entirety of No Name Creek shall be incorporated into the Wetland Preserve. The proposed project would not result in substantial change in animal populations at the site, nor would it cause a fish or wildlife population to drop below self-sustaining levels.

Nesting Birds

Nesting bird species protected by the federal MBTA or California Fish and Game Code could be impacted during project construction. Work related to construction involving the removal of vegetation during the February 1 to August 1 breeding season of birds could result in mortality of nesting avian species if they are present. Many species of raptors (birds of prey) and non-raptors are sensitive to human incursion and construction activities, and it is necessary to ensure that nesting bird species are not present in the vicinity of construction sites. Therefore, the proposed project shall implement MM BIO-4 in order to reduce any potential impacts to nesting birds to less than significant levels.

Water Quality

Construction activities for Phase 1 of the proposed project will occur in within 0.496 acre of wetlands subject to State jurisdiction and in close proximity to areas within the upper reaches of No Name Creek. Construction of Phase 2 may affect 3.7 acres of wetlands, including vernal pools, near No Name Creek. However, water quality impacts with implications to use of No Name Creek as a wildlife movement corridor would not be significant for several reasons. The requirement for the implementation of a SWPPP, with identification of proper construction techniques and BMPs, would be required and would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. In particular, silt fence and straw wattles would be installed along portions of the project site to maintain levels of water pollutants migrating off-site. In addition, vegetation would only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates should be stabilized as quickly as possible to prevent erosion and runoff.

Grading, excavation, placement of fill material, and other ground-disturbing activities associated with construction activities within the project site would not promote erosion that would allow elevated levels of sediment to wash into aquatic areas downstream, including No Name Creek, where such pollutants could result in potential impacts to fish and wildlife resources. Indirect impacts to resident animal populations in downstream areas would not result from the proposed project due to elevated turbidity levels from increased sedimentation or increases in other contaminants in stormwater runoff.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM BIO-4 If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. Nesting bird surveys shall cover the proposed project footprint and adjacent areas. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on-site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting northern harriers; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

Level of Significance After Mitigation

Less than significant impact.

Local Policies or Ordinances

Impact BIO-5:	**The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Impact Analysis

Phases 1 and 2

No trees are present on the project site and, therefore, no tree removal would occur. The proposed project would not conflict with any local policies related to protection of natural resources.

All work for the proposed project would take place consistent with biological requirements of the General Plan and Zoning Ordinance of the City of American Canyon. The Biological Resources Report provides the detailed assessment of biological resources required by General Plan Policies 8.1.1 and 8.1.4. Studies of sensitive biological resources have been either conducted by HBG as part of the attached Biological Resources Report or were conducted by other consultants and independently

reviewed and incorporated into the Biological Resources Report, consistent with General Plan Policy 8.2.1. Studies conducted by HBG include a protocol Phase 1 Habitat Assessment for the federally listed threatened California red-legged frog, surveys for State listed threatened Swainson's hawk and rare plant surveys conducted by Dr. Brent Helm during the 2021 flowering season. Studies conducted by others include wet and dry season protocol surveys for the federally listed threatened vernal pool fairy shrimp and rare plant surveys. The proposed project results in impacts to palustrine emergent wetlands and vernal pool wetlands and the applicant has prepared a conceptual plan to mitigate for these wetlands consistent with General Plan Policy 8.3.1.a, which requires the development plan to consider the nature of existing biological resources and all reasonable measures to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones; General Plan Policy 8.3.1.h, which requires in summary developments shall mitigate unavoidable adverse impacts to waters of the United States, wetlands, and riparian habitats by replacement on an in-kind basis and such replacement should occur on the original development site, whenever possible, and; General Plan Policy 8.4.3, which encourages activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering. The wetland mitigation would be accomplished through establishment of an approximately 45-acre Wetland Preserve within the project site to include preserving 7.58 acres of existing seasonal wetlands and 0.13 acres of vernal pools and establishment/creation of an additional approximately 3.56 acres of seasonal wetlands and 1.13 acres of vernal pools to compensate in-kind for permanent impacts to seasonal wetlands from the proposed project.

Level of Significance Before Mitigation

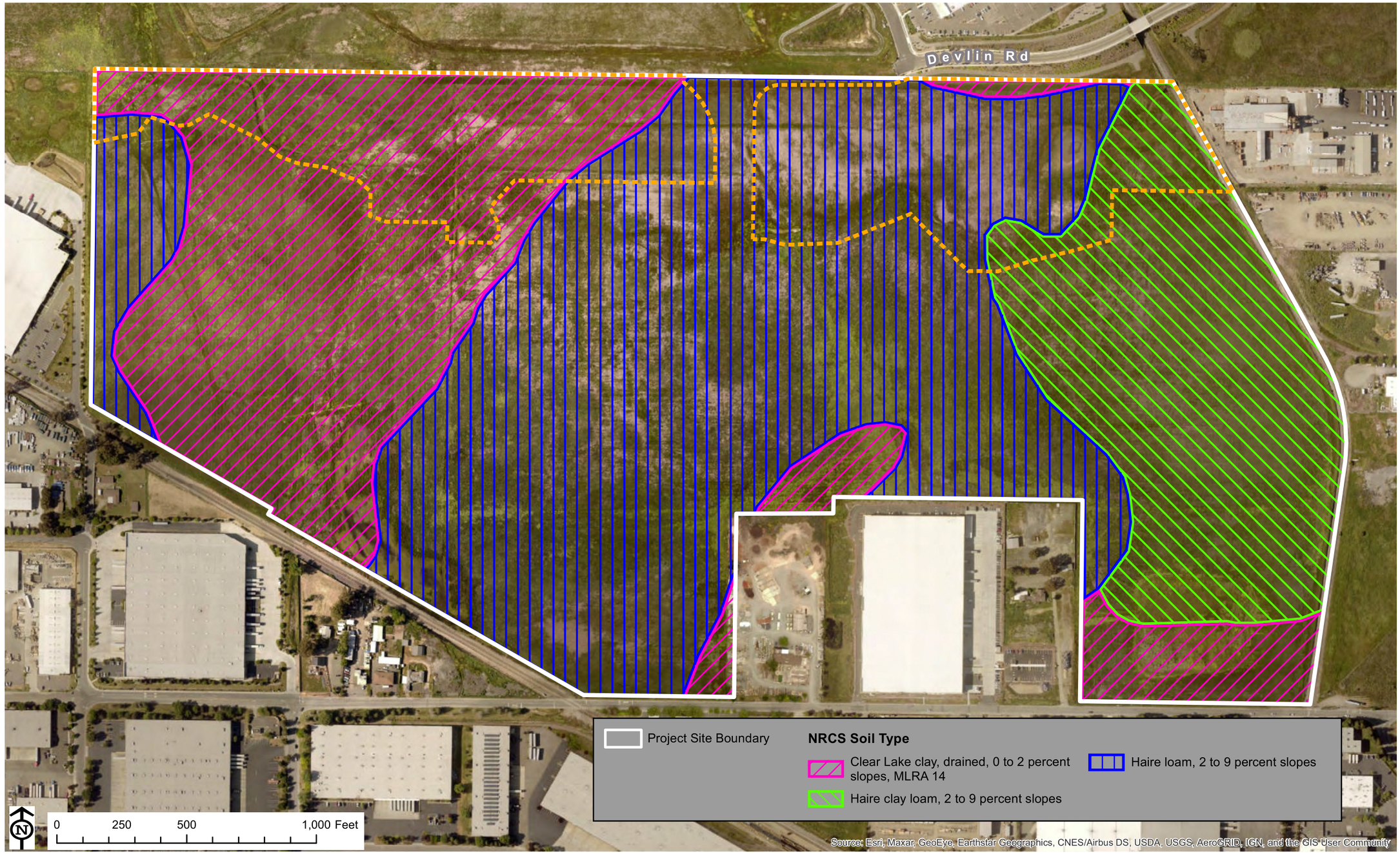
Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.



Source: Huffman-Broadway Group, Inc., Environmental Regulatory Consultants (May 2021). Imagery Source: County of Napa 6/19/2018.

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Exhibit 3.3-1
Soils Map

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Source: Huffman-Broadway Group, Inc., Environmental Regulatory Consultants. Imagery Source: Maxar.

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Exhibit 3.3-2
Plant Communities

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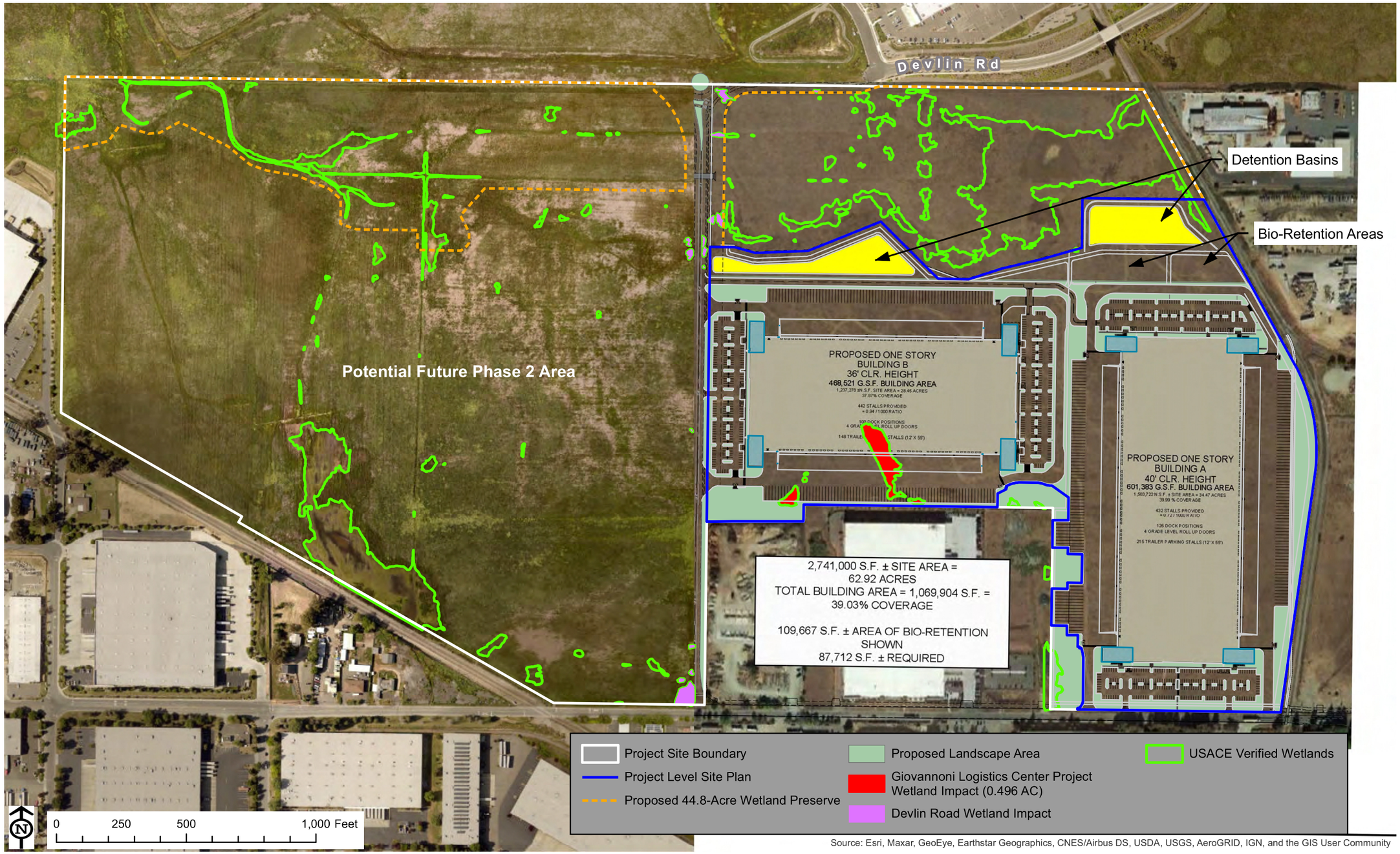

Source: Huffman-Broadway Group, Inc., Environmental Regulatory Consultants (May 2021). Imagery Source: County of Napa 6/19/2018.

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Exhibit 3.3-3
Phase 1 Wetland Impacts

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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Huffman-Broadway Group, Inc., Environmental Regulatory Consultants (May 2021). Imagery Source: County of Napa 6/19/2018.

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Exhibit 3.3-4
Wetland Mitigation Plan

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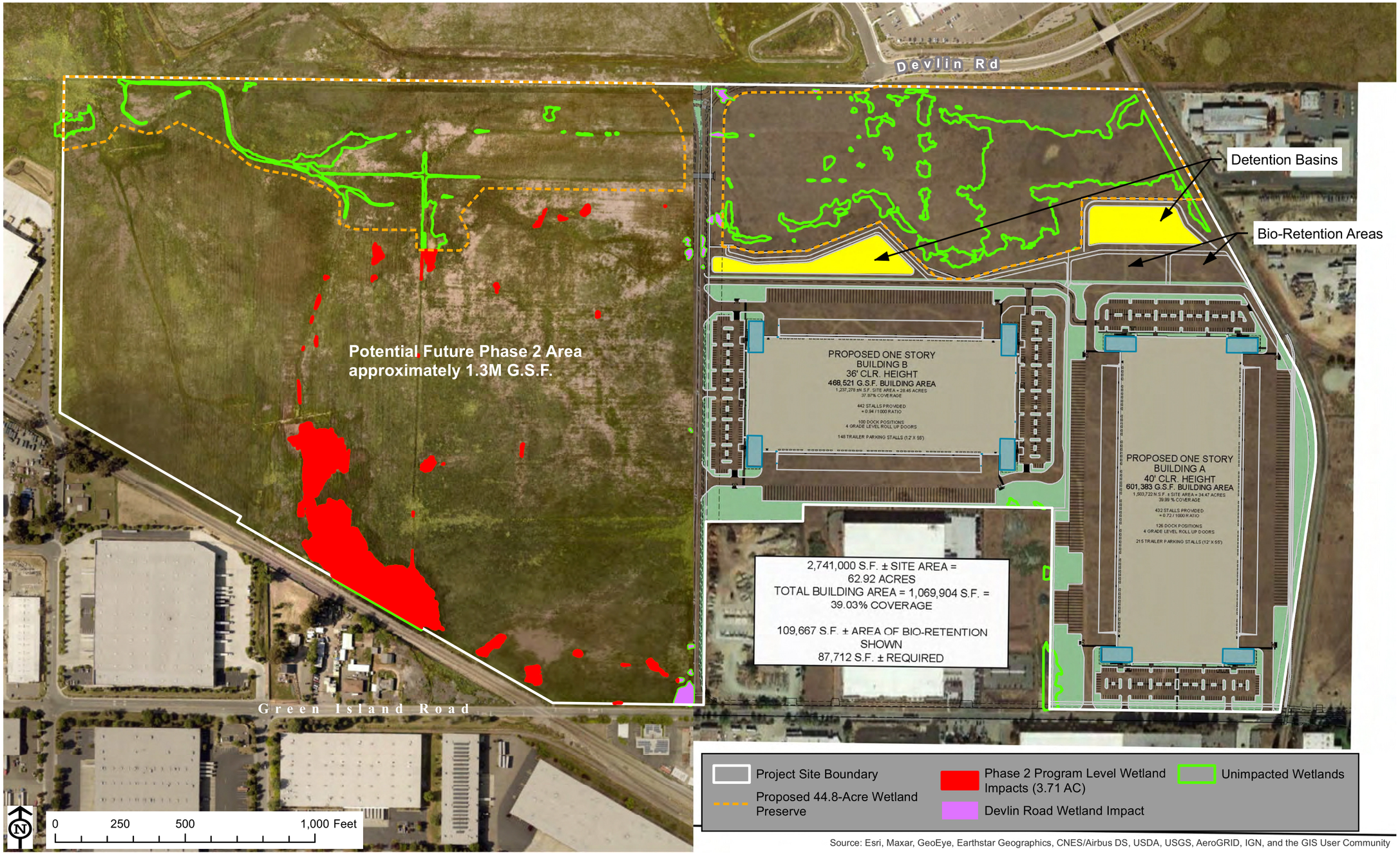

Source: Huffman-Broadway Group, Inc., Environmental Regulatory Consultants (May 2021). Imagery Source: County of Napa 6/19/2018.

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Exhibit 3.3-5
Phase 2 Wetland Impacts

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3.4 - Cultural Resources and Tribal Cultural Resources

3.4.1 - Introduction

This section describes the existing cultural and tribal cultural resources setting and potential effects that may result from project implementation on the site and its surrounding area. The descriptions and analysis in this section are based on information provided by the Native American Heritage Commission (NAHC), a records search conducted at the Northwest Information Center (NWIC), archival research, and a pedestrian survey, as presented in the Phase I Cultural Resource Assessment (Phase I CRA) prepared for the proposed project are included in confidential Appendix D. Recommendations provided in the Phase I CRA pertaining to mitigation of potential impacts to cultural resources are also addressed in this section.

3.4.2 - Environmental Setting

Overview

The term "cultural resources" encompasses historic, archaeological, tribal cultural resources, and burial sites containing human remains. Below is a brief summary of each component:

- **Historic Resources:** Historic resources are associated with the recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the State's history and are generally less than 200 years old.
- **Archaeological Resources**: Archaeology is the study of artifacts and material culture with the aim of understanding human activities and cultures in the past. Archaeological resources may be associated with prehistoric indigenous cultures as well as historic periods.
- **Tribal Cultural Resources:** Tribal Cultural Resources (TCRs) include sites, features, places, or objects that are of cultural value to one or more California Native American Tribes.
- **Burial Sites and Cemeteries:** Burial sites and cemeteries are formal or informal locations where human remains have been interred. Native American burial sites are also considered TCRs of cultural value to one or more California Native American Tribe.

Cultural Setting

Following is a brief overview of the prehistory, ethnography, and historic background, providing a context in which to understand the background and relevance of sites found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources.[1,2,3,4,5]

[1] Beardsley, R.K. 1948. Cultural Sequences in Central California Archaeology. American Antiquity 14:1–28.
[2] Bennyhoff, J. 1950. Californian Fish Spears and Harpoons. University of California Anthropological Records 9(4):295–338.
[3] Chartkoff J.L. and K.K. Chartkoff. 1984. The Archaeology of California. Menlo Park. Stanford University Press.
[4] Kroeber, A.L. 1925. Handbook of the Indians of California. Bulletin 78. Bureau of American Ethnology. Washington, DC. Smithsonian Institution.
[5] Moratto, M.J. 1984. California Archaeology. San Diego. Academic Press.

Prehistoric Background

In general, archaeological research in the greater San Francisco Bay Area has focused on coastal areas, where large shellmounds were relatively easily identified on the landscape. This research and its chronological framework, however, is relevant to and has a bearing on our understanding of prehistory in areas north of the San Francisco Bay, including modern American Canyon, Napa County.

Like many California cultural chronologies, the greater San Francisco Bay Area has a complex history. As synthesized by Milliken et al., three major chronologic frameworks exist for the Bay Area: an Archaic-Emergent temporal structure; the Central California Taxonomic System (CCTS) and a "hybrid system" that is utilized using the overarching CCTS scheme, while further demarcating time depth/period changes regionally, as used in the Archaic-Emergent temporal structure.[6] Specifically, regional cultural patterns and phases are further defined within the San Francisco Bay Area by Dating Scheme D, which utilizes dated Olivella shell bead horizons. Milliken et al. used the term "bead horizons" to define the passage of short periods of time by the shifts in the trade of specific bead types throughout the Bay Area. This builds on Fredrickson, who proposed a chronology for the broader San Francisco Bay Area region. Fredrickson's chronology is based on material patterns and includes the Windmiller Pattern (2500 before Common Era [BCE]–1,000 BCE), Berkeley Pattern (2000 BCE–500 Common Era [CE]) and the Augustine Pattern (500 CE–1880 CE).[7] The Windmiller Pattern is typified by a hunter-gatherer subsistence pattern, which included the exploitation of wild plants, game, and fish. Typical artifacts include clay balls, fishing hooks, fishing spears and ground stone tools. Artifacts from the Berkeley Pattern era reflect an increasing reliance on acorns, as mortars and pestles become more prolific. The Augustine Period was a period of increasing social complexity. Acorns continued to be the dominant food source and settlement patterns reflected an increasing sedentary lifestyle.[8]

Following the hybrid system proposed by Milliken et al., The Lower Archaic, 8000–3500 BCE, is typified in the Bay Area by a forager and gatherer lifestyle, as evidenced by the prevalence of milling slabs, hand stones, and large, wide-stemmed and leaf-shaped projectile points. The Middle Archaic, 3500-500 BCE, saw an increase in the presence of ground stone and cut shell beads, indicating that groups in the Bay Area were transitioning to a more sedentary lifestyle; interregional trade was increasing, and as the beads were found in mortuary contexts, that symbolism was becoming a regional identifier. The Early Upper Archaic, 500 BCE to 430 CE, saw a shift away from cut beads to Olivella beads, and along the Bay, a new emphasis on Haliotis ornaments and bone tools, with net sinkers largely disappearing from assemblages. The Late Upper Archaic, 430 to 1050 CE, further defined by the bead phases M1–M4, is another time of transition, as saucer-shaped Olivella beads disappear from the record and Olivella saddle beads became dominant. The appearance of the saddle shaped Olivella beads coincides with the appearance and increase in Meganos complex dorsal extended burials. The Lower Emergent Period, 1050 to 1550 CE, is characterized by increasing complexity as beads were being produced for collectors as opposed to being produced primarily as mortuary items. Sedentism and increasing social stratification is evidenced by settlement patterns

[6] Milliken, Randall, et.al. 2007. Punctuated Culture Change in the San Francisco Bay Area, In Prehistoric California: Colonization, Culture, and Complexity, edited by T.L. Jones and K.A. Klar, 99–124. AltaMira Press.
[7] Frederickson, D.A. 1973. Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.
[8] Moratto, M.J. 1984. California Archaeology. San Diego. Academic Press.

and mortuary practices. The Terminal Late Period saw change in the North Bay, as clamshell disk beads became prevalent, along with the toggle harpoon, hopper mortar, plain corner-notched arrow-sized projectile points, and magnesite tube beads; however, this was not the case in the South Bay. By 1650 CE, only Olivella-lipped and spire-lopped beads were present.[9]

Settlement patterns north of San Francisco Bay have varied over time. The currently accepted understanding of settlement patterns in this area is that a foraging and hunter-gatherer lifestyle centering on lacustrine resources remained dominant in the region until the Lower to Middle Archaic. At this point, there was a shift from foraging lacustrine resources to developing semi-permanent villages near marshes and grasslands, in order to gather those specific resources. This was followed by a shift to foragers residing in residential camps, with more consistent settlement occurring in "collector villages" during the Upper Archaic. By the Emergent Period, collectors were living in semi-permanent villages in oak woodlands, which residential camps were now located along marshes.

Ethnographic Background

The Patwin

At the time of European contact, the project vicinity was primarily occupied by the Patwin Tribe of California Native Americans. The Patwin occupied the southwest Sacramento Valley from the town of Princeton, north of Colusa, south to San Pablo and Suisun bays, and from the lower hills of the eastern North Coast Ranges to the Sacramento River. Patwin territory extended approximately 40 miles east to west and 90 miles north to south. Based primarily on linguistic variation, the Patwin are the most southern division of the Wintuan population, who are members of the Penutian linguistic stock. Distinction is made between the Hill and River Patwin. Hill Patwin had villages located in valleys along the hills of the Vaca Mountains and Coast Ranges with populations concentrated in Indian, Bear, Capay, Cortina, Long, and Napa valleys. In general, the River Patwin occupied the west banks of the lower Sacramento River below the Feather River as well as the lower reaches of Cache and Putah creeks in the Sacramento Valley.[10] The Hill Patwin villages of Napato and Tulukai lie in close proximity to the project area, and their place names remain part of the regional landscape to this day.

Patwin political organization was centered on the tribelet, which consisted of a primary village with smaller satellite villages governed by a head chief. Tribelets were autonomous and differed from each other with minor cultural variations. The economic and ceremonial activities of each village were administered by a chief whose position was typically passed on patrilineally although some chiefs were chosen by village elders. The chief administered subsistence ventures, such as hunting and gathering expeditions, and served as the primary resource distributor.[11]

The Patwin subsistence base varied with the seasons and included gathering seeds and plant resources on the plains, netting migratory waterfowl in the tule marshes, and netting salmon and other fish in the rivers and streams. Acorns were a staple in the Patwin diet and were obtained from

[9] Milliken, Randall, et.al. 2007. Punctuated Culture Change in the San Francisco Bay Area, In Prehistoric California: Colonization, Culture, and Complexity, edited by T.L. Jones and K.A. Klar, 99–124. AltaMira Press.
[10] Cook, S.F. 1976. The Population of the California Indians 1769–1970. University of California Press. Berkeley, California.
[11] McKern, W.K. 1922. Functional Families of the Patwin. American Archaeology and Ethnology 13(7)235–258. Berkeley, California.

communally owned hill and valley oak groves. The Patwin stored acorns in granaries as insurance against famine in poor harvest years. Ethnographic reports indicate the Patwin obtained large game such as deer, tule elk, and antelope by using nets or shooting with bows and arrows. Fish resources were of particular importance to the River Patwin and included perch, sturgeon, salmon, sucker, trout, pike, and other riverine species such as mussels and turtles, which were caught with bone fishhooks, nets, weirs, and seines.[12]

The Patwin trade system included various resources that were exchanged with the Wappo, Nomlake, Southeastern Pomo, and Hill Patwin. The River Patwin obtained obsidian from sources to the west and east. Initially, finished shell beads were obtained from coastal tribes, but later, the River Patwin traded for whole shells from the Pacific Coast and produced the beads themselves. Relationships with nearby tribes and other Patwin tribelets were not always friendly. Patwin relations with Napa Valley groups were strained by provocations primarily incited by poaching; subsequent retaliations resulted in organized battles between individuals or groups or surprise attacks on villages.[13]

Patwin dwellings, sweathouses and dance houses were all semi-subterranean, earth-covered structures. Mortuary practices included burials in cemeteries located at one end of the village, in which the possessions of the deceased were buried with them; at some locations, property was burned near the grave. Typically, only people who died or were killed away from the village were cremated. According to a Hill Patwin informant, “the River people [Patwin] set a corpse upright, then pushed the head down, broke the back, wrapped the body in a skin, and put it in the grave.” In addition, long burial ropes constructed of hemp were wrapped around the deceased, and the River Patwin utilized temporary containers made of tule reeds.[14]

The Southern Wappo

The project site is also in close proximity to the ethnographic territory of the Southern Wappo. The Wappo language belongs to a small family of four languages, including Yuki, Coastal Yuki, and Huchnom. It is divided into five dialects distributed across two major territorial divisions. The smaller area included lands along the southern edge of Clear Lake; the larger ranged from just north of Napa, south to Geyserville and Middletown in the north. The Wappo were known to adopt words from other languages spoken in their vicinity, including Spanish names of objects with which they came into contact as a result of missionization. Of the 100 or known Wappo place names, at least one, cho*nóma, (meaning “abandoned camp”), remains in use as the probable Wappo name for the town of Sonoma.[15] Like their Pomo neighbors, the basic sociopolitical unit was the village, which was usually located on a creek or other water source. Villages included one or two sweathouses as well as houses of varying size. One of the last remaining traditional Wappo villages observed in 1870 consisted of 11 grass houses serving 21 families totaling 92 people. Each house was made of grass thatch over a framework of bent poles and had a separate entrance and smoke-hole for each family inhabiting it.

[12] Johnson, Patti, J., 1978. Handbook of North American Indians, Vol. 8: California. Washington, DC. Smithsonian Institution.
[13] Leitch, B. A. (1979). A concise dictionary of Indian tribes of North America (First Edition). N. P.: Reference Publications, Inc.
[14] McKern, W.K. 1922. Functional Families of the Patwin. American Archaeology and Ethnology 13(7)235–258. Berkeley, California.
[15] Sawyer, J.O. 1978. Wappo. Handbook of North American Indians California Volume 8. Robert F. Heizer, Editor, pp. 256–264. Washington, D.C.: Smithsonian Institution.

Basic tools consisted of wedges, axes, and fire-drills made from stones, sticks, shells, and plants. Like the Pomo, the Wappo had a tradition of creating intricately woven baskets that were both functional and decorative. This tradition, along with several surviving songs and dances attributed to the Wappo, were primary forms of artistic expression. Imported clamshell beads and magnesite cylinders served as units of exchange and items of personal adornment. Food sources included a variety of plants and creatures, including acorns, buckeye, clover, abalone, clams, turtles, salmon, ducks, rabbits, and deer.[16]

The Wappo had at least seven villages in the Geyserville area alone and estimates of their total population range from 5,000 to 8,000. Village chiefs might be elected or appointed, based on the organization of the individual village. Both men and women could occupy the role of chief, and some villages even had multiple chiefs, each with different spheres of influence, including trade, ceremonial roles, and warfare. The Wappo were generally regarded as a peaceful people, except during the Wappo-Pomo War in the early 19th Century. The Wappo apparently attacked and killed members of the Alexander Valley Pomo who had carried away some Wappo supplies of acorns. The Pomo sought peace, which was granted immediately; however, the Pomo never returned to their Alexander Valley villages north of Healdsburg. The Wappo also tried to resist Spanish incursions and colonial expansion into their territories, but like the Pomo, their numbers were decimated by smallpox, hostility from the Mexican Army, and later by Euro-American settlements in the 1850s.

Historic Background

The Spanish Period (1769-1821)

Spanish exploration into Suisun Bay and into the Central Valley dates back to the late 1700s. Spanish mission records indicate that by 1800, Patwin inhabitants at Aguastos, the south-central area, and other villages were being taken to Mission Dolores (San Francisco de Asis), and that Mission Sonoma (San Francisco Solano), built in 1823, was baptizing Patwin tribal members until secularization of the missions in 1832-1836. Many Native Americans were not willing convert. There are numerous accounts of neophytes fleeing the missions, and a series of “Indian Wars” broke out when the Spanish tried to return them to the missions.[17]

The Mexican Period (1821-1848)

With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change actually occurred. Political change did not take place until mission secularization in 1834, when Native Americans were released from missionary control and the mission lands were granted to private individuals. Mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the native population continued to decline. Anglo-American settlers began to arrive in Alta California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to

[16] Sawyer, J.O. 1978. Wappo. Handbook of North American Indians California Volume 8. Robert F. Heizer, Editor, pp. 256–264. Washington, D.C.: Smithsonian Institution.

[17] Johnson, J.J. 1976. Archaeological Investigations at the Blodgett Site (CA-SAC-267), Sloughhouse Locality, California. Report to the U.S. National Parks Service, Western Regional Office, Tucson, Arizona.

receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of Alta California was 8,000 non-natives and 10,000 natives. However, these estimates have been debated. Cook suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.[18]

During this period, General Mariano Guadalupe Vallejo assumed authority of Sonoma Mission and established a friendly relationship with the Native Americans who were living there. In particular, Vallejo worked closely with Chief Solano, a Patwin who served as Vallejo's spokesperson when problems with Native American tribes arose. In 1843, Governor Manuel Micheltorena gave General Vallejo the 84,000-acre Soscoe land grant of Rancho Suscolto, which included the present-day Vallejo.

The American Period (1848–Contemporary)

During this period, and prior, Native American populations were declining rapidly because of an influx of Euro-American diseases. In 1832, a party of trappers from the Hudson's Bay Company, led by John Work, traveled down the Sacramento River, unintentionally spreading a malaria epidemic to Native Californians. Four years later, a smallpox epidemic decimated local populations, and it is estimated that up to 75 percent of the native population died.[19]

After the upheaval of the Bear Flag Revolt in 1846, and the result of the Treaty of Guadalupe Hidalgo in 1848, California became a United States territory. In 1848, James W. Marshall discovered gold at Coloma in modern-day El Dorado County, which started the California Gold Rush into the region that forever altered the course of California's history. The arrival of thousands of gold seekers in the territory contributed to the exploration and settlement of the entire State. By late 1848, approximately 4 out of 5 men in California were gold miners.

By 1864, California's Gold Rush had essentially ended. The rich surface and river placers were largely exhausted and the miners either returned to their homelands or stayed to start new lives in California. After the gold rush, people in towns such as Jackson, Placerville, and Sonora turned to other means of commerce, such as ranching, agriculture, and timber production. With the decline of gold mining, agriculture and ranching came to the forefront in the State's economy. California's natural resources and moderate climate proved well suited for cultivation of a variety of fruits, nuts, vegetables, and grains.

Local History Napa County

European settlement in the Napa area began with the 1820 establishment of the Sonoma Mission and General Mariano Vallejo's 1838 reception of a land grant that included the Napa and Sonoma valleys. By 1848, the American population in the area had grown, and farmer Nathan Coombs laid out a town plat for Nappa City (the spelling changed to Napa by the 1870s), which served as the County seat when Napa became one of the original 27 counties of California in 1850.[20]

[18] Cook, S.F. 1976. The Population of the California Indians 1769–1970. University of California Press. Berkeley, California.
[19] Cook, S.F. 1955. The Epidemic of 1830–1833 in California and Oregon. American Archaeology and Ethnology, 43(3): 303–326.
[20] Menefee, C.A. 1873. Historical and Descriptive Sketchbook of Napa, Sonoma, Lake, and Mendocino: Comprising Sketches of their Topography, Productions, History, Scenery, and Peculiar Attractions. Napa: Reporter Publishing House.

During the mid-1850s, Napa County began to grow. While gold was being prospected in other areas of the State, Napa County became a center for silver and quicksilver mining. The County's population began to swell as pioneers, prospectors, and entrepreneurs moved in and set up residence. Two of those entrepreneurs were Edward Turner Bale and Samuel Brannan. Bale completed building the Bale Grist Mill a few miles north of Saint Helena in 1846. Brannan purchased land in the northern end of the valley at the foot of Mount Saint Helena and founded Calistoga. He began developing it as a resort town, taking advantage of the area's numerous mineral hot springs. He also founded the Napa Valley Railroad Company in 1864 to bring tourists to Calistoga from the San Francisco ferryboats that docked in Vallejo. Other settlers turned to agriculture for their livelihood, primarily raising cattle, grain, and fruit crops.[21]

Orchards and wheat gradually displaced cattle ranching as settlers' primary source of income, and the first Downtown Napa winery opened in the 1870s. While settlers initially relied on Native labor, Chinese immigrants became a more important source of labor as the Native populations declined in the later decades of the nineteenth century. Napa had a substantial Chinatown by 1886. In 1875, the State of California built the Napa State Hospital for the Insane at the southern edge of town; the City had completed with others around the State for the privilege of hosting the asylum, which brought considerable economic benefit with it in terms of public funding.

The Phylloxera louse infested Napa Valley and killed thousands of grapevines, seriously threatening the local wine industry. Many farmers replaced their grapevines with fruit trees. As discrimination against Chinese immigration climbed throughout the country in the late nineteenth century, Napa's Chinese population shrank, and farmers began to turn to Italian immigrants as a labor source.[22]

The pattern of economic and population growth established during the war continued through the end of the 1950s. Blue-collar union jobs supported the local economy; by 1960, nearly 2,600 people were employed at Basalt Rock/Kaiser Steel and Napa's smaller manufacturing plants. Residential construction remained strong; between 1950 and 1957, nearly 5,000 dwelling units were constructed in Napa County, most of which were single-family houses in or near the Napa city limits. The downtown area remained the seat of County/City government and the commercial center of Napa during the postwar period through the mid-1960s.

The City's gradual development of a new City Hall, Police Station, and Fire Station at the Downtown Civic Center represented the most significant change to Downtown Napa's built environment during this era. By 1946, the City was discussing creation of a civic center, initially identifying the former Chinatown at First Street and the Napa River as a potential site. In 1948, the City Council began planning the new City Hall and selected the location along School Street between First Street and Second Street. Between 1951 and 1962, City Hall, the Police Station, and Fire Station No. 1 were constructed at their current locations.

[21] Menefee, C.A. 1873. Historical and Descriptive Sketchbook of Napa, Sonoma, Lake, and Mendocino: Comprising Sketches of their Topography, Productions, History, Scenery, and Peculiar Attractions. Napa: Reporter Publishing House.

[22] King, N.L. 1967. Napa County, A historical Overview. Napa: Office of Napa County Superintendent of Schools.

The City of American Canyon

Located in southern Napa County, the City of American Canyon was incorporated as a city in 1992. The history of the City of American Canyon and its economy, growth, and development has been tied to the larger Napa region as a whole. The California Gold Rush brought many settlers to the region but American Canyon itself was largely devoid of gold deposits. Instead, the area was both rich in limestone and ideally suited for farming. In 1852, Simpson Thompson and his two sons established a large farm consisting of 475 acres of orchards and farmland as well as 300 acres of meadowlands for cattle grazing. In the early 1900s, the discovery of rich deposits of limestone led to the development of quarries that could produce over 2000 barrels of cement per day. However, the exploitation of usable limestone and clay meant that by 1930s, mining became economically untenable in the region. The economy of the region pivoted toward agriculture, particularly fruit orchards and the farming of wheat.[23]

However, the City's economy would shift following the Paris Wine Tasting of 1976, better known as the Judgement of Paris. In a blind tasting, a panel of expert sommeliers scored wines from Napa estates such as Heitz Cellars or Stag's Leap higher than estates that produced First Growth Bordeaux wines. Their judgement sent shockwaves around the wine industry and established Napa as a world-class wine-growing region.[24] While the region of Calistoga and St. Helena in Napa has been focused on producing top-tier wines and attracting high-end clientele, their success could not exist without the logistic support of the warehouses and distribution centers that grew up in American Canyon. These centers developed in subsequent years following the 1976 Judgement of Paris and provide the backbone for the distribution of domestic and imported wines both in the Bay Area and overseas today.[25]

3.4.3 - Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, established the National Register of Historic Places (NRHP), which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.
- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

[23] American Canyon Historical Society Volume 1 and 2. 2010. Napa County Historical Society.
[24] Taber, George. 2006. Judgement of Paris. Scribner Press.
[25] Ibid.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of the ARPA was to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) established federal policy to protect and preserve the inherent rights of freedom for Native groups to believe, express, and exercise their traditional religions. These rights include but are not limited to access to sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally-funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State

CEQA Guidelines Section 15064.5(a)—CEQA Definition of Historical Resources

California Environmental Quality Act (CEQA) Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a “historical resource” as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be

presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, State, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the California Register of Historical Resources (CRHR).

Archaeological and historical sites are protected pursuant to a wide variety of State policies and regulations, as enumerated in the Public Resources Code Section 5024.1. Cultural resources are recognized as nonrenewable resources and receive additional protection under the Public Resources Code and CEQA.

Public Resources Code 5024.1(c)—Definition of a Historic Resource

CEQA Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a "historical resource" as a resource that:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

CEQA Guidelines Section 15064.5(a)(3)—California Register of Historical Resources Criteria

As defined by CEQA Guidelines, Section 15064.5(a)(3)(A-D), a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model (see criteria described above under the description of the NHPA), since the NHPA provides the highest standard for evaluating the significance of historic resources. A resource that meets NRHP criteria is clearly significant. In addition, a resource that does not meet NRHP standards may still be considered historically significant at a local or State level.

CEQA Guidelines 15064.5(c)—Effects on Archaeological Resources

CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. CEQA Guidelines direct lead agencies to evaluate archaeological sites to determine whether they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be a historical resource but meets the definition of a "unique archaeological resource" as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

CEQA Guidelines Section 15064.5(d)—Effects on Human Remains

Native American human remains and associated burial items may be significant to descendant communities and/or may be scientifically important for their informational value. They may be significant to descendant communities for patrimonial, cultural, lineage, and religious reasons. Human remains may also be important to the scientific community, such as prehistorians, epidemiologists, and physical anthropologists. The specific stake of some descendant groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines § 15064.5(d); PRC § 5097.98). CEQA and other State regulations regarding Native American human remains provide the following procedural requirements to assist in avoiding potential adverse effects on human remains within the contexts of their value to both descendant communities and the scientific community:

- When an initial study identifies the existence or probable likelihood that a project would affect Native American human remains, the lead agency is to contact and work with the appropriate Native American representatives identified through the NAHC to develop an agreement for the treatment and disposal of the human remains and any associated burial items (CEQA Guidelines § 15064.5(d); PRC § 5097.98).
- If human remains are accidentally discovered, the County Coroner must be contacted. If the County Coroner determines that the human remains are Native American, the Coroner must contact the NAHC within 24 hours. The NAHC must identify the Most Likely Descendant (MLD) to provide for the opportunity to make recommendations for the treatment and disposal of the human remains and associated burial items.
- If the MLD fails to make recommendations within 24 hours of notification or the project applicant rejects the recommendations of the MLD, the Native American human remains and associated burial items must be reburied in a location not subject to future disturbance within the project site (PRC § 5097.98).

- If potentially affected human remains or a burial site may have scientific significance, whether or not it has significance to Native Americans or other descendant communities, then under CEQA, the appropriate mitigation of effect may require the recovery of the scientific information of the remains/burial through identification, evaluation, data recovery, analysis, and interpretation (CEQA Guidelines § 15064.5(c)(2)).

Health and Safety Code Section 7050.5

Section 7050.5 of the Health and Safety code sets forth provisions related to the treatment of human remains. As the code states, "every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor" except under circumstances as provided in Section 5097.99 of the Public Resource Code. The regulations also provide guidelines for the treatment of human remains found in locations other than a dedicated cemetery including responsibilities of the Coroner.

Public Resources Code Section 5097.98

Section 5097.98 provides protocol for the discovery of human remains. It states that "when the commission receives notification of a discovery of Native American human remains from a County Coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify persons believed to be most likely descended from the deceased Native American." It also sets forth provisions for descendants' preferences for treatment of the human remains and what should be done if the commission is unable to identify a descendant.

California Public Resources Code Section 5097.91—Native American Heritage Commission

Section 5097.91 of the Public Resources Code established the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.91 of the Public Resources Code, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a County Coroner. Section 5097.5 defines the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands as a misdemeanor.

California Senate Bill 18—Protection of Tribal Cultural Places

California Senate Bill (SB) 18 (California Government Code § 65352.3) incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB 18 requires public notice to be sent to tribes listed on the NAHC SB 18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the

local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that may be affected by the proposed adoption or amendment to a general or specific plan.

California Assembly Bill 52—Effects on Tribal Cultural Resources

California Assembly Bill (AB) 52 was signed into law on September 25, 2014, and provides that any public or private "project with an effect that may cause a substantial adverse change in the significance of a Tribal Cultural Resource (TCR) is a project that may have a significant effect on the environment." TCRs include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the CRHR or included in a local register of historical resources." Under prior law, TCRs were typically addressed under the umbrella of "cultural resources," as discussed above. AB 52 formally added the category of "tribal cultural resources" to CEQA and extends the consultation and confidentiality requirements to all projects, rather than just projects subject to SB 18 as previously discussed.

The parties must consult in good faith, and consultation is deemed concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect on a TCR (if such a significant effect exists); or (2) when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. AB 52 also identifies mitigation measures that may be considered to avoid significant impacts if there is no agreement on appropriate mitigation. Recommended measures include:

- Preservation in place.
- Protecting the cultural character and integrity of the resource.
- Protecting the traditional use of the resource.
- Protecting the confidentiality of the resource.
- Permanent conservation easements with culturally appropriate management criteria.

California Public Resources Code Section 21074—Effects on Tribal Cultural Resources

AB 52 amended the CEQA statute to identify an additional category of resource to be considered under CEQA, called "tribal cultural resources." It added Public Resources Code Section 21074, which defines "tribal cultural resources" as follows:

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

A) Included or determined to be eligible for inclusion in the CRHR.
B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Local

City of American Canyon

General Plan

To promote the preservation and restoration of the sites, structures and districts that have architectural, historical, archaeological and/or cultural significance to the City of American Canyon.

Objective 8.19 Ensure that the City's historically and archaeologically significant resources are protected in a manner that preserves and/or enhances the resources' inherent historic value.

Policies

8.19.1 Conduct a comprehensive survey of archaeological and cultural resources and historic vegetation that is based on established criteria and encompasses the entire City and its Sphere of Influence.

8.19.2 Adopt a Preservation Ordinance that will authorize the City to designate appropriate vegetation or archaeological sites deemed to be of historic, archaeological, or cultural significance an American Canyon City Historic Point, Site or District. Such an ordinance shall conform to State and federal criteria for establishing a preservation ordinance.

8.19.3 Explore various methods for the future preservation of historic vegetation and archaeological and cultural resources. For example, consider establishing " receiver site" and "adopt a building" programs to preserve historic structures that must be removed from their sites. Additionally, consider utilizing the Secretary of the Interior Standards for Historic Rehabilitation and standards and guidelines prescribed by the State Office of Historic Preservation as the architectural and landscape design standards for rehabilitation, alteration, or additions to sites containing historic resources in order to preserve these structures in a manner consistent with the sites' architectural and historic integrity.

3.4.4 - Methodology

Records Searches and Pedestrian Survey to Identify Existing Cultural Resources

The information in this section is based on the Phase I CRA prepared for this project by FirstCarbon Solutions (FCS) in February 2021. The Phase I CRA used the following methods to analyze the potential impacts of project implementation:

Northwest Information Center

On February 10, 2021, a records search for the project site and a 0.50-mile radius beyond the project boundaries was conducted at the NWIC located at Sonoma State University in Rohnert Park, California. To identify any historic properties or resources, the current inventories of the NRHP, the CRHR, the California Historic Landmarks list, the California Points of Historical Interest list, and the

California Built Environment Resource Directory (BERD) for Napa County were reviewed to determine the existence of previously documented local historical resources.

Results from the NWIC indicate that six known cultural resources have been recorded within a 0.5-mile radius of the project site, and two cultural resources have been recorded within the project site (Table 3.4-1). In addition, 30 area-specific survey reports are on file with the NWIC for the project site and its 0.50-mile search radius (Table 3.4-2.). Of the 30 reports, 10 address sections of the project site itself, indicating that the site has been previously surveyed for cultural resources.

Table 3.4-1: Cultural Resources within 0.5-mile of the Project Site

Resource No.	Resource Description	Date Recorded
P-28-001439	**Corral Complex; HP33 Farm/Ranch**	**2007**
483A-001	**Informal Archaeological Resource**	**1980**
P-28-000384	CA-NAP-000498H: Historic Era Building Foundations	1977
P-28-000643	CA-NAP-000770: Prehistoric Archaeological site	1991
P-28-001156	ARS 99-17-01: Prehistoric Archaeological Site	2001
P-28-002458	AP16: Prehistoric Archaeological Isolate	2016
P-28-002466	876 Green Island Road, American Canyon; HP02 Single-family property	2015
NAP-HRI-001	Goncalves Ranch; HP33. Farm/Ranch	1993
Source: NWIC Records Search. February 10, 2021. Resources listed in **Bold** are located within project boundaries.		

Table 3.4-2: Previous Investigations within 0.5-mile of the Project Site

Report No.	Report Title/Project Focus	Author	Date
S-000153	**Archaeological Impact Evaluation: Proposed Sewage Pipeline, Napa to American Canyon, Napa County, California**	**Thomas F. King**	**1975**
S-001200	**Cultural Resource Assessment of the Napa American Canyon Wastewater Reuse Program**	**Robert A. Gerry**	**1978**
S-014137	**An Archaeological Survey of Two Sites for a Proposed Solid Waste Transfer Station, Napa County, California**	**Janine M. Loyd**	**1992**
S-022036	**A Cultural Resources Evaluation of the "Napa 218" Parcel, APN 057-090-59, in the Napa County Airport Industrial Area, Napa, Napa County**	**Eric Strother and Katherine Flynn**	**1999**
S-022041	**A Cultural Resource Inventory of the Napa Airport Master Environmental Assessment Area, Napa County, California**	**Katherine Flynn, William Roop, and Ronald Melander**	**1983**
S-024768	**Archaeological evaluation of the proposed Devlin Road Extension Project, Napa, Napa County**	**Katherine Flynn**	**1999**

Report No.	Report Title/Project Focus	Author	Date
S-033061	**Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California**	**Nancy Sikes, Cindy Arrington, Bryon Bass, Chris Corey, Kevin Hunt, Steve O'Neil, Catherine Pruett, Tony Sawyer, Michael Tuma, Leslie Wagner, and Alex Wesson**	**2006**
S-034422	**Archaeological Assessment Report, Biagi Brothers Wine Distribution Facility, City of American Canyon, Napa County, California**	**James M. Allan and Leigh Martin**	**2007**
S-048153	**Archaeological Resources Study of Devlin Road (Segment H) and Vine Trail Extension Project, American Canyon, Napa County**	**Samantha Dollinger**	**2016**
S-049803	**Cultural Resources Assessment, Green Island Industrial District Roads Project, City of American Canyon, Napa County, California**	**Kara Brunzell and David Brunzell**	**2016**
S-000589	An Archaeological Survey of a Proposed Borrow Site in American Canyon near Napa, California	Richard A. Stradford and David A. Fredrickson	1977
S-000647	Lombard Street Overcrossing, Archaeological Historical Field Survey	Richard B. Hastings	1975
S-002372	Green Island Industrial Park, Napa County	David Chavez	1980
S-009908	Archaeological evaluation of an 8-acre parcel at 1300 Green Island Rd., APN 58-070-24, Napa County, California	Katherine Flynn	1987
S-009912	Archaeological survey of a parcel located at 650 Green Island Road, American Canyon, Napa County	Katherine Flynn	1988
S-010780	Negative Archaeological Survey Report, proposed sale of an excess parcel west of Highway	Mick Hayes	1989
S-011526	Archaeological reconnaissance of the Lands of Struble, Green Island Road, Napa County	Katherine Flynn	1989
S-012429	Archaeological Survey and Evaluation for the Napa Sanitation District Master Plan Update, Napa County, California	Pat Mikkelsen, John Berg, and Paul Bouey	1991
S-012439	Cultural Resources Investigations for the Port of Oakland Phase I Dredging, Cultural Resources Evaluation	David Chavez	1990
S-014281	An Archaeological Survey of a Site for a Proposed Solid Waste Transfer Station, South of Tower Road, Napa County, California	Janine M. Loyd	1992
S-016739	Negative Archaeological Survey Report, proposed Caltrans maintenance station on excess land parcels 27902-1, 2-7878-4, and 2783-1	Katherine M. Dowdall	1994
S-019171	A Cultural Resources Study of the Hess Collection Winery-American Canyon Property, Napa County, California	Vicki R. Beard	1997

Report No.	Report Title/Project Focus	Author	Date
S-021260	Rock Fences of Napa County: A Pilot Study	Kim J. Tremaine and John A. Lopez	1998
S-024769	Archaeological Reconnaissance of a ten-acre parcel located at 1500 Green Island Road, Napa Co	Katherine Flynn	1988
S-030746	A Cultural Resources Study for the Hanna Bridge Project, Project #0253605003-32001, City of American Canyon, Napa County, California	Heidi Koenig	2005
S-034252	An Archaeological Survey of the Green Island Assessment and Reimbursement District, Napa County, California	Thomas Origer	1988
S-034253	Cultural Resources Inspection of the Hanna Court Project Area, American Canyon, Napa County, California	Miley Paul Holman	2006
S-043823	Cultural Resources Inventory and Evaluation Report for Napa River Salt Marsh Restoration Project, Napa and Sonoma Counties, California	No Author	2003
S-048522	A Historical Resources Study for the Jim Oswalt Warehouse IS/MND American Canyon, Napa County, California	Taylor Alshuth and Tom Orige	2016
S-049494	A Historical Resources Study for the Napa Logistics Business Park-Phase II, American Canyon, Napa County, California	Taylor Alshuth and Tom Origer	2016
Source: NWIC Records Search. February 10, 2021. Reports listed in **Bold** address locations within the project boundaries.			

Historic Aerials

A review of 15 historic aerials depicting the project site from 1948 to 2018 indicate that from the earliest aerial, the site was undeveloped, with a single homestead directly outside of its southern border. From 1958 to 2018, the site remained undeveloped, with gradual industrial development occurring to the west, south, east and northeast of the site. The site remains undeveloped to the present day.[26]

Native American Heritage Commission

On January 25, 2021, FCS sent a letter to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Area of Potential Effect (APE). A response was received on February 4, 2021, indicating that the Sacred Lands File was positive for TRCs in the APE. The NAHC included a list of 10 tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential TCRs that may be affected by the proposed project are addressed, a letter containing project information and requesting any additional information was sent to each tribal representative on February 8, 2021. A second follow up letter and/or email was was sent on May 13, 2021. On May 21, 2021, a third and final attempt was made via phone call.

[26] Historic Aerials. 2020. Website: https://www.historicaerials.com/viewer. Accessed June 3, 2021.

On Feburary 9, 2021, a response was received from the Yocha Dehe Wintun Nation stating that the project site falls within the Tribe's traditional use area and could impact known cultural resources important to the Tribe. The Tribe provided recommended mitigation measures and protocols including construction monitoring of all ground disturbance and cultural sensitivity training for all staff on-site. On May 21, 2021, a representative of the Guidiville Indian Rancheria stated that the original letter was forwarded to their historian and a lack of response would mean there are no further comments. No additional responses or requests from tribal representatives have been received to date.

Tribal consultation pursuant to AB 52 has been initiated by the City of American Canyon and is ongoing. Table 3.4-3 summarizes the tribal consultation milestones.

Table 3.4-3: Tribal Consultation Matrix

Tribal Contact	Letter Sent	First Follow Up Attempt	Second Follow Up Attempt	Comments from the Tribe
Cachil Dehe Band of Wintun Indians of the Colusa Indian Community Daniel Gomez, Chairman	2/8/21	5/13/21	5/21/21	No response has been received to date.
Cortina Rancheria – Kletsel Dehe Band of Wintun Indians Charlie Wright, Chairperson	2/8/21	5/13/21	5/21/21	No response has been received to date.
Guidiville Indian Rancheria Donald Duncan, Chairperson	2/8/21	5/13/21	5/21/21	May 21, 2021: FCS spoke with the representative, who stated that the original letter was forwarded to their historian and if no response is received, this means there are no comments. No additional response has been received to date.
Middletown Rancheria of Pomo Indians Jose Simon, Chairperson	2/8/21	5/13/21	5/21/21	No response has been received to date.
Mishewal-Wappo Tribe of Alexander Valley Scott Gabaldon, Chairperson	2/8/21	5/13/21	5/21/21	No response has been received to date.
Pinoleville Pomo Nation Leona Williams, Chairperson	2/8/21	5/13/21	5/21/21	No response has been received to date.
Yocha Dehe Wintun Nation Leland Kinter, THPO	2/8/21	5/13/21	5/21/21	No response has been received to date.

Tribal Contact	Letter Sent	First Follow Up Attempt	Second Follow Up Attempt	Comments from the Tribe
Yocha Dehe Wintun Nation Laverne Bill, Site Protection	2/8/21	5/13/21	5/21/21	Email response: February 9, 2021. Laverne Bill stated that the project site could impact known cultural resources important to the Tribe. The Tribe requests cultural monitors and cultural sensitivity training for all staff on-site. Additional mitigation measures from Yocha Dehe Wintun Nation's Treatment Protocol should be incorporated.
Yocha Dehe Wintun Nation Anthony Roberts, Chairperson	2/8/21	5/13/21	5/21/21	No response has been received to date.
Yocha Dehe Wintun Nation Isaac Bojorquez, Director of Cultural Resources	2/8/21	5/13/21	5/21/21	No response has been received to date.

Cultural Resources Pedestrian Survey

On April 29, 2021, FCS Senior Archaeologist, Dana DePietro, PhD, RPA, and FCS Historian, Ti Ngo conducted a pedestrian survey for unrecorded cultural resources in the APE. The survey began in the southeast corner of the APE and moved west, using north–south transects spaced at 15-meter intervals. All areas of proposed development were closely inspected for culturally modified soils or other indicators of potential historic or prehistoric resources. Due to the high level of vegetation growth in the APE, visibility of native soils was extremely poor, ranging between 1 to 5 percent. Native soils were most clearly visible in cuts and drainages along the edges of the APE, and in areas where bioturbation had exposed subsurface soils. Other sections of poor visibility were intermittently inspected using a hand trowel. Visible soils were largely composed of medium brown (10YR 6/1) silt with moderate clay content, interspersed with small (2-3 cm) stones primarily composed of chalk and schist.

Dr. De Pietro and Mr. Ngo attempted to relocate informal archaeological resource 483A-001 and historic era resource P-28-001439, the historic corral complex. Details regarding these resources can be found in Appendix D. The corral complex was evaluated in 2007, found ineligible for listing as a historic resource, and was subsequently removed from the site. No elements of the corral complex or resource 483A-001 were observed. Both resources are located within 44.8-acres of the project site that will remain undeveloped for the purposes of environmental conservation. Neither are within the proposed construction plan footprint, nor will they be subjected to any ground-disturbing activities.

3.4.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, cultural resources impacts resulting from the implementation of the proposed project would be considered significant if the project would:

a) Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

c) Disturb any human remains, including those interred outside of formal cemeteries?

d) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

f) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
   i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
   ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

3.4.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

Historic Resources

Impact CUL-1:	**The proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.**

Impact Analysis

Historic resources in this context refer to the built environment, mainly buildings and structures over 45 years in age that may be eligible for inclusion on the CRHR or NRHP. Records search results, conducted at the NWIC, identified one historic resource (P-28-001439) located within the project site and three historic resources (P-28-000384, P-28-002466 and NAP-HRI-001) located within the 0.5-mile records search radius. As discussed above, P-28-001439 consists of a corral complex that was used for cattle grazing. The historic resource was evaluated relative to the four CRHR eligibility criteria and found to be ineligible to meet any of the criteria for historic and/or architectural significance required for listing on the NRHP, CRHR, or at the local level. No additional historic resources were encountered during the pedestrian field survey and evaluation. Accordingly, the project will not have an adverse impact on historic era built environment resources.

Level of Significance Before Mitigation

No impact.

Mitigation Measures

None required.

Level of Significance After Mitigation

No impact.

Archaeological Resources

Impact CUL-2:	**The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.**

Impact Analysis

Records search results from the NWIC identified one informal archaeological resource (483A-001) within the project site and three prehistoric archaeological resources (P-28-000643, P-28-001156 and P-28-002458) located within the 0.5-mile records search radius. Additionally, the Sacred Lands Files search conducted by the NAHC came back positive for TRCs within the project site. During the pedestrian field survey, Dr. DePietro and Mr. Ngo attempted to relocate the informal resource 483A-001, but were unable to find any remaining indication of it. 483A-001 is located within 44.8-acres of the project site that will remain undeveloped for the purposes of environmental conservation, and will not be subjected to any ground-disturbing activities.

No additional archaeological resources were encountered during the pedestrian field survey, however, poor soil visibility and the presence of several archaeological resources in the immediate vicinity increases the possibility of resources being encountered during project construction.

Implementation of Mitigation Measure (MM) CUL-2, which requires a qualified Archaeologist to be present on-site during all earth disturbing activities, would reduce potential impacts to archaeological resources that may be discovered during project construction. If a potential resource is identified, construction would be required to stop until appropriate identification and treatment measures are implemented.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM CUL-2a No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.

MM CUL-2b An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.

Level of Significance After Mitigation

Less than significant impact.

Human Remains

Impact CUL-3: The proposed project could disturb human remains, including those interred outside of formal cemeteries.

Impact Analysis

While no formal cemeteries or areas containing human remains are known to be in the project vicinity, the possibility always exists that construction-related ground disturbance may uncover previously undiscovered human remains. In the unlikely event such a discovery is made, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. Implementation of MM CUL-3, which details inadvertent discovery procedures, would reduce potential impacts to previously undiscovered human remains to a less than significant level.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM CUL-3 In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98.
2. Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance:
   - The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission.
   - The descendant identified fails to make a recommendation.
   - The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

- When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.

Level of Significance After Mitigation

Less than significant.

Listed or Eligible Tribal Cultural Resources

Impact CUL-4: The proposed project may cause a substantial adverse change in the significance of a Tribal Cultural Resource.

Impact Analysis

Records search results from the NWIC indicate several prehistoric sites are located within the project vicinity, and a review of the NAHC Sacred Lands File was positive for recorded TCRs being located within the project site. On February 9, 2021, a response was received from the Yocha Dehe Wintun Nation stating that the project site falls within the Tribe's traditional use area and could impact known cultural resources important to the Tribe. This would constitute a significant impact. The Tribe provided recommended mitigation measures and protocols including construction monitoring of all ground disturbance. Implementation of these protocols, included here as MM CUL-4, would reduce potential impacts to TCRs to a less than significant level.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM CUL-4 A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities.

1. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol.
2. Inadvertent Discovery of Native American Human Remains**:** Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the area is culturally affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents. Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.
3. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains" encompasses more than human bones because the Tribe’s traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native

American remains are to be treated in the same manner as bones or bone fragments that remain intact.

4. Non-Disclosure of Location of Reburials**:** Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 *et seq*. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest that the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.
5. Treatment of Cultural Resources**:** Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.
6. Inadvertent Discoveries**:** If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.

Level of Significance After Mitigation

Less than significant impact.

Lead Agency Determined Tribal Cultural Resources

Impact CUL-5:	**The proposed project may cause a substantial adverse change in the significance of a tribal cultural resource.**

Impact Analysis

FCS sent letters containing project information and requesting any additional information to each tribal representative identified by the NAHC on February 8, 2021. A second follow up letter and/or email was sent on May 13, 2021. On May 21, 2021, a third and final attempt was made via phone call. On February 9, 2021, a response was received from the Yocha Dehe Wintun Nation stating that the project site falls within the Tribe's traditional use area and could impact known cultural resources important to the Tribe. The Tribe provided recommended mitigation measures and protocols including construction monitoring of all ground disturbance and cultural sensitivity training for all staff on-site.

Tribal consultation pursuant to AB 52 has been initiated by the City of American Canyon and is ongoing. The City of American Canyon, in its capacity as lead agency, has not identified any TCRs within the project site that are significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. However, the possibility remains that TCRs in the form of subsurface archaeological resources or human remains may be encountered during project construction. Implementation of MM CUL-2a, MM CUL-2b, MM CUL-3 and MM CUL-4 would require construction monitoring by a qualified Archaeologist and Native American Monitor. These measures include protocols provided by the Yoche Dehe Wintun Nation and would reduce potential impacts to TCRs to a less than significant level.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement Mitigation Measures CUL-2a, CUL-2b, CUL-3 and CUL-4.

Level of Significance After Mitigation

Less than significant impact.

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3.5 - Geology, Soils, and Seismicity

3.5.1 - Introduction

This section describes the existing geology, soils, and seismicity setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information provided by the Geotechnical Engineering Report prepared by Wallace Kuhl & Associates and the Geological Fault Investigation prepared by Cornerstone Earth Group. Both reports are provided in Appendix E.

3.5.2 - Environmental Setting

Regional Geology

The site is located in the southern portion of the Napa Valley, which is characterized as a relatively large northwest-trending alluvial valley within the Northern California Coast Range geomorphic province. The valley is at the southernmost end of the Mayacmas Mountains. South of the City of Napa, the hills on the western side of the valley terminate at the marshes bordering the northern end of San Pablo Bay; the hills on the northeast continue to near Sulphur Springs Mountain near the City of Vallejo. The bedrock ridges on each side of the Napa Valley trend northwest, parallel to the general north-northwest structural trend of the North Coast Ranges. Pre-Quaternary bedrock is generally restricted to the foothills, but locally there are low knolls or hills of Tertiary-age bedrock in the central and western parts of the valley. Quaternary alluvial fan deposits shed from the hills on the east, and fluvial deposits associated with the Napa River and its tributary valleys comprise the youngest deposits within the Napa Valley. Late Pleistocene estuarine deposits formed during the last interglacial stage are postulated to underlie a broad geomorphic surface in the southern end of the valley where the subject site is situated.

Within the region, the San Andreas Fault system distributes shearing across a complex assemblage of primarily right-lateral, strike-slip, parallel, and sub-parallel faults that include the Hayward and Calaveras Faults and others (see the “Faulting” section of this report). The mountainous topography west of Napa Valley resulted from latest Pliocene and Quaternary uplift associated with the younger structures.

Local Geology

The site is in an area adjacent to the San Francisco Bay where Quaternary alluvial deposits dominate the local geology. The majority of the site and adjacent areas is underlain by Late Pleistocene to Holocene alluvial fan deposits (“Qf”), which are bound to the north and on the west by older geologic units, including Late Pleistocene fan deposits (“Qpf”) and Early to Middle Pleistocene alluvial fan or terrace deposits (“Qoa”). Specifically, the Qf unit is relatively younger than and was deposited over the Qpf and the Qoa units. The Qf unit is described as gently sloping, fan-shaped, relatively undissected alluvial surfaces where Late Pleistocene or Holocene age was uncertain or where the deposits of different age interfinger such that they could not be delineated at the map scale. Sediments include sand, gravel, silt, and clay, moderately to poorly sorted and moderately to poorly bedded. The Qpf unit is described as Late Pleistocene fan deposits. Gently sloping, fan-shaped

alluvial surfaces where Late Pleistocene age is indicated by slight dissection and/or the development of alfisols. The Qoa unit is described as moderately to deeply dissected alluvial deposits capped by alfisols, ultisols, or soils containing a silica or calcic hardpan.

The Huichica Formation (Pliocene) is mapped on the western edge of the site. The formation is described as fluvial gravel, sand, silt, and clay. Holocene alluvium is mapped within the meandering, channelized path of the unnamed creek that extends into the site.

Seismicity

The term *seismicity* describes the effects of seismic waves that are radiated from an earthquake as it ruptures. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. The probability of one or more earthquakes of magnitude 6.7 (Richter scale) or higher occurring in the project area has been evaluated by the United States Geological Survey (USGS). Based on the results of the USGS evaluation, there is a 63 percent likelihood that such an earthquake event will occur in the Bay Area between 2007 and 2036. The faults with the greater probability of movement with a magnitude of 6.7 or higher earthquake are the Hayward Fault at 27 percent, the San Andreas Fault at 21 percent, and the Calaveras Fault at 11 percent. To understand the implications of seismic events, a discussion of faulting and seismic hazards follows.

Faulting

Faults form in rocks when stresses overcome the internal strength of the rock, resulting in a fracture. Large faults develop in response to large, regional stresses operating over a long time, such as those stresses caused by the relative displacement between tectonic plates. According to the elastic rebound theory, these stresses cause strain to build up in the earth's crust until enough strain has built up to exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build once again until the occurrence of another earthquake. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest build up in strain that is due to the largest relative motion between tectonic plates or fault blocks over the longest period of time will generally produce the largest earthquakes. The distribution of these earthquakes is a study of much interest for both hazard prediction and analysis of active deformation of the earth's crust. Deformation is a complex process, and strain caused by tectonic forces is not only accommodated through faulting but also by folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards since they occur where earthquakes tend to recur. A historic plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are, therefore, a prime indicator of past seismic activity, and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stresses and strain in the crust can shift, predicting the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

The West Napa, Green Valley, and Rogers Creek are the three faults closest to American Canyon. These faults and their characteristics are summarized in Table 3.5-1 and shown on Exhibit 3.5-1**.**

Table 3.5-1: Fault Summary

Fault	Type	Relationship to Project Site		Maximum Credible Earthquake (magnitude)
		Direction	Distance (miles)	
West Napa	Normal-Oblique	—	<0.1	6.50
Green Valley	Right-Lateral Strike-Slip	East	7.4	6.50
Rogers Creek	Right-Lateral Strike-Slip	Southwest	8.1	7.00
Source: Cornerstone Earth Group 2017.				

West Napa Fault

The West Napa Fault begins under San Pablo Bay and travels north through American Canyon and up the west side of the Napa Valley to the vicinity of Saint Helena. The West Napa Fault is designated an Alquist-Priolo Special Study Area. On August 24, 2014, a magnitude 6.0 earthquake (known as the South Napa Earthquake) occurred on the West Napa Fault, the epicenter of which was approximately 1 mile from the project site. Prior to the 2014 South Napa Earthquake, the last major seismic event on the West Napa Fault was a magnitude 5.2 temblor whose epicenter was near Yountville in September 2000.

Exhibit 3.5-2 depicts the location of the West Napa Fault in relation to the project site. As shown in the exhibit, the fault and Special Study Area overlap with the western portion (Phase 2) of the project site.

Seismic Hazards

Seismicity describes the effects of seismic waves that are radiated from an earthquake as it ruptures. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. To understand the implications of seismic events, a discussion of faulting and seismic hazards is provided below.

Seismic hazards pose a substantial danger to property and human safety and are present because of the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is influenced as much by the conditions of human development as by the frequency and distribution of major geologic events. Seismic hazards present in California include ground rupture along faults, strong seismic shaking, liquefaction, ground failure, landsliding, and slope failure.

Fault Rupture

Fault rupture is a seismic hazard that affects structures sited above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault during an earthquake. Typically,

this movement takes place during the short time of an earthquake, but it also can occur slowly over many years in a process known as creep. Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

Following the August 24, 2014, seismic event on the West Napa Fault, fault rupture was observed on two Napa County Airport taxiways and various roadways in Napa County, including State Route 121 and Old Sonoma Road.

Ground Shaking

The severity of ground shaking depends on several variables, such as earthquake magnitude, epicenter distance, local geology, thickness, seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium.

Based on observations of damage from recent earthquakes in California (e.g., San Fernando 1971, Whittier-Narrows 1987, Landers 1992, Northridge 1994), ground shaking is responsible for 70 to 100 percent of all earthquake damage. The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage from falling objects or broken utility lines. Fire and explosions are also hazards associated with strong ground shaking.

During the 2014 South Napa Earthquake, the USGS instrument readings at monitoring sites in Napa and Vallejo reported peak ground acceleration values ranging from 19.8 to 40.7 percent of gravity, which corresponds to "strong" and "very strong" ground shaking. Following the earthquake, more than 200 persons sought treatment at local hospitals, more than 150 buildings were "red tagged,"[1] and numerous utility lines experienced ruptures or leaks that disrupted service.

Ground Failure

Ground failure includes liquefaction, the liquefaction-induced phenomena of lateral spreading, and lurching.

Liquefaction is a process by which sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure, and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid, resulting in liquefaction.

[1] A red-tagged building is considered uninhabitable without further assessment or repair under the California Building Standards Code.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Lateral spreading is lateral ground movement, with some vertical component, caused by liquefaction. In effect, the soil rides on top of the liquefied layer. Lateral spreading can occur on relatively flat sites with slopes less than 2 percent, under certain circumstances, and can cause ground cracking and settlement.

Lurching is the movement of the ground surface toward an open face when the soil liquefies. An open face could be a graded slope, stream bank, canal face, gully, or other similar feature.

Landslides and Slope Failure

Landslides and other forms of slope failure form in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides, and rock fall—processes that are commonly triggered by intense precipitation, which varies according to climactic shifts.

Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the downhill movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. Debris flows are another common type of landslide similar to earth flows, except that the soil and rock particles are coarser. Mudslide is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows.

Surface Profile/Geomorphology

The project site contains flat topography and ground cover vegetation. There are few exposures of natural earth materials at the subject site except for local erosion scars on sloping ground within the central trough and stream banks of the unnamed creek near the northern edge of the site. At the time of the reconnaissance the site was undeveloped and being used for livestock pasture. Grasses and weeds exist across the ground surface. The central portion of the site is crossed north to south by a seasonal creek that has resulted in subtle depressions accented by wetland vegetation. A topographic rise on the southwest corner of the site corresponds to area where the published maps show the Huichita Formation forming an oblong outcrop at the ground surface.

Site reconnaissance revealed geomorphic features suggesting the presence of fault surface traces, including subtle linear topographic depressions along the northerly trending creek adjacent to the north property line, a dextrally offset drainage, and linear edge along the west edge of wetlands.

Subsurface Profile

Geologic Units

The project site, the property to the south through which the utility lines would be extended, and the pump station site are underlain by Late Pleistocene fan deposits bordered by two younger geologic units: Holocene alluvium and Holocene alluvial fan sentiments.

Native Soils

Soil mapping by the United States Department of Agriculture Natural Resources Conservation Service indicates that the project site consists mostly of Haire loam, 2-9 percent slopes; smaller areas of Clear Lake clay drained, 0-2 percent slopes; and Haire clay loam, 2-9 percent slopes. The characteristics of the three native soils are summarized in Table 3.5-2. Note that fill has been placed on-site and is not reflected in Table 3.5-2.

Table 3.5-2: Native Soils Summary

Soil	Parent Material	Landform	Constituents	Drainage Class
Haire loam, 2-9 percent slopes	Alluvium derived from sedimentary rock	Alluvial fans	Loam; sandy clay loam; clay; sandy clay	Moderately well
Clear Lake clay, drained, 0-2 percent slopes	Basin alluvium derived from igneous, metamorphic, and sedimentary rock	Basin floors	Clay	Poor
Haire clay loam, 2-9 percent slopes	Alluvium derived from sedimentary rock	Alluvial fans	Loam; sandy clay loam; clay; sandy clay	Moderately well
Source: Natural Resources Conservation Service 2021.				

Soil Borings

Wallace Kuhl conducted 52 soil borings in 2020 to evaluate the subsurface profile. The borings indicated that the project site is underlain by moderate-to-high plasticity, stiff-to-hard lean clay to depths of 5 to 10 feet below ground surface. Groundwater was encountered in six borings at depths ranging from 12 to 20 feet below ground surface. Wallace Kuhl's 2020 findings were consistent with Cornerstone Earth Group's 2017 investigation.

Paleontological Resources

The surface of the project site consists of Holocene fan deposits (Qf), Holocene–Pleistocene fan deposits (Qpf), early to middle Pleistocenefan or terrace deposits (Qoa), and the Pliocene Huichica Formation (Th). Also in the surrounding 0.5-mile radius (dashed outline) are modern artificial fill (af, afbm), Holocene–Pleistocene landslide deposits (Qls), the Plio-Pleistocene Petaluma Formation (Tsp), the Pliocene Sonoma Volcanics andesite (Tsv), and the Cretaceous Great Valley Sequence (Kgv). Modern and Holocene deposits are too young to be fossiliferous, whereas andesite is a nonfossiliferous volcanic rock. All of the other units have the potential to yield significant paleontological resources.

3.5.3 - Regulatory Framework

Federal

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the United States Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95–124. In establishing the NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic goals remain unchanged:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods and their use.
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. There are four primary NEHRP agencies:

- National Institute of Standards and Technology of the Department of Commerce
- National Science Foundation
- USGS of the Department of the Interior
- Federal Emergency Management Agency (FEMA) of the Department of Homeland Security

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program, authorized by Section 402(p) of the federal Clean Water Act, controls water pollution by regulating point sources, such as construction sites and industrial operations that discharge pollutants into waters of the United States. A Storm Water Pollution Prevention Plan (SWPPP) is required to control discharges from a project site, including soil erosion, to protect waterways. A SWPPP describes the measures or practices to control discharges during both the construction and operational phases of the project. A SWPPP identifies project design features and structural and nonstructural Best Management Practices (BMPs) that will be used to control, prevent, remove, or reduce stormwater pollution from the site, including sediment from erosion.

State Regulations

California Building Standards Code

The 2019 California Building Code is another name for the body of regulations known as the California Code of Regulations, Title 24, Part 2, which is a portion of the California Building Standards Code. The California Building Code incorporates by reference the International Building Code requirements with necessary California amendments. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards.

Compliance with the California Building Code requires (with very limited exceptions) that structures for human occupancy be designed and constructed to resist the effects of earthquake motions. The Seismic Design Category for a structure is determined in accordance with either California Building Code Section 1613–Earthquake Loads or the American Society of Civil Engineers Standard No. 7-05, Minimum Design Loads for Buildings and Other Structures. In brief, based on the engineering properties and soil-type of soils at a proposed site, the site is assigned a Site Class ranging from A to F. The Site Class is then combined with Spectral Response (ground acceleration induced by earthquake) information for the location to arrive at a Seismic Design Category ranging from A to D, of which D represents the most severe conditions. The classification of a specific site and related calculations must be determined by a qualified Geotechnical Engineer and are site-specific.

Finally, the California Building Code requires that a geotechnical investigation be prepared for all new buildings that are 4,000 square feet or larger, as well as for smaller buildings if they meet certain criteria. The geotechnical investigation must be prepared by a California registered Geotechnical Engineer and address the classification and investigation of the soil, including requirements for geotechnical designs necessary to meet standards for reducing exposure to geological hazards.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code [PRC] Sections 2621 to 2630) was passed in 1972 to provide a statewide mechanism for reducing the hazard of surface fault rupture to structures used for human occupancy. The main purpose of the Act is to prevent the siting of buildings used for human occupancy across the traces of active faults. It should be noted that the Act addresses the potential hazard of surface fault rupture and is not directed toward other earthquake hazards, such as seismically induced ground shaking or landslides.

The law requires the State Geologist to identify regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults and to depict these zones on topographic base maps, typically at a scale of 1 inch to 2,000 feet. Earthquake Fault Zones vary in width, although they are often 0.75-mile wide. Once published, the maps are distributed to the affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. With the exception of single-family wood-frame and steel-frame dwellings that are not part of a larger development (i.e., four units or more), local agencies are required to regulate development within the mapped zones. In general, construction within 50 feet of an active fault zone is prohibited.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (PRC §§ 2690–2699.6), which was passed in 1990, addresses earthquake hazards other than surface fault rupture. These hazards include strong ground shaking, earthquake-induced landslides, liquefaction, or other ground failures. Much like the Alquist-Priolo Earthquake Fault Zoning Act discussed above, these seismic hazard zones are mapped by the State Geologist to assist local government in the land use planning process. The Act states, "It is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety." The Act also states, "Cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard."

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following guiding and implementing policies relevant to geology, soils, and seismicity:

Goal 9 Reduce the potential level of death, injury, property damage, economic and social dislocation (i.e., business closures and homelessness due to structural damage) and disruption of vital services that could result from earthquake damage.

Goal 9C Ensure that seismic, geologic, and soils hazards that might affect areas designated for human use or habitation are properly mitigated or avoided entirely prior to development.

Objective 9.1 Protect life, ensure public safety, substantially reduce the damage to and ensure the orderly evacuation of building occupants following a seismic event.

Policy 9.1.1 Promote the collection of relevant data on fault location and the history of fault displacement as a basis for future refinement of fault zone policies and development standards. Particular attention should be paid to the West Napa Fault that is generally depicted in Figure 9-1 and should be evaluated in conjunction with proposed development. Based on predevelopment studies, limitations on new development shall be imposed if necessary in the identified fault areas.

Policy 9.1.2 Implement mandatory development restrictions and investigation requirements (by the state, under the Alquist-Priolo Act, or by the City) on that portion of the West Napa Fault zone located within American Canyon and its Planning Area.

Policy 9.1.3 Require that any building intended to have occupancy be located at least 50 feet from either side of an active or potentially active fault.

Objective 9.2 Protect health and life safety, and reduce the level of potential property damage from the adverse effects of strong seismic ground shaking by implementing effective, state-of-the-art standards for seismic design of structures in the City.

Policy 9.2.1 Require that development be designed in accordance with seismic requirements of the Uniform Building Code.

Objective 9.3 Protect life and essential lifelines (e.g., gas, electricity, water), reduce the risk of property damage due to liquefaction, and promote the collection of more complete information on liquefaction susceptibility throughout the Planning Area.

Policy 9.3.1 A void development in areas with known liquefaction risk. If these areas cannot be avoided, require a qualified geologist, hydrologist, or civil engineer to determine the liquefaction potential at proposed development sites.

Policy 9.3.2 Require the submittal of liquefaction mitigation plans for proposed developments located in areas determined to have a high level of liquefaction risk.

Objective 9.4 Protect life, ensure safety, and substantially reduce the potential level of property damage from landslides, mudflows, slope failures and soil hazards. Promote the collection and utilization of more complete information on slope instability potential throughout the City and Planning Area.

Policy 9.4.5 Review proposals for new development and' expansion of existing development in areas that are susceptible to collapsible or expansive soils and require adequate mitigation of these hazards.

Municipal Code

American Canyon Municipal Code, Chapter 16.02 adopts the California Building Code; as such, all new construction within the city limits is required to adhere to its seismic safety standards. The City of American Canyon Community Development Department is responsible for the administration and enforcement of the Building Code.

3.5.4 - Methodology

This analysis in this section is based on the Geotechnical Engineering Report prepared by Wallace Kuhl & Associates in November 2020 and the Geological Fault Investigation prepared by Cornerstone Earth Group in November 2017. Both reports are provided in Appendix E.

Wallace Kuhl drilled 52 borings on the project site in September and October 2020. The soil attributes of the borings were recorded, including moisture, density, and unconfined compressive strength. Wallace Kuhl subsequently laboratory tested five of the boring samples to determine additional attributes, including plasticity index and R-value. The Geotechnical Engineering Report provided recommendations for grading, soil engineering, and construction practices.

Cornerstone Earth Group prepared a fault investigation for proposed utility pipelines that would cross the western portion of project site where the West Napa Fault is present. Cornerstone excavated three trenches ranging from 215 to 394 feet in length to depths of 7.5 to 9.5 feet below ground surface. Exhibit 3.5-3 depicts the locations of the trenches. A certified engineering geologist assessed each trench documented the geologic conditions of each trench to identify the location of

the West Napa Fault. The Geological Fault Investigation provided recommendations for pipeline construction practices.

FirstCarbon Solutions (FCS) also obtained information about faults and seismic hazards from sources including the USGS, the United States Department of Agriculture, and the City of American Canyon General Plan.

At the request of FCS, Dr. Kenneth Finger, Consulting Paleontologist, conducted a records search of the University of California Museum of Paleontology database in January 2021. The query yielded no records of vertebrate or plant localities in Napa County.

3.5.5 - Thresholds of Significance

Appendix G to the California Environmental Quality Act (CEQA) Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to geology, soils, and seismicity are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:
    i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
    ii. Strong seismic ground shaking;
    iii. Seismic-related ground failure, including liquefaction;
    iv. Landslides;

b) Result in substantial soil erosion or the loss of topsoil;

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater (refer to Section 7, Effects Found not to be Significant); or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

3.5.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary. The analysis below has been written against the backdrop of CEQA case law addressing the scope of analysis required in Environmental Impact Reports (EIRs) for potential impacts resulting from existing environmental hazards found at the site or in the vicinity of a site for a proposed project. In *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377, the California Supreme Court held that "agencies subject to CEQA generally are *not* required to analyze the impact of existing environmental conditions on a project's future users or residents." (Italics added.) The court reasoned that "ordinary CEQA analysis is concerned with a project's impact on the environment, rather than with the environment's impact on a project and its users or residents." (*Id*. at p. 378.)

The court did not hold, however, that CEQA never requires consideration of the effects of existing environmental conditions on the future occupants or users of a proposed project. The circumstances in which such conditions may be considered are narrow: "when a proposed project *risks exacerbating* those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions." (*Id*. at pp. 377-378, italics added.)

To help readers understand how to conduct impact analysis in light of these general principles, the court provided an example, which, it said, "may be illuminating. Suppose that an agency wants to locate a project next to the site of a long-abandoned gas station. For years, that station pumped gasoline containing methyl tertiary-butyl ether (MTBE), an additive—now banned by California—that can seep into soil and groundwater. [Citations.] Without any additional development in the area, the MTBE might well remain locked in place, an existing condition whose risks—most notably the contamination of the drinking water supply—are limited to the gas station site and its immediate environs. But by virtue of its proposed location, the project threatens to disperse the settled MTBE and thus exacerbate the existing contamination. The agency would have to evaluate the existing condition—here, the presence of MTBE in the soil—as part of its environmental review. Because this type of inquiry still focuses on the project's impacts on the environment—how a project might worsen existing conditions—directing an agency to evaluate how such worsened conditions could affect a project's future users or residents is entirely consistent with this focus and with CEQA as a whole." (*Id*. at p. 389.)

Seismic Hazards

Impact GEO-1:	**The proposed project may expose people or structures to potential substantial adverse effects associated with seismic hazards.**

Impact Analysis

This impact evaluates potential exposure to seismic hazards, including fault rupture, strong ground shaking, ground failure and liquefaction, and landslides, and addresses whether the project could exacerbate any such hazards. Each issue is discussed separately.

Fault Rupture

Phase 1

There are no active earthquake faults within Phase 1. For these reasons, Phase 1 of the proposed project would not be subject to fault rupture during a seismic event nor would it exacerbate exposure to fault rupture hazards. Impacts in this regard would be less than significant.

Phase 2

The West Napa Fault crosses through the western portion of Phase 2. Cornerstone Earth Group conducted a Geological Fault Investigation in 2017 that identified the precise location of the West Napa Fault within Phase 2 of the project site. Pursuant to State law, a 50-foot setback must be established from the fault to the nearest building. Mitigation Measure (MM) GEO-1a requires the applicant to prepare and submit plans for Phase 2, when building permits are sought, demonstrating the required setbacks. The establishment of the setbacks would ensure that the proposed project does not exacerbate exposure to fault rupture hazards. The implementation of this mitigation measure would ensure that the proposed project is not exposed to fault rupture. Impacts would be less than significant.

Strong Ground Shaking

Phases 1 and 2

Phase 1 is located in a seismically active region of California and is susceptible to strong ground shaking during a seismic event.

A design-level geotechnical report for the proposed project would be prepared by the time building permits are sought. Such a report would provide recommendations on the appropriate level of soil engineering and building design necessary to minimize ground shaking hazards. Accordingly, MM GEO-1b is proposed, requiring the applicant to submit such a study to the City of American Canyon for review and approval. Standard soil engineering and building design practices would include standards for foundations and structural support of buildings to ensure that they withstand strong ground shaking during a seismic event and avoid the exacerbation of exposure to such hazards. The implementation of this mitigation measure would ensure that the proposed project is not exposed to strong ground shaking hazards. Impacts would be less than significant.

Ground Failure and Liquefaction

Phases 1 and 2

The Geotechnical Engineering Report determined that the project site is underlain by high plasticity soils, which are considered too stiff and dense to be susceptible to liquefaction. Thus, the proposed project would not be susceptible to ground failure, liquefaction, or liquefaction-related phenomena. Thus, the proposed project would not exacerbate exposure to such hazards. Impacts would be less than significant.

Landslides

Phases 1 and 2

The project site contains relatively flat relief, with an approximately 15-foot difference in elevation across the site. There are no slopes near the project site that may be susceptible to landsliding during a seismic event. This precludes the possibility of the proposed project being susceptible to

landsliding. Thus, the proposed project would not exacerbate exposure to such hazards. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM GEO-1a Prior to the issuance of building permits for each Phase 2 structure, the project applicant shall submit plans to the City of American Canyon for review and approval that demonstrate a minimum 50-foot setback between the West Napa Fault and each building. The approved plans shall be incorporated into the proposed project.

MM GEO-1b Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.

Level of Significance After Mitigation

Less than significant impact.

Erosion

Impact GEO-2: The proposed project may result in substantial soil erosion or the loss of topsoil.

Impact Analysis

Phases 1 and 2

The proposed project would involve grading, building construction, paving, and utility installation activities that may cause erosion and sedimentation. This includes construction activities associated with the proposed project. Left unabated, the accumulation of sediment in downstream waterways could result in the blockage of flows, potentially causing increased localized ponding or flooding. As such, MM HYD-1a in Section 3.8, Hydrology and Water Quality, would require the implementation of stormwater quality control measures during construction activities to prevent pollutants from entering downstream waterways. Standard stormwater pollution prevention measures would include implementing structural and nonstructural control measures within and around disturbed areas to prevent soil and pollutants from leaving the project site. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM HYD-1a Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

Level of Significance After Mitigation

Less than significant impact.

Unstable Geologic Location

Impact GEO-3: The proposed project would not be located on an unstable geologic unit or soil.

Impact Analysis

Phases 1 and 2

The stability of the underlying geologic units and soils are functions of their constituents. For example, soils with high organic or fill content would generally be considered unsuitable to support urban development. Likewise, soils that are composed of well-compacted alluvium would generally be considered suitable to support urban development.

The project site is underlain by high plasticity soils. The Geotechnical Engineering Report determined that these soils are too stiff and dense to be susceptible to liquefaction. As such, the proposed project would not be susceptible to or cause landslides, lateral spreading, collapse, ground failure, liquefaction, or liquefaction-related phenomena nor would it exacerbate these existing conditions to the extent they exist in the project vicinity. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Expansive Soil

Impact GEO-4: The proposed project may create substantial risks to life or property as a result of expansive soil conditions on the project site.

Impact Analysis

Phases 1 and 2

The Geotechnical Engineering Report found that the project site is underlain by soils with high clay content and are therefore capable of being expansive. The design-level Geotechnical Investigation required by MM GEO-1b would outline standard grading and soil engineering practices would abate these potential hazards. Standard grading and soil engineering practices would include replacing native soils with engineered fill that would not possess expansive characteristics. These grading and soil engineering practices would ensure that the proposed project does not exacerbate the existing expansive soil conditions. Thus, the implementation of this mitigation measure would reduce impacts to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement Mitigation Measure GEO-1b.

Level of Significance After Mitigation

Less than significant impact.

Paleontological Resources or Unique Geologic Features

Impact GEO-5: The proposed project may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impact Analysis

Phases 1 and 2

The surface of the project site consists of Holocene fan deposits (Qf), Holocene–Pleistocene fan deposits (Qpf), early to middle Pleistocenefan or terrace deposits (Qoa), and the Pliocene Huichica Formation (Th). Also in the surrounding 0.5-mile radius (dashed outline) are modern artificial fill (af, afbm), Holocene–Pleistocene landslide deposits (Qls), the Plio-Pleistocene Petaluma Formation (Tsp), the Pliocene Sonoma Volcanics andesite (Tsv), and the Cretaceous Great Valley Sequence (Kgv).

Modern and Holocene deposits are too young to be fossiliferous, whereas andesite is a nonfossiliferous volcanic rock. Additionally, there are no recorded vertebrate or plant localities within Napa County.

For these reasons, the project site is not located in an area that is considered likely to have paleontological resources present. The type of depositional environment at the project site typically does not present favorable conditions for the discovery of paleontological resources. In this context, the project would not result in impacts to paleontological resources. However, if significant paleontological resources are discovered, implementation of MM GEO-5 will reduce this potential impact to a less than significant level. The mitigation measure requires treatment and salvage of resources in accordance Society of Vertebrate Paleontology guidelines. The Society of Vertebrate Paleontology is widely recognized as an authoritative information source for paleontological resources. There are no unique geologic features present on the project site or off-site development areas. Therefore, the proposed project would have less than significant impacts on a unique geologic feature.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM GEO-5 If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil. The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.

Level of Significance After Mitigation

Less than significant impact.

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Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700		? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
					? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary	Pleistocene	700,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

Source: Cornerstone Earth Group, October 2017.

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Exhibit 3.5-1
Regional Fault Map

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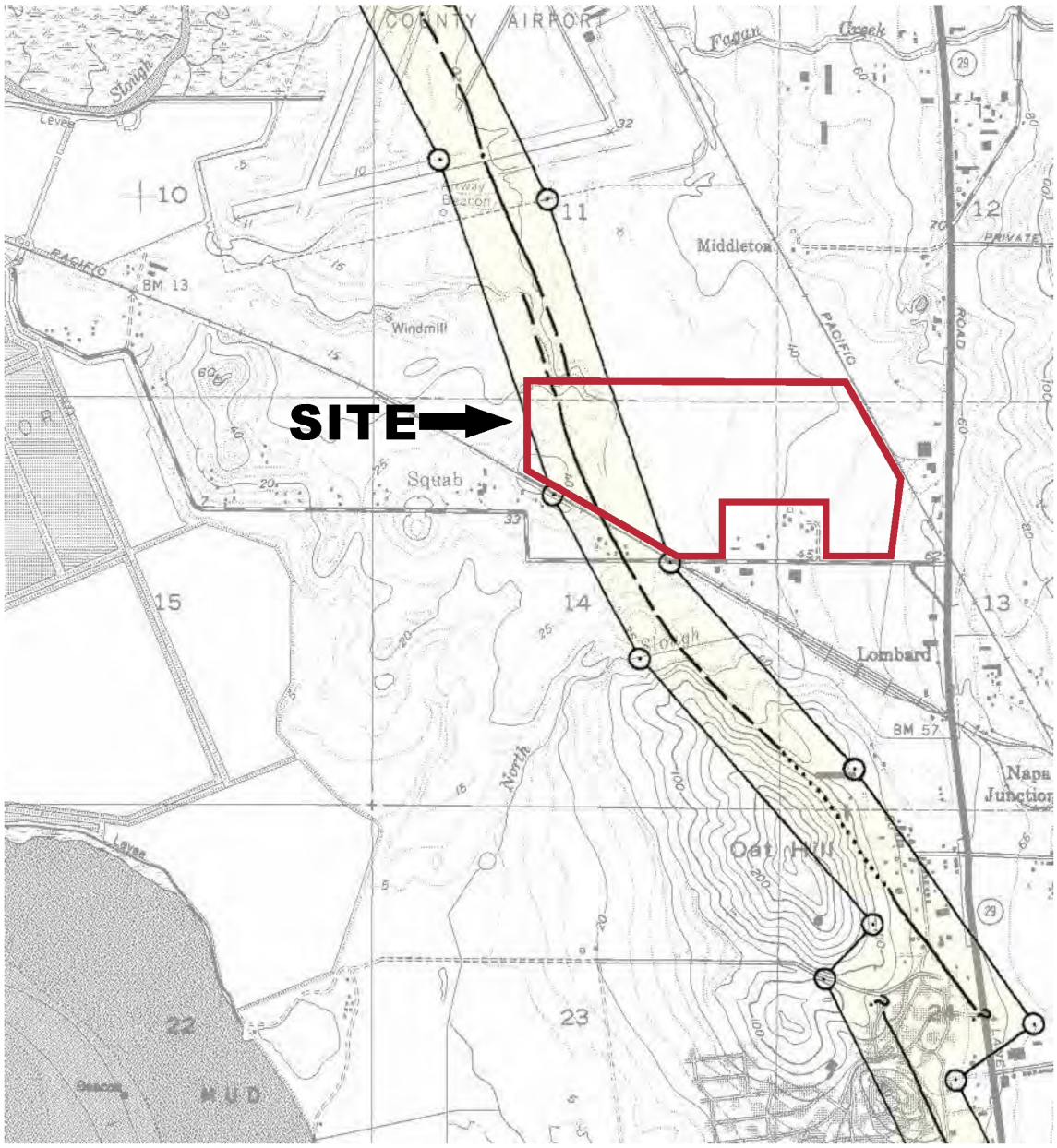

MAP EXPLANATION

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

Base: State of California, Special Studies Zones, Cutting Wharf Quadrangle

Source: Cornerstone Earth Group, October 2017.

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Exhibit 3.5-2
West Napa Fault Map

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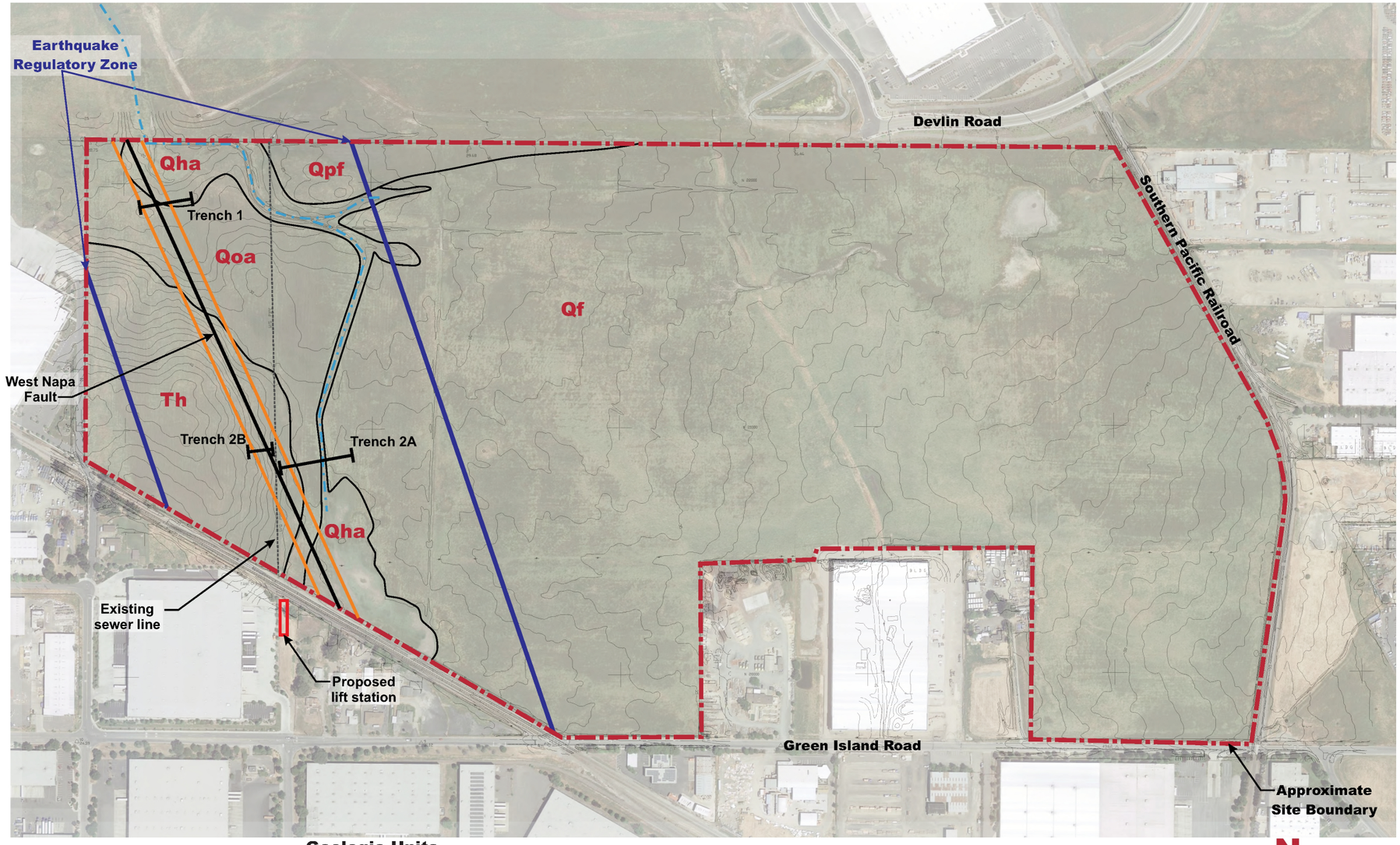

Source: Cornerstone Earth Group, October 2017.

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Exhibit 3.5-3
Trench Location Map

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3.6 - Greenhouse Gas Emissions and Energy

3.6.1 - Introduction

This section describes the existing greenhouse gas (GHG) emissions setting and potential effects from project implementation on the project site and its surrounding area. Descriptions and analysis in this section are based on modeling information and assumptions presented in Section 3.2, Air Quality. The modeling outputs and calculations specific to this Greenhouse Gas Analysis are included in Appendix B of this Draft Environmental Impact Report (Draft EIR). The following comments were received in response to the Notice of Preparation (NOP) related to GHG emissions:

- The EIR should assess and mitigate the impacts of the project on climate change causing GHG emissions.

3.6.2 - Environmental Setting

Greenhouse Effect, Global Warming, and Climate Change

Most of the energy that affects the Earth's climate comes from the sun. Some solar radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected by the atmosphere back toward space. As the Earth absorbs high-frequency solar radiation, its surface gains heat and then re-radiates lower frequency infrared radiation back into the atmosphere.[1]

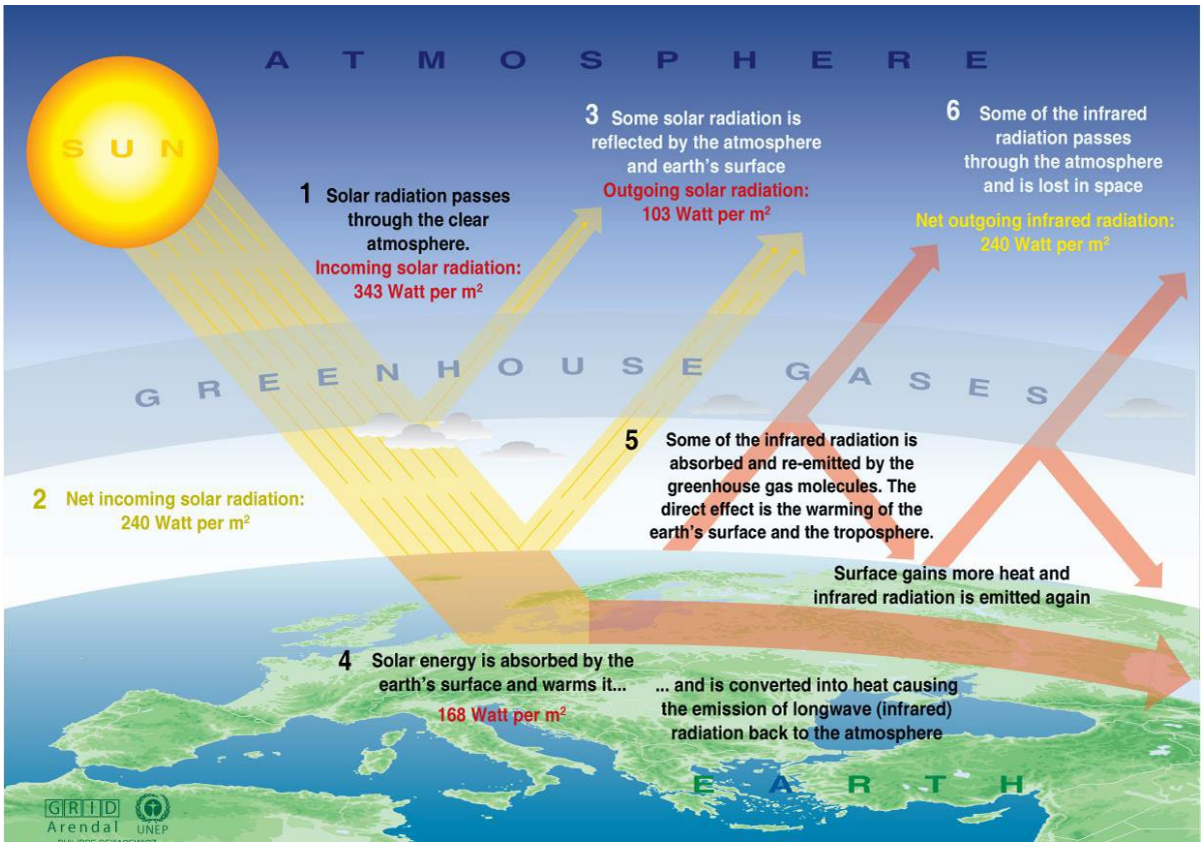
Most solar radiation passes through gases in the atmosphere classified as GHGs; however, infrared radiation is selectively absorbed by GHGs. GHGs in the atmosphere play a critical role in maintaining the balance between the Earth's absorbed and radiated energy, the Earth's radiation budget,[2] by trapping some of the infrared radiation emitted from the Earth's surface that otherwise would have escaped to space (Figure 3.6-1). Radiative forcing is the difference between the incoming energy and outgoing energy.[3] Specifically, GHGs affect the atmosphere's radiative forcing,[4] which in turn affects the Earth's average surface temperature. This phenomenon, the *greenhouse effect*, keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows successful habitation by humans and other forms of life.

Combustion of fossil fuels and deforestation release carbon into the atmosphere that historically has been stored underground in sediments or in surface vegetation, thus exchanging carbon from the geosphere and biosphere to the atmosphere in the carbon cycle. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19th Century, concentrations of GHGs in the atmosphere have increased exponentially. Such emissions of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect has contributed to *global warming*, an increased rate of

[1] Frequencies at which bodies emit radiation are proportional to temperature. The Earth has a much lower temperature than the sun and emits radiation at a lower frequency (longer wavelength) than the high-frequency (short-wavelength) solar radiation emitted by the sun.
[2] This includes all gains of incoming energy and all losses of outgoing energy; the planet is always striving to be in equilibrium.
[3] Positive forcing tends to warm the surface while negative forcing tends to cool it.
[4] This is the change in net irradiance at the tropopause after allowing stratospheric temperatures to readjust to radiative equilibrium, but with surface and tropospheric temperatures and state held fixed at the unperturbed values.

warming of the Earth's average surface temperature.[5] Specifically, increases in GHGs lead to increased absorption of infrared radiation by the Earth's atmosphere and warm the lower atmosphere further, thereby increasing temperatures and evaporation rates near the surface.

Variations in natural phenomena such as volcanoes and solar activity produced most of the global temperature increase that occurred during preindustrial times; more recently, however, increasing atmospheric GHG concentrations resulting from human activity have been responsible for most of the observed global temperature increase.[6]



Source: Philippe Rekacewicz, UNEP/GRID-Arendal. Website: https://www.grida.no/resources/6467. Accessed on April 26, 2019.

Figure 3.6-1: The Greenhouse Effect

Global warming affects global atmospheric circulation and temperatures; oceanic circulation and temperatures; wind and weather patterns; average sea level; ocean acidification; chemical reaction rates; precipitation rates, timing, and form; snowmelt timing and runoff flow; water supply; wildfire risks; and other phenomena, in a manner commonly referred to as *climate change*. Climate change is a change in the average weather of the Earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of

[5] This condition results when the Earth has to work harder to maintain its radiation budget, because when more GHGs are present in the atmosphere, the Earth must force emissions of additional infrared radiation out into the atmosphere.

[6] These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

Temperature Predictions by the Intergovernmental Panel on Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to understanding climate change, its potential impacts, and options for adaptation and mitigation. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Sixth Assessment Report, the IPCC predicted that the global mean temperature change from 2015 to 2100, given five scenarios, could range from 1.4°C (degrees Celsius) to 4.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios.[7] The report also concluded that "[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred." Warming of the climate system is now considered to be unequivocal,[8] with the likely range of total human-caused global surface temperature increases from approximately 0.8°C to 1.3°C since 1850.[9]

Greenhouse Gases and Global Emission Sources

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Prominent GHGs that naturally occur in the Earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH_4), oxides of nitrogen (NO_X), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus release of human-made gases with high global warming potential (GWP) (ozone-depleting substances such as chlorofluorocarbons (CFCs)[10] and aerosols, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The GHGs listed by the IPCC (CO_2, methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride) are discussed below, in order of abundance in the atmosphere. Water vapor, despite being the most abundant GHG, is not discussed below because natural concentrations and fluctuations far outweigh anthropogenic influences, making it impossible to predict. Ozone is not included because it does not directly affect radiative forcing. Ozone-depleting substances, which include chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons, are not included because they have been primarily replaced by HFCs and PFCs.

The GWP is the potential of a gas or aerosol to trap heat in the atmosphere. The GWP of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, carbon dioxide (CO_2).

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7 United Nations Intergovernmental Panel on Climate Change (IPCC). 2021. Climate Change 2021: The Physical Science Basis Summary for Policymakers. Website: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf. Accessed December 15, 2021.

8 Ibid.

9 Ibid.

10 CFCs destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited CFCs production in 1987.

Individual GHG compounds have varying potential for contributing to global warming. For example, methane is 25 times as potent as CO_2, while sulfur hexafluoride is 22,200 times more potent than CO_2 on a molecule-per-molecule basis. To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method for comparing GHG emissions is the GWP methodology defined in the IPCC reference documents (IPCC, 2001a). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (by definition, CO_2 has a GWP of 1). The GWP of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. Thus, to describe how much global warming a given type and amount of GHG may cause, the CO_2e is used. A CO_2e is the mass emissions of an individual GHG multiplied by its GWP. As such, a high GWP represents high absorption of infrared radiation and a long atmospheric lifetime compared to CO_2. One must also select a time horizon to convert GHG emissions to equivalent CO_2 emissions to account for chemical reactivity and lifetime differences among various GHG species. The standard time horizon for climate change analysis is 100 years. Generally, GHG emissions are quantified in terms of metric tons (MT) of CO_2e (MT CO_2e) emitted per year.

The atmospheric residence time of a gas is equal to the total atmospheric abundance of the gas divided by its rate of removal.[11] The atmospheric residence time of a gas is, in effect, a half-life measurement of the length of time a gas is expected to persist in the atmosphere when accounting for removal mechanisms such as chemical transformation and deposition.

Table 3.6-1 lists the GWP of each GHG and its lifetime. Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt), referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and sulfur hexafluoride are referred to as high GWP gases. CO_2 is by far the largest component of worldwide CO_2e emissions, followed by methane, nitrous oxide, and high GWP gases, in order of decreasing contribution to CO_2e.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO_2 from the air and altering the Earth's albedo or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO_2 emissions associated with fossil fuel combustion are the primary contributors to human-induced climate change. CO_2, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change.

GHGs of California concern are defined by California Assembly Bill (AB) 32 (see the Regulatory Environment subsection below for a description) and include CO_2, CH_4, NO_X, HFCs, PFCs, and SF_6. A seventh GHG, nitrogen trifluoride (NF_3), was also added under the California Health and Safety Code

[11] Seinfeld, J.H. and S.N. Pandis. 2006. Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, 2nd Edition. New York. John Wiley & Sons.

Section 38505(g)(7) as a GHG of concern. These GHGs are described in Table 3.6-1 in terms of their physical description and properties, GWP, atmospheric residence lifetime, sources, and atmospheric concentration in 2005.

Table 3.6-1: Description of Greenhouse Gases of California Concern

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Carbon dioxide (CO_2)	Odorless, colorless, natural gas.	1	50-200	burning coal, oil, natural gas, and wood; decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; oceanic evaporation; volcanic outgassing; cement production; land use changes
Methane (CH_4)	Flammable gas and is the main component of natural gas.	25	12	geological deposits (natural gas fields) extraction; landfills; fermentation of manure; and decay of organic matter
Nitrous oxide (N_2O)	Nitrous oxide (laughing gas) is a colorless GHG.	298	114	microbial processes in soil and water; fuel combustion; industrial processes
Chloro-fluoro-carbons (CFCs)	Nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (level of air at the Earth's surface); formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms.	3,800-8,100	45-640	refrigerants aerosol propellants; cleaning solvents
Hydro-fluoro-carbons (HFCs)	Synthetic human-made chemicals used as a substitute for CFCs and contain carbon, chlorine, and at least one hydrogen atom.	140 to 11,700	1-50,000	automobile air conditioners; refrigerants
Per-fluoro-carbons (PFCs)	Stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface.	6,500 to 9,200	10,000-50,000	primary aluminum production; semiconductor manufacturing

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Sulfur hexafluoride (SF_6)	Human-made, inorganic, odorless, colorless, and nontoxic, nonflammable gas.	22,800	3,200	electrical power transmission equipment insulation; magnesium industry, semiconductor manufacturing; a tracer gas
Nitrogen trifluoride (NF_3)	Inorganic, is used as a replacement for PFCs, and is a powerful oxidizing agent.	17,200	740	electronics manufacture for semiconductors and liquid crystal displays

Sources:
United Nations Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, Website: www.ipcc.ch /publications_and_data/ar4/wg1/en/contents.html. Accessed July 20, 2021.

United Nations Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, Pachauri, R.K. and Reisinger, A. [eds.]). IPCC, Geneva, Switzerland. Website: www.ipcc.ch/publications_ and_data/ar4/syr/en/contents.html. Accessed July 20, 2021.

The State has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill (SB) 605, approved by the Governor on September 14, 2014, required the California Air Resources Board (ARB) to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. The ARB released the Proposed Short-Lived Climate Pollutant Reduction Strategy in April 2016. The ARB has completed an emission inventory of these pollutants, identified research needs, identified existing and potential new control measures that offer co-benefits, and coordinated with other State agencies and districts to develop measures.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 3.6-1 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, the ARB will include it in its comprehensive strategy.[12]

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to

[12] California Air Resources Board (ARB). 2015. Short-Lived Climate Pollutant Reduction Strategy, Concept Paper. May. Website: https://ww2.arb.ca.gov/resources/documents/slcp-strategy-draft-may2015. Accessed May 19, 2021

weeks, whereas other GHGs can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

GWPs for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a GWP of 3,200 using a 20-year time horizon and 900 using a 100-year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by the ARB, and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources.[13] Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NO_X) on a regional scale and CH_4 on a hemispheric scale will be subject of the strategy.[14]

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other GHGs, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere.[15]

Global Climate Change Issue

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and hazardous air pollutants (also called toxic air contaminants), which are pollutants of regional and local concern. Pollutants with localized air quality effects have relatively short atmospheric lifetimes, approximately 1 day; by contrast, GHGs have long atmospheric lifetimes, several years to several thousand years. GHGs persist in the atmosphere for a long enough time to be dispersed around the globe.

Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO_2 is currently emitted into the atmosphere than is sequestered. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively. These are two of the most common processes of CO_2 sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean

[13] California Air Resources Board (ARB). 2015. Short-Lived Climate Pollutant Reduction Strategy, Concept Paper. May. Website: https://ww2.arb.ca.gov/resources/documents/slcp-strategy-draft-may2015. Accessed May 19, 2021.
[14] Ibid.
[15] National Aeronautics and Space Administration (NASA). 2015. NASA—Global Climate Change, Vital Signs of a Planet. Website: http://climate.nasa.gov/causes/. Accessed May 19, 2021.

uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions is stored in the atmosphere.[16]

Similarly, effects of GHGs are borne globally, as opposed to the localized air quality effects of criteria air pollutants and hazardous air pollutants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known and cannot be quantified, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climates or microclimate.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A cumulative discussion and analysis of project impacts on global climate change is presented in this EIR because, although it is unlikely that a single project will contribute significantly to climate change, cumulative emissions from many projects affect global GHG concentrations and the climate system.

Global climate change has the potential to result in sea level rise (resulting in flooding of low-lying areas), to affect rainfall and snowfall (leading to changes in water supply), to affect temperatures and habitats (affecting biological resources and public health), and to result in many other adverse environmental consequences.

Although the international, national, State, and regional communities are beginning to address GHGs and the potential effects of climate change, worldwide GHG emissions will likely continue to rise over the next decades.

Climate and Topography

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place. For a detailed discussion of existing regional and project site climate and topography, see Section 3.2, Air Quality.

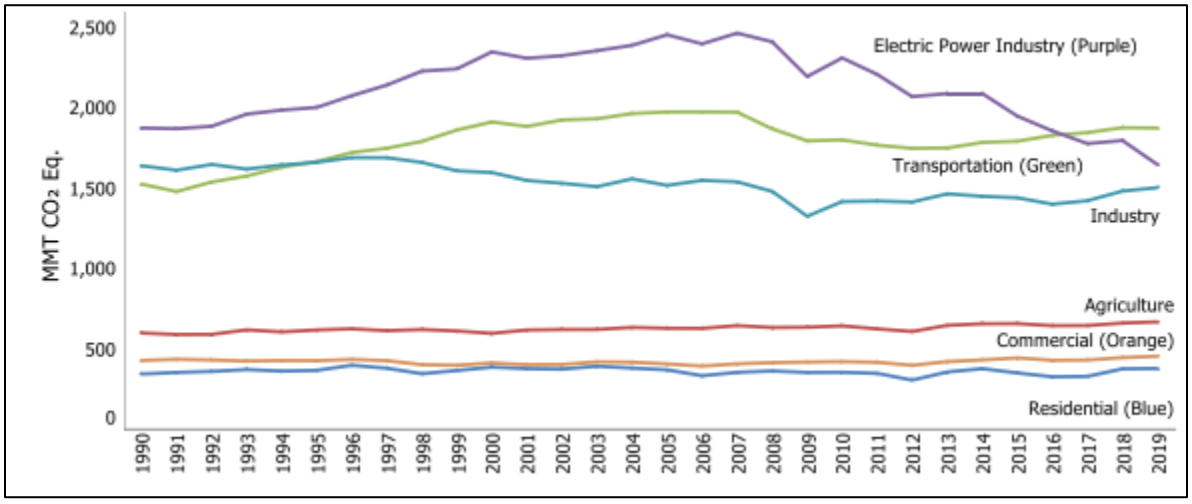
Existing GHG Emissions

United States GHG Inventory

Total U.S. GHG emissions have increased by 1.8 percent from 1990 to 2019.[17] Figure 3.6-2 presents the trend in U.S. GHG emissions by economic sector from 1990 to 2019. Total U.S. GHG emissions increased by 2.8 percent from 1990 to 2019 (an increase of 142.4 million metric tons [MMT] CO_2e). Since 1990, U.S. emissions have increased at an average annual rate of 0.3 percent. Transportation emissions also increased because of an increase in Vehicle Miles Traveled (VMT). Within the United States, fossil fuel combustion accounted for 92.4 percent of CO_2 emissions in 2019. Transportation was the largest emitter of CO_2 in 2019, accounting for 28.6 percent of emissions, followed by electric power generation, accounting for 25.1 percent.

[16] Seinfeld, J. H. and S.N. Pandis. 1998. Atmospheric Chemistry and Physics from Air Pollution to Climate Change. New York. John Wiley & Sons.

[17] United States Environmental Protection Agency (EPA). 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 – Executive Summary. Website: https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-chapter-executive-summary.pdf. Accessed September 13, 2021.



Note: Emissions shown do not include carbon sinks such as change in land uses and forestry.

Source: United States Environmental Protection Agency (EPA). 2021. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 – Executive Summary. Website: https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-chapter-executive-summary.pdf. Accessed September 13, 2021.

Figure 3.6-2: U.S. Greenhouse Gas Emissions Allocated to Economic Sectors (1990-2019)

California GHG Inventory

As the second largest emitter of GHG emissions in the United States., California contributes a large quantity (418.2 MMT CO_2e in 2019) of GHG emissions to the atmosphere.[18,19] Human-related emissions of CO_2 are largely byproducts of fossil fuel combustion and are attributable to transportation, industry/ manufacturing, electricity generation, natural gas consumption, and agriculture processes. In California, the transportation sector is the largest emitter at 41 percent of GHG emissions, followed by industrial at 24 percent of GHG emissions.[20]

Bay Area Air Quality Management District GHG Inventory

The Bay Area Air Quality Management District (BAAQMD) prepared a GHG inventory for the San Francisco Bay Area (Bay Area), which provides an estimate of GHG emissions in the base year 2011 for all counties located in the jurisdiction of BAAQMD: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Napa, and the southern portions of Solano and Sonoma.[21] This GHG inventory is based on the standards for criteria pollutant inventories and is intended to support BAAQMD's climate protection activities.

Table 3.6-2 shows the 2011 breakdown of emissions by end-use sector for each county within the BAAQMD's jurisdiction. The estimated GHG emissions are presented in CO_2e, which weights each GHG by its GWP. The GWPs used in the BAAQMD inventory are from the Second Assessment Report of the IPCC.

[18] World Resources Institute (WRI). 2017. 8 Charts to Understand US State Greenhouse Gas Emissions. Website: https://www.wri.org/insights/8-charts-understand-us-state-greenhouse-gas-emissions. Accessed September 10, 2021.
[19] California Air Resources Board (ARB). 2021. Current California GHG Emission Inventory Data, 2000-2019 Trends Figure Data. Website: https://ww2.arb.ca.gov/ghg-inventory-data. Accessed September 10, 2021.
[20] California Air Resources Board (ARB). 2018. California Greenhouse Inventory—Graphs. Website: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed September 13, 2021.
[21] Bay Area Air Quality Management District. (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases - Base Year 2011. May 14, 2021.

In 2011, GHG emissions from the Napa County accounted for approximately 1.7 percent of the Bay Area's total GHG emissions with 0.2 percent of the Bay Area's total GHG emissions coming from the industrial/commercial land uses in Napa County.[22] Transportation is the largest GHG emissions sector in the Bay Area, followed by industrial/commercial, electricity generation and cogeneration, and residential fuel usage. In Napa County, the transportation also generates the largest amount of GHG emissions, followed by the industrial/commercial sector.

Table 3.6-2: 2011 GHG Emissions by Sector and County (MMT CO_2e/Year)

Sector	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano*	Sonoma*
Industrial/Commercial	2.7	17.8	0.4	0.2	1.2	1.4	4.1	2.7	0.5
Residential Fuel	1.3	1.0	0.3	0.1	0.9	0.8	1.5	0.3	0.4
Electricity/Co-gen	0.9	7.2	0.1	0.1	0.5	0.4	2.2	0.4	0.2
Off-road Equipment	0.2	0.2	0.0	0.0	0.2	0.1	0.4	0.0	0.
Transportation	7.9	5.0	1.3	0.9	3.0	5.0	7.6	1.6	2.0
Agriculture/Farming	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.2
Total	**13.2**	**31.4**	**2.4**	**1.5**	**5.7**	**7.7**	**16.0**	**5.1**	**3.5**

Notes:
* Portion within BAAQMD jurisdiction
BAAQMD = Bay Area Air Quality Management District
CO_2e = carbon dioxide equivalent
co-gen = cogeneration
MMT = million metric tons
Source: Bay Area Air Quality Management District. (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases–Base Year 2011. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. January. Accessed July 20, 2021.

Climate Change Trends and Effects

CO_2 accounts for more than 75 percent of all anthropogenic GHG emissions, the atmospheric residence time of CO_2 is decades to centuries, and global atmospheric concentrations of CO_2 continue to increase at a faster rate than ever previously recorded. Thus, the warming impacts of CO_2 will persist for hundreds of years after mitigation is implemented to reduce GHG concentrations.

California

Substantially higher temperatures, more extreme wildfires, and rising sea levels are just some of the direct effects experienced in California.[23,24] As reported by the California Natural Resources Agency in 2009, despite annual variations in weather patterns, California has seen a trend of increased

[22] Bay Area Air Quality Management District. (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases - Base Year 2011. May 14, 2021.
[23] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. Website: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed May 19, 2021.
[24] California Energy Commission (CEC). 2012. Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. Website: https://ucanr.edu/sites/Jackson_Lab/files/155618.pdf. Accessed May 19, 2021.

average temperatures, more extreme hot days, fewer cold nights, longer growing seasons, less winter snow, and earlier snowmelt and rainwater runoff. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and a larger proportion of total precipitation is falling as rain instead of snow.[25] Sea level rose by as much as 7 inches along the California coast over the last century, leading to increased erosion and adding pressure to the State's infrastructure, water supplies, and natural resources.

These observed trends in California's climate are projected to continue in the future. Research indicates that California will experience overall hotter and drier conditions with a continued reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures and accelerating sea level rise. The frequency, intensity, and duration of extreme weather events such as heat waves, wildfires, droughts, and floods will also change.[26] In addition, increased air pollution and spread of insects potentially carrying infectious diseases will also occur as the climate-associated temperature and associated species clines shift in latitude.

In California, climate change may result in consequences such as the following.[27,28]

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of Southern California are estimated to increase by approximately 30 percent toward the end of the 21st Century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more Northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the

[25] California Energy Commission (CEC). 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Draft Final Report. CEC-600-2006-013-D. Website: http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-D.PDF. Accessed May 19, 2021.

[26] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008. Website: https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed May 19, 2021.

[27] California Climate Change Center. (CCCC). 2006. Our Changing Climate, Assessing the Risks to California: A Summary Report from the California Climate Change Center. July 2006. CEC-500-2006-077. Website: http://climate.calcommons.org/bib/our-changing-climate-assessing-risks-california-summary-report-california-climate-change-center. Accessed May 19, 2021.

[28] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. California Energy Commission, PIER Energy-Related Environmental Research Program. CEC-500-2008-071. Website: https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed May 19, 2021.

increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.

- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Bay Area

The following is a summary of climate change factors and predicted trends specific to the Bay Area.

Temperature, Heat, Drought, and Wildfire Events

The Bay Area is expected to experience warming over the rest of the 21st Century. Consistent with Statewide projections, the annual average temperature in the Bay Area will likely increase by 2.7°F between 2000 and 2050, based on GHGs that have already been emitted into the atmosphere. By the end of the century, the increase in the Bay Area's annual average temperature may range from approximately 3.5°F to 11°F relative to the average annual temperature simulated for the 1961–1990 baseline period used for the study, depending on the GHG emissions scenarios.[29] The projected rate of warming, especially in the latter half of the 21st Century is considerably greater than warming rates derived from historical observed data.

Specific predictions related to temperature/heat are summarized below.

- The annual average temperature in the Bay Area has been increasing over the last several decades.
- The Bay Area is expected to see an increase in average annual temperature of 2.7°F by 2050, and 3.5°F to 11°F by 2100. Projections show a greater warming trend during the summer season. The coastal parts of the Bay Area will experience the most moderate warming trends.[30]
- Extreme heat events are expected to increase in duration, frequency, and severity by 2050. Extreme freeze events are expected to decrease in frequency and severity by 2100, but occasional colder-than-historical events may occur by 2050.[31]

[29] California Climate Change Center (CCCC). 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. Website: https://www.researchgate.net/publication/231181370_Climate_change_scenarios_and_sea_level_rise_estimates_for_the_California_2009_climate_change_scenarios_assessment. Accessed August 3, 2021.

[30] Cal-Adapt. 2021. Climate Tools. Website: http://cal-adapt.org/tools/. Accessed May 14, 2021.

[31] Ibid.

Precipitation, Rainfall, and Flooding Events

Studies of the effect of climate change on the long-term average precipitation for California show some variance.[32] Considerable variability exists across individual models and examining the average changes can mask more extreme scenarios that project much wetter or drier conditions. California is expected to maintain a Mediterranean climate through the next century, with dry summers and wet winters that vary between seasons, years, and decades. Wetter winters and drier springs are also expected, but overall annual precipitation is not projected to change substantially. By midcentury, more precipitation is projected to occur in winter in the form of less frequent but larger events. The majority of global climate models predict drying trends across the State by 2100.[33]

Specific factors related to precipitation/rainfall/extreme events are summarized below.

- The Bay Area has not experienced substantial changes in rainfall depth or intensities over the past 30 years.
- The Bay Area will continue to experience a Mediterranean climate, with little change in annual precipitation projected by 2050, although a high degree of variability may persist.
- An annual drying trend is projected to occur by 2100. The greatest decline in precipitation is expected to occur during the spring months, while minimal change is expected during the winter months.
- Increases in drought duration and frequency coupled with higher temperatures, as experienced in 2012, 2013, and 2014, will increase the likelihood of wildfires.
- California is expected to see increases in the magnitude of extreme events, including increased precipitation delivered from atmospheric river events, which would bring high levels of rainfall during short time periods and increase the chance of flash floods. The Bay Area is also expected to see an increase in precipitation intensities, but possibly through less frequent events.[34]

Reduced Sierra Nevada Snowpack and Water Supply Shortages

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate surface water supplies.

Vectors and Disease Events

Climate change will likely increase vector insect populations and, in turn, may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas, such as malaria, dengue fever, yellow fever, and encephalitis.

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[32] California Climate Change Center (CCCC). 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. CEC-500-2009-014-F. Website: https://www.researchgate.net/publication/231181370_Climate_change_scenarios_and_sea_level_rise_estimates_for_the_California_2009_climate_change_scenarios_assessment. Accessed August 3, 2021.

[33] California Natural Resources Agency (CNRA). 2009. 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.

[34] California Climate Change Center (CCCC) 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. CEC-500-2009-014-F. August.

Air Quality and Pollution Events

Warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution will exacerbate respiratory disorders.[35] Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, SF_6, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen.[36,37]

Napa County

Temperature, Heat, Drought, and Wildfire Events

The County of Napa is expected to experience warming over the rest of the 21st Century. Consistent with Statewide projections, the annual average temperature in the County will likely increase by 2.7°F above 2000 averages by 2050 and, depending on emission levels, 4.1-8.6°F by 2100.[38] Changes in precipitation patterns and increased temperatures associated with climate change will alter plants and soils distribution and character or natural vegetation and associated moisture content. Increased temperature is expected to lead to secondary climate change impacts including increases in frequency, intensity, and duration of extreme events and heat waves in California.

The County has a historical average of four extreme heat days a year and is projected to increase to an annual average of 23-26 extreme heat days per year in 2050. Events in which these extreme temperatures are experienced over a period of several days are known as heat waves. The County has a heat threshold of 92°F and when exceeded for a period of five days, qualifies as a heat wave. Heat waves in the County are infrequent, with no more than two heat waves occurring in one year between 1950 and 2016, but are projected to increase in frequency toward the middle of the century. Along with an increased frequency of heat events, heat waves are also projected to occur both earlier and later in the season, which historically started in late May to early June and ended in mid-September.

Precipitation, Rainfall, and Flooding Events

Reduced precipitation in the County of Napa could lead to higher risks of drought, while increased precipitation could cause flooding or soil erosion.

The County is not located in an area where snow typically accumulates, major water districts and utilities in the County receive a significant amount of water from the State Water Project, which depends on spring and early-summer snowmelt in the Sierra Nevada for water supply. Additionally, agricultural water users in the unincorporated areas of the County are the primary users of groundwater. Increased average temperatures and changes in the timing and amounts of

[35] United States Environmental Protection Agency (EPA) 2009. Ozone and your Health. EPA-456/F-09-001. February.
[36] National Institute for Occupational Safety and Health (NIOSH) 2018. Carbon Dioxide. November 29. Website: www.cdc.gov/niosh/npg/npgd0103.html. Accessed May 19, 2021.
[37] Occupational Safety and Health Administration (OSHA) 2003. United States Department of Labor. Safety and Health Topics: Methane. Website: www.osha.gov/dts/chemicalsampling/data/CH_250700.html. Accessed May 19, 2021.
[38] County of Napa. 2012. Napa County Revised Draft Climate Action Plan. Website: https://www.countyofnapa.org/DocumentCenter/View/9247/Revised-Draft-CAP-PDF?bidId=. Accessed July 28, 2021.

precipitation could affect local aquifer recharge for groundwater supplies, and thus the County could face increasing challenges of providing adequate water supplies because of increased uncertainty in the amount and timing of water availability to meet future demand. If demand exceeds supply, water users could face shortages in normal or dry years.

According to Napa County's Operational Area Hazard Mitigation Plan, the County is already considerably vulnerable to flooding. Flooding has caused the most disaster declarations and the most damage and loss of life historically in the County, with floods usually occurring during the highest precipitation season or heavy rainfall after prolonged dry periods. Almost all of the land adjacent to the Napa River is subject to flooding that has a 1 percent probability of occurring in any given year, or a 100-year flood event. While it is uncertain exactly how and to what extent climate change will affect flooding events in the County, it is reasonable to assume that any increase in flooding could have serious ramifications as the area is already considerably vulnerable. Additional information on increased risk of flooding, which could be exacerbated by sea level rise in the southern portion of the County, is included below.

The southwestern portion of the County includes the mouth of the Napa River, which forms a tidal estuary that drains into San Pablo Bay. Less than 1 percent of the County's population is considered at risk and vulnerable to sea level rise. Because several physical structures (i.e., levees) are currently in place to protect against a 100-year flood event, approximately 36 acres in the County are currently at risk for flooding. The American Canyon Power Plant and the Napa Sanitation District Water Treatment Plant could become vulnerable to a 100-year flood event with 1.4 meters (m) of sea level rise. The majority of area that is at risk is currently undeveloped or used for agricultural purposes. Specific areas along the Napa River that could become vulnerable include Buchli, Cuttings Wharf, Thompson, and Imola, along with areas further north along the Napa River, including some industrial uses, wineries, and parts of Downtown Napa (i.e., up to 3rd Street and portions east of State Route 29).

Vectors and Disease Events

A changing climate is expected to subject forests to increased stress due to drought, disease, invasive species, and insect pests. These stressors are likely to make forests more vulnerable to catastrophic fire.

Air Quality and Pollution Events

According to Napa County's Operational Area Hazard Mitigation Plan, the County has a history of wildfires. Before the 2017 wildfires, more than 200,000 acres of the County's 482,000 acres burned in the last 30 years, most of which occurred in the unincorporated areas. The County is already considered to be an area that is at high risk for wildfires, which is only expected to increase by the end of the century. This increase could cause additional threats to the County and has the potential to affect emergency services, roads, water supplies to residents, housing access, and quality of life. Heavy winter rainfall resulted in an abundance of vegetation, which dried out in the summer, creating hazardous fuel conditions. Under the low-emissions scenario, when compared with a baseline year of 2010 wildfires are 11 percent more likely to occur in 2020, 15 percent more likely to occur in 2050, and 12 percent more likely to occur in 2085. Under the high-emissions scenario, compared to the 2010 baseline year wildfires are 14 percent more likely to occur in 2020, 13 percent

more likely in 2050, and 22 percent more likely to occur in 2085. Given that the County is currently at risk for wildfire, these increases of between 10 and 20 percent under both emissions scenarios is significant and could result in additional threats and increased vulnerability.

Energy Basics

Energy is generally transmitted either in the form of electricity, measured in kilowatt-hours (kWh)[39] or megawatt-hours (MWh),[40] or natural gas measured in therms.[41]

Electricity

Electricity is used primarily for lighting, appliances, and other uses associated with operation of the proposed project.

Natural Gas

Natural gas is used primarily for heating and water heating associated with operation of the proposed project.

Fuel

Fuel is used primarily for powering off-road equipment, trucks, and worker vehicles. The typical fuel types used are diesel and gasoline.

Electricity Generation, Distribution, and Use

State of California

In 2019, the State of California generated approximately 277,704 gigawatt-hours (GWh) of electricity which decreased by 2.7 percent from 2018.[42] Approximately 68 percent of the energy generation is sourced from natural gas, coal, and non-renewables and 32 percent from renewable sources (i.e., solar, wind, and geothermal.[43]

In 2019, California ranked second in the nation in conventional hydroelectric generation, fourth in electricity production, and first as a producer of electricity from solar, geothermal, and biomass resources. California leads the nation in solar thermal electricity capacity and generation.

Electricity and natural gas is distributed through the various electric load-serving entities (LSEs) in California. These entities include investor-owned utilities (IOUs), publicly owned LSEs, rural electric cooperatives, community choice aggregators, and electric service providers.[44]

[39] 1 kW = 1.000 watts; A watt is a derived unit of power that measures rate of energy conversion. 1 watt is equivalent to work being done at a rate of 1 joule of energy per second. In electrical terms, 1 watt is the power dissipated by a current of 1 ampere flowing across a resistance of 1 volt.

[40] 1 MW = 1 million watts

[41] A unit for quantity of heat that equals 100,000 British thermal units. A British thermal unit is the quantity of heat required to raise the temperature of 1 pound of liquid water 1 degree Fahrenheit at a constant pressure of 1 atmosphere.

[42] California Energy Commission (CEC). 2020. 2019 Total System Electric Generation. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation/2019. Accessed September 13, 2021.

[43] California Energy Commission (CEC). 2020. 2019 Total System Electric Generation. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation/2019. Accessed September 13, 2021.

[44] California Energy Commission (CEC). Electric Load-Serving Entities (LSEs) in California Website: https://www.energy.ca.gov/almanac/electricity_data/utilities.html. Accessed August 20, 2021.

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Pacific Gas and Electric Company (PG&E) provides electricity to many of the cities throughout Napa County. Local community choice aggregations (CCAs) can also provide electricity services alternative to the region's traditional utility supplier, PG&E. The local CCA for American Canyon is Marin Clean Energy (MCE). With the passing of SB 790 in 2011, residential and commercial customers within a local CCA jurisdiction are automatically enrolled in that CCA's electricity service but retain the ability to opt-out and return to their traditional utility supplier.

According to the California Energy Commission (CEC), Napa County's energy consumption was approximately 1,043 GWh in 2019.[45] As Napa County's population in 2019 was an estimated 139,608 people,[46] the County experienced a per capita electricity consumption of an estimated 7,471 kWh per year.

Project Site

The project site is currently vacant and does not consume electricity. PG&E provides electricity to the project site.

Natural Gas Generation, Distribution, and Use

State of California

Natural gas is used for everything from generating electricity to cooking and space heating to an alternative transportation fuel. Natural gas generation (in kWh) represented 11 percent of electric power generation in 1990 and increased over the 30-year period to represent 34 percent of electric power generation in 2019.[47] In 2019, the State ranked 14 in natural gas marketed production, producing 196,823 million cubic feet of natural gas.[48]

Natural gas-fired generation has become the dominant source of electricity in California, as it currently fuels approximately 45 percent of electricity consumption.[49] Because natural gas is a dispatchable resource that provides load when the availability of hydroelectric power generation and/or other sources decrease, use varies greatly from year to year. The availability of hydroelectric resources, the emergence of renewable resources for electricity generation, and overall consumer demand are the variables that shape natural gas use in electric generation.

[45] California Energy Commission (CEC). 2020. Electricity Generation by County. Website: https://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed September 22, 2021.

[46] California Department of Finance (CDF). 2021. E-4 Population Estimates for Cities, Counties, and the State, 2011-2021 with 2010 Census Benchmark. Website: https://dof.ca.gov/forecasting/Demographics/estimates/estimates-e4-2010-2021/. Accessed April 11, 2022.

[47] United States Environmental Protection Agency (EPA). 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. Website: https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf?VersionId=wEy8wQuGrWS8Ef_hSLXHy1kYwKs4.ZaU. Accessed September 13, 2021

[48] United States Energy Information Administration (EIA). 2020. Rankings: Natural Gas Marketed Production, 2019. Website: https://www.eia.gov/state/rankings/?sid=CA#series/47. Accessed September 13, 2021.

[49] California Energy Commission (CEC). 2021. Supply and Demand of Natural Gas in California. Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/supply-and-demand-natural-gas-california. Accessed September 20, 2021.

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As mentioned prior, PG&E provides natural gas to the unincorporated portions of Napa County. In 2019, Napa County's natural gas consumption was approximately 40 million US Therms, or approximately 3,971,812 million British thermal units (MMBtu).[50] As Napa County's population in 2019 was an estimated 139,608 people,[51] the County experienced a per capita natural gas consumption of an estimated 28.45 MMBtu per year.

Fuel Use

State of California

California is one of the top producers of petroleum in the nation, with drilling operations occurring throughout the State. A network of crude oil pipelines connects production areas to oil refineries in the Los Angeles area, the San Francisco Bay Area, and the Central Valley. California oil refineries also process Alaskan and foreign crude oil received in ports in Los Angeles, Long Beach, and the San Francisco Bay Area. Crude oil production in California and Alaska is in decline, and California refineries have become increasingly dependent on foreign imports.[52] Since 2012, foreign suppliers, led by Saudi Arabia, provide over half of the crude oil refined in California.[53,54] According to the United States Energy Information Administration (EIA), California's field production of crude oil has steadily declined since the mid-1980s, totaling approximately 161.5 million barrels in 2019.[55]

According to the EIA, transportation accounted for nearly 40 percent of California's total energy demand, amounting to approximately 3,170 trillion British Thermal Unit (BTU) in 2018.[56] California's transportation sector, including rail and aviation, consumed roughly 584 million barrels of petroleum fuels in 2018.[57] In 2018, petroleum-based fuels were used for approximately 86 percent of the State's total transportation activity.[58] The CEC produces the California Annual Retail Fuel Outlet Report, which is a compilation of gasoline and diesel fuel sales data from across the State available at the county level. According to the CEC, California's 2019 fuel sales totaled 15,365 million gallons of gasoline and 3,720 million gallons of diesel.[59]

[50] California Energy Commission (CEC). 2020. Electricity Generation by County. Website: https://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed September 22, 2021.
[51] California Department of Finance (CDF). 2021. E-4 Population Estimates for Cities, Counties, and the State, 2011-2021 with 2010 Census Benchmark. Website: https://dof.ca.gov/forecasting/Demographics/estimates/estimates-e4-2010-2021/. Accessed April 11, 2022.
[52] California Energy Commission (CEC). 2020. "Oil Supply Sources to California Refineries." Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/oil-supply-sources-california-refineries. Accessed July 21, 2021.
[53] California Energy Commission (CEC). 2019. "Foreign Sources of Crude Oil Imports to California 2018." March. Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/foreign-sources-crude-oil-imports. Accessed July 21, 2021.
[54] California Energy Commission (CEC). 2020. "Oil Supply Sources to California Refineries." Website: https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/oil-supply-sources-california-refineries. Accessed July 21, 2021.
[55] United States Department of Energy, Alternative Fuels Data Center. 2020. "Alternative Fueling Station Locator [Interactive Database]." Website: https://afdc.energy.gov/stations/#/find/nearest. Accessed July 21, 2021.
[56] United States Energy Information Administration (EIA). 2020. Table F33: Total Energy Consumption, Price, and Expenditure Estimates, 2019. Website: https://www.eia.gov/state/seds/sep_fuel/html/pdf/fuel_te.pdf. Accessed August 20, 2021.
[57] United States Energy Information Administration (EIA). 2020. Table F16: Total Petroleum Consumption Estimates, 2019. Website: https://www.eia.gov/state/seds/sep_fuel/html/pdf/fuel_use_pa.pdf. Accessed August 20, 2021.
[58] United States Energy Information Administration (EIA). 2020. Table F18: Natural Gas Consumption Estimates, 2019. Website: https://www.eia.gov/state/seds/seds-data-fuel.php?sid=CA#NaturalGas. Accessed August 20, 2021.
[59] California Energy Commission (CEC). 2019. 2010-2019 CEC-A15 Results and Analysis. Website: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting. Accessed September 13, 2021.

Alternative Fuels

A variety of alternative fuels are used to reduce petroleum-based fuel demand. The use of these fuels is encouraged through various Statewide regulations and plans, such as the Low Carbon Fuel Standard (LCFS) and SB 32. Conventional gasoline and diesel may be replaced, depending on the vehicle's capability, with transportation fuels including hydrogen, biodiesel, and electricity. Currently, 44 public hydrogen refueling stations exist in California; however, none are in the City.[60,61] Currently, 10 public biodiesel refueling stations are in California, with none in the City.[62]

Electric Vehicles

Electricity can be used to power electric and plug-in hybrid electric vehicles (EVs) directly from the power grid. Electricity used to power vehicles is generally provided by the electricity grid and stored in the vehicle's batteries. Fuel cells are being explored to use electricity generated onboard the vehicle to power electric motors. Currently, California has 13,048 EV charging stations.[63] According to the United States Department of Energy's (DOE) Alternative Fuels Data Center, Napa County has 172 EV charging stations at 65 charging locations.[64]

Project Site

The project site is currently vacant and does not consume any fuels.

3.6.3 - Regulatory Framework

International

United Nations Climate Change Framework Convention

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Climate Change Framework Convention. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Western Climate Initiative (Western North America Cap-and-Trade Program)

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Each emitter caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and

[60] United State Department of Energy (DOE). Alternative Fuels Data Center. 2020. Alternative Fueling Station Locator [Interactive Database]. Website: https://afdc.energy.gov/stations/#/find/nearest. Accessed July 21, 2021.
[61] United State Department of Energy (DOE). Alternative Fuels Data Center. 2020. Alternative Fueling Station Counts by State. June. Website: https://afdc.energy.gov/stations/states. Accessed July 21, 2021.
[62] Ibid.
[63] United States Department of Energy (DOE). No Date. Alternative Fuels Data Center: Electric Vehicle Charging Station Locations. Website: https://afdc.energy.gov/fuels/electricity_locations.html#/analyze?region=US-CA&fuel=ELEC&ev_levels=all. Accessed July 21, 2021.
[64] Department of Energy (DOE) Alternative Fuels Data Center. 2020. Electric Vehicle Charging Station Locations. Website: https://afdc.energy.gov/fuels/electricity_locations.html#/analyze?country=US&location_mode=address&location=Solano%20County. Accessed September 22, 2021.

build a clean energy economy. The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce North America GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Québec. Currently only California and Québec are participating in the Cap-and-Trade Program.[65]

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of 5 percent against 1990 levels over the 5-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above preindustrial levels, subject to a review in 2015. The Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Paris Climate Change Agreement

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015, in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a 4-year negotiating round, the treaty ended the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. For the first time, this included requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

[65] Center for Climate and Energy Solutions (C^2ES). 2015. Multi-State Climate Initiatives. Website: http://www.c2es.org/us-states-regions/regional-climate-initiatives. Accessed May 19, 2021.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or "COP 21." Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC.[66]

On June 1, 2017, President Trump announced the decision for the United States to withdraw from the Paris Agreement.[67] However, on January 20, 2021, President Biden signed the instrument to bring the United States back into the Paris Agreement that same day. Nonetheless, California remains committed to combating climate change through programs aimed to reduce GHGs.[68]

Federal

Massachusetts et al. v. EPA (U.S. Supreme Court GHG Endangerment Ruling)

Massachusetts et al. v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the United States Environmental Protection Agency (EPA) regulate four GHGs, including CO_2, under Section 202(a)(1) of the Clean Air Act (CAA). A decision was made on April 2, 2007, in which the Supreme Court found

[66] Center for Climate and Energy Solutions (C^2ES). 2015a. Outcomes of the U.N. Climate Change Conference. Website: http://www.c2es.org/international/negotiations/cop21-paris/summary. Accessed May 19, 2021.

[67] The White House. Statement by President Trump on the Paris Climate Accord. Website: https://it.usembassy.gov/statement-president-trump-paris-climate-accord/. May 19, 2021.

[68] California Air Resources Board (ARB). 2017. New Release: California and China Team Up to Push for Millions More Zero-emission Vehicles. Website: https://ww2.arb.ca.gov/news/california-and-china-team-push-millions-more-zero-emission-vehicles. Accessed May 19, 2021.

that GHGs are air pollutants covered by the CAA. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations; and
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed under "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling which upheld the EPA Administrator findings.

United States Consolidated Appropriations Act (Mandatory GHG Reporting)

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 MT or more per year of GHG emissions are required to submit annual reports to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to EPA in 2011.

United States Clean Air Act Permitting Programs (New GHG Source Review)

The EPA issued a final rule on May 13, 2010, which establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Code of Federal Regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps

addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Energy Independence and Security Act

The Energy Policy Act of 2005 created the Renewable Fuel Standard program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the Renewable Fuel Standard program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

This expanded Renewable Fuel Standard program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable fuels sector.

Signed on December 19, 2007, by President George W. Bush, the Energy Independence and Security Act of 2007 (EISA) aims to:

- Move the United States toward greater energy independence and security.
- Increase the production of clean renewable fuels.
- Protect consumers.
- Increase the efficiency of products, buildings, and vehicles.
- Promote research on and deploy greenhouse gas capture and storage options.
- Improve the energy performance of the federal government.
- Increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

EISA reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423 and introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

The EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in EISA, among others:

- Increased Corporate Average Fuel Economy Standards
- Federal Vehicle Fleets
- Renewable Fuel Standard
- Biofuels Infrastructure
- Carbon Capture and Sequestration[69]

EPA and National Highway Traffic Safety Administration Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards Final Rule

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light-duty trucks. The law has become more stringent over time. On May 19, 2009, President Barack Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The EPA and the NHTSA issued final rules on a second phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012.[70] The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon if achieved exclusively through fuel economy improvements.

The EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20 percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles, and a 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

[69] United States Environment Protection Agency (EPA). Summary of the Energy Independence and Security Act. Website: https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act. Accessed May 19, 2021.

[70] United States Environmental Protection Agency (EPA). 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. EPA-420-F-12-051. August.

The State of California has received a waiver from the EPA to have separate, stricter Corporate Average Fuel Economy Standards. Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the incidental reduction of GHG emissions. In order to manage the State's energy needs and promote energy efficiency, AB 1575 created the CEC in 1975.

State

California Assembly Bill 32: Global Warming Solutions Act and Scoping Plan

The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The ARB is the State agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the State from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB approved the 1990 GHG emissions level of 427 MMT CO_2e on December 6, 2007.[71] Therefore, to meet the State's target, emissions generated in California in 2020 were required to be equal to or less than 427 MMT CO_2e. Emissions in 2020 in a business-as-usual (BAU) scenario were estimated to be 596 MMT CO_2e, which do not account for reductions from AB 32 regulations.[72] At that rate, a 28 percent reduction was required to achieve the 427 MMT CO_2e 1990 inventory. In October 2010, the ARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 MMT CO_2e. Therefore, under the updated forecast, a 21.7 percent reduction from a BAU scenario is required to achieve 1990 levels.[73]

The State has made steady progress in implementing AB 32. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 to show progress achieved to date.[74] The State also achieved its target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target. Also shown are the average reductions

[71] California Air Resources Board (ARB). 2007. Staff Report. California 1990 Greenhouse Gas Level and 2020 Emissions Limit. November 16, 2007. Website: www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf. Accessed May 19, 2021.

[72] California Air Resources Board (ARB). 2008. Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed May 19, 2021.

[73] California Air Resources Board (ARB). 2014. GHG 2020 Business-as-Usual Emissions Projection. Website: https://ww2.arb.ca.gov/ghg-bau. Accessed August 3, 2021.

[74] California Air Resources Board (ARB). 2014. California Greenhouse Gas Emissions for 2000 to 2012—Trends of Emissions and Other Indicators. Website: http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf. Accessed May 19, 2021.

needed from all Statewide sources (including all existing sources) to reduce GHG emissions back to 1990 levels.

- **1990:** 427 MMT CO_2e (AB 32 2020 Target)
- **2000:** 463 MMT CO_2e (an average 8 percent reduction needed to achieve 1990 base)
- **2010:** 450 MMT CO_2e (an average 5 percent reduction needed to achieve 1990 base)
- **2020:** 545 MMT CO_2e BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

The ARB's initial Climate Change Scoping Plan (Scoping Plan) contained measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32.[75] The Scoping Plan identified recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector had a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewables energy mix of 33 percent;
- Developing a California Cap-and-Trade Program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the LCFS; and
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the ARB's Cap-and-Trade Program. The Scoping Plan states that the inclusion of these emissions within the Cap-and-Trade Program would help ensure that the year 2020 emission targets were met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve sufficient reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions limits and requirements were provided as a margin of safety by accounting for additional GHG emission reductions.[76]

[75] California Air Resources Board (ARB). 2008. Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed May 19, 2021.

[76] California Air Resources Board (ARB). 2008. Climate Change Scoping Plan, a framework for change. Website: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed May 19, 2021.

The Cap-and-Trade Program remains a key element of the Scoping Plan. It sets a Statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Québec's cap-and-trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015.[77]

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 Statewide emission limit would not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by the ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative.[78]

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives

[77] California Air Resources Board (ARB). 2015. ARB Emissions Trading Program. Website: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/guidance/cap_trade_overview.pdf Accessed May 19, 2021.

[78] California Air Resources Board (ARB). 2014. First Update to the Climate Change Scoping Plan. Website https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed May 19, 2021.

posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions.

Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures.[79]

California Senate Bill 32

The Governor signed SB 32 in September of 2016, giving the ARB the statutory responsibility to include the 2030 target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 states, "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that Statewide greenhouse gas emissions are reduced to at least 40 percent below the Statewide greenhouse gas emissions limit no later than December 31, 2030." As such, SB 32 lays the foundation for the legislative reduction targets for 2030.

2017 Scoping Plan

The most recent version of the ARB's Scoping Plan, the 2017 Climate Change Scoping Plan Update, addresses the SB 32 targets and was adopted on December 14, 2017. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
   - Achieve 50 percent Renewables Portfolio Standard by 2030.
   - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard
   - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
   - Maintaining existing GHG standards for light- and heavy-duty vehicles.
   - Put 4.2 million Zero-Emission Vehicles (ZEVs) on the roads.
   - Increase ZEV buses, delivery and other trucks.
4. Sustainable Freight Action Plan
   - Improve freight system efficiency.
   - Maximize use of near-ZEVs and equipment powered by renewable energy.
   - Deploy over 100,000 zero-emission trucks and equipment by 2030.
5. Short-Lived Climate Pollutant Reduction Strategy

[79] California Air Resources Board (ARB). 2014. First Update to the Climate Change Scoping Plan. Website: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed May 19, 2021.

- Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
- Reduce emissions of black carbon 50 percent below 2013 levels by 2030.

6. SB 375 Sustainable Communities Strategies
   - Increased stringency of 2035 targets.
7. Post-2020 Cap-and-Trade Program
   - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
   - The ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, the ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
8. 20 percent reduction in GHG emissions from the refinery sector.
9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

California Senate Bill 350: Clean Energy and Pollution Reduction Act

In 2015, the State Legislature approved, and the Governor signed, SB 350, which reaffirmed California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies toward a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50 percent reduction in the use of petroleum Statewide were removed from the Bill due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce Statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrified transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.[80]

California Senate Bill 100: Renewable Portfolio Standard Program

On September 10, 2018, Governor Newsom signed SB 100, requiring California electricity utility providers to supply all in-state end users with electricity sourced from renewable or carbon-free sources by 2045. Specifically, SB 100 accelerates previously established RPS goals and requires that the program achieve 50 percent of electricity sourced from renewables by December 31, 2026, 60

[80] California Legislative Information (California Leginfo). 2015. Senate Bill 350 Clean Energy and Pollution Reduction Act of 2015. Website: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350. Accessed May 19, 2021.

percent by December 31, 2030, and 100 percent of electricity sourced from carbon-free sources by December 31, 2045. For clarification, renewable sources, as described herein, includes all renewable sources (e.g., solar, small hydro, wind) but notably omits large-scale hydroelectric and nuclear electricity generation; carbon-free sources include all renewable sources as well as large-scale hydroelectric and nuclear electricity generation.

California Assembly Bill 1493: Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.[81]

The standards were to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards were to result in an approximately 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards were to result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.[82]

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid EVs and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.[83]

California Senate Bill 375: Sustainable Communities and Climate Protection Act

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for

[81] California Air Resources Board (ARB). 2013. Clean Car Standards—Pavley, Assembly Bill 1493. Website: https://www.gsweventcenter.com/GSW_RTC_References/2015_0915_CleanAirStandards_Pavley.pdf. Accessed May 19, 2021.
[82] California Air Resources Board (ARB). 2011. Facts About the Advanced Clean Cars Program. November 9.
[83] California Air Resources Board (ARB). 2011. Status of Scoping Plan Recommended Measures.

reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

California Senate Bill 1368: Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which the Governor subsequently signed into law. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities of 1,100 lb. CO_2 per megawatt-hour (MWh).

California Senate Bill X7-7: Water Conservation Act

This 2009 legislation directed urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this Statewide goal of 20 percent decrease in demand would have resulted in a reduction of almost 2 million acre-feet in urban water use in 2020.

California Air Resources Board Truck and Bus Regulation

As part of the ARB's Sustainable Freight Strategy, the ARB adopted the Truck and Bus Regulation. The latest amendments to the Truck and Bus Regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses had to meet particulate matter (PM) filter requirements as of January 1, 2012. Lighter and older heavier trucks had to be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

This regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.[84]

California Air Resources Board Advanced Clean Trucks Rule

To further advance the State's Sustainable Freight Strategy, the ARB adopted the Advanced Clean Trucks (ACT) Rule in July 2020, which requires manufacturers of vehicle class 2b through vehicle class

[84] California Air Resources Board (ARB). 2015. On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Website: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed September 22, 2017.

8 trucks to begin meeting escalating in-State ZEV sales from 2024 through 2035. By 2035, the ACT Rule will require 55 percent of trucks class 2b through class 3 to be ZEVs, 75 percent of trucks class 4 through class 8 to be ZEVs, and 40 percent of truck tractors to be ZEVs. [85] Complementary to the ACT Rule, and as discussed further below, Executive Order N-79-20 set a goal of 100 percent of all in-State drayage truck sales to be ZEVs by 2035 and 100 percent of all in-State heavy-duty vehicle sales to be ZEVs by 2045.The ARB is also in process of developing an Advanced Clean Fleet (ACF) Rule to accelerate the ACT Rule by requiring 100 percent of all in-State sales to be ZEVs in 2040 for class 2b through class 3 trucks, class 4 through class 8 vocational trucks, and class 7 through class 8 tractor trucks. The ACF Rule would also provide a clear timeline for requirements for phasing in in-State ZEV sales targets through 2040.[86]

California Code of Regulations Title 20: Appliance Efficiency Regulations

California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

California Code of Regulations Title 24: Energy Efficiency Standards

Part 6 (Energy Efficiency Standards for Residential and Nonresidential Buildings)

California Code of Regulations Title 24 Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings) was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020.

California Code of Regulations Title 24: California Green Building Standards Code

California Code of Regulations Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went into effect on January 1, 2011. The Code is updated on a regular basis, with the most recent update consisting of the 2019 California Green Building Standards Code (CALGreen) that became effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as State law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction ordinances and defers to them as the ruling guidance, provided that they provide a minimum 50 percent diversion requirement. The Code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum

[85] California Air Resources Board (ARB). 2021. Advanced Clean Trucks Fact Sheet. Website: https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet. Accessed April 8, 2022.

[86] California Air Resources Board (ARB). 2022. Path to Zero Emission Trucks FAQ. Website: https://ww2.arb.ca.gov/resources/documents/path-zero-emission-trucks-faq. Accessed April 8, 2022.

standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

CALGreen (California Code of Regulations [CCR] Title 24, Part 11) requires:

- **Short-term bicycle parking**. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- **Long-term bicycle parking**. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- **Designated parking**. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- **Recycling by Occupants**. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- **Construction waste**. A minimum 65 percent diversion of construction and demolition waste from landfills. (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- **Wastewater reduction**. Each building shall reduce the generation of wastewater by one of the following methods:
    1. The installation of water-conserving fixtures or
    2. Using nonpotable water systems (5.303.4).
- **Water use savings**. 20 percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35, and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- **Water meters**. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- **Irrigation efficiency**. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- **Materials pollution control**. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard (5.404).
- **Building commissioning**. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

California Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (Ordinance) was required by the AB 1881 Water Conservation Act. The Ordinance required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with the SB X7-7 2020 mandate were required. Governor Brown's Drought Executive Order of April 1, 2015 (Executive Order B-29-15) directed DWR to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

California Public Utilities Code

The California Public Utilities Commission (CPUC) regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. It is the responsibility of the CPUC to (1) assure California utility customers receive safe, reliable utility service at reasonable rates; (2) protect utility customers from fraud; and (3) promote a healthy California economy. The Public Utilities Code, adopted by the legislature, defines the jurisdiction of the CPUC.

California Executive Order B-55-18 (GHG Emissions Reduction Targets)

On September 10, 2018, former California Governor Jerry Brown issued Executive Order B-55-18, which established the following GHG emissions reduction target:

By 2045, California shall achieve carbon net neutrality.

Executive Order B-55-18 identifies that new Statewide goal is to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net neutrality emissions thereafter. This emissions goal is in addition to the existing targets established by Executive Orders S-3-05 and B-30-15 and SB 32, as described in greater detail below. This Executive Order also directs the ARB to work with other State agencies to identify and recommend measures to achieve this goal.

California Executive Order S-01-07: Low Carbon Fuel Standard

The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandated that a Statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established an LCFS and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "lifecycle carbon intensity" of transportation fuels.

California Executive Order N-79-20

On September 23, 2020, Governor Gavin Newsom issued Executive Order N-79-20 establishing a goal that 100 percent of new passenger cars and trucks sold in California shall be zero-emission by 2035. The Executive Order also sets a goal that, where feasible, all operations include zero-emission medium- and heavy-duty trucks by 2045, and drayage trucks by 2035. Off-road vehicles have a goal to transition to 100 percent ZEVs by 2035, where feasible. While in-state sales of EVs will increase through 2045, the State does not currently have legislation which will restrict or preclude the use of fossil-fueled vehicles by or after 2045.

California Executive Order S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy was adopted, which is the ". . . first Statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

California Executive Order B-30-15

On April 29, 2015, the Governor issued an Executive Order to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030. The Governor's Executive Order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Executive Order sets a new interim Statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of MMT CO_2e. The Executive Order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Executive Order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

California Senate Bill 97 and the California Environmental Quality Act Guidelines Update

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. SB 97 states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

The 2010 California Environmental Quality Act (CEQA) Amendments first guided public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The 2010 CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change. The 2010 CEQA Amendments also revised Appendix F of the CEQA Guidelines, which focuses on energy conservation, and the sample environmental checklist in Appendix G was amended to include GHG questions.

The most recent 2018 CEQA Amendments expanded upon the previous guidance by specifying that:

- The lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to Statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and State regulatory schemes.
- In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

A lead agency may use a model or methodology to estimate greenhouse gas emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision-makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

The 2010 changes to CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively, remained unchanged by the 2018 CEQA Amendment. The cumulative impact discussion requirement (CEQA Guidelines § 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable.

Under CEQA Guidelines Section 15064.4(b), a lead agency should consider the following factors, among others, when determining the significance of impacts from GHG emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

CEQA Guidelines Section 15183.5 continues to permit programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

CEQA emphasizes that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines § 15130(f)).

Center for Biological Diversity v. California Department of Fish and Wildlife (California Supreme Court GHG Ruling)

In a November 30, 2015 ruling, the California Supreme Court in *Center for Biological Diversity v. California Department of Fish and Wildlife* on the Newhall Ranch project concluded that assessing whether the project was consistent with meeting Statewide emission reduction goals is a legally permissible approach for assessing significance, but the significance finding for the project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25–27 of the ruling to address this issue, as summarized below:

Specifically, the Court advised that:

- **Substantiation of Project Reductions from BAU**. A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with Statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25).
- **Compliance with Regulatory Programs or Performance Based Standards**. A lead agency "might assess consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. (See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions 'may be best analyzed and mitigated at a programmatic level.'].)" To the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with 'performance based standards' adopted to fulfill 'a Statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions']) (p. 26).
- **Compliance with GHG Reduction Plans or Climate Action Plans**. A lead agency may utilize "geographically specific GHG emission reduction plans" such as climate action plans or

greenhouse gas emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (p. 26).

Compliance with Local Air District Thresholds. A lead agency may rely on "existing numerical thresholds of significance for greenhouse gas emissions" adopted by, for example, local air districts (p. 27).

Regional

Plan Bay Area 2040

As required by SB 375, the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) are jointly tasked with developing a Sustainable Communities Strategy (SCS) as part of its Regional Transportation Plan (RTP) development. The SCS integrates transportation, land use, and housing for the region to help the State meet its GHG legislative reduction targets. Plan Bay Area 2040 further integrates the region's SCS, RTP, and Regional Housing Need Allocation (RHNA) into a single regional plan. Plan Bay Area 2040 contains several goals for the region to attain ranging in focus from climate protection to adequate housing to open space and agricultural preservation.

Local

City of American Canyon Energy Efficiency Climate Action Plan

The proposed project is within the jurisdiction of the City of American Canyon, which has adopted an Energy Efficiency Climate Action Plan (EECAP) as discussed above in the Regulatory Framework section. The EECAP outlines a course of action to reduce community wide GHG emissions generated within the City of American Canyon. The EECAP includes two measures to reduce energy-related emissions from new nonresidential projects: (1) Participation in PG&E's Savings by Design program for nonresidential construction programs and (2) incorporation of energy efficiency improvements beyond Title 24 for new nonresidential construction. The City would impose the requirements of these measures as applicable through the project Conditions of Approval. It should be noted that the EECAP does not meet the standards required by the BAAQMD to be tiered from under CEQA Guidelines Section 15183.5.

City of American Canyon General Plan

The City of American Canyon adopted its General Plan in 1994, which contains objectives and policies that help address climate change and reduce the community's GHG emissions at the local level and improve energy efficiency and conservation. Under Resolution 2021-60, the General Plan was updated September 7, 2021, to include additional climate change and adaptation policies. The following objectives and policies from the City's General Plan are relevant to GHG emissions and energy conservation:

Objective 1.37 Consider initiatives to reduce direct and indirect greenhouse gas (GHG) emissions from transportation sources, and from new, renovated, and existing development in the City.

Policy 1.37.6 Reduce vehicle engine idling in American Canyon by educating the broader community (i.e.: businesses, commuters, residents) on the greenhouse gas impacts caused by engine idling, and implementing feasible commercial vehicle regulations.

Goal 8F Reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources.

Objective 8.22 Minimize transportation-related energy consumption.

Policy 8.22.1 Encourage the development of mixed use, pedestrian friendly employment/residential centers that help minimize vehicle trips in American Canyon and contribute to a reduction in energy consumption.

Policy 8.22.2 Encourage the clustering of residential structures.

Policy 8.22.3 Require that Development Plans provide for linkages between bicycle and pedestrian circulation systems and transit and employment centers, in accordance with established areawide plans.

Policy 8.22.4 Maintain a system of traffic signals and controls that minimizes waiting time and vehicle speed changes through routes.

Policy 8.22.5 Require that Development Plans provide for High-Occupancy Vehicles (HOV) and public transportation, where feasible, through the provision of appropriate transit areas and park-and-ride locations along public transportation routes.

Objective 8.23 Reduce Energy consumption in buildings.

Policy 8.23.1 Require that developers employ energy-efficient subdivision and site planning methods as well as building design. Measures to be considered include building orientation and shading, landscaping, building reflectance, use of active and passive solar heating and hot water system, etc. In establishing these energy related design requirements, the City shall balance energy-efficient design with good planning principles.

Policy 8.23.2 Require that new City buildings be energy efficient.

Objective 8.24 Increase public awareness of energy conservation needs and means in order to encourage informed choices about energy conservation by the general public.

Policy 8.24.1 Cooperate with local utilities to provide energy conservation information to the public.

Policy 8.24.2 Develop public and/or public-private energy conservation educational programs for City employees and the public.

Objective 8.25 Increase the energy efficiency of City operations to save energy, reduce municipal costs, and provide an example to the private sector.

Policy 8.25.1 Introduce concepts of energy efficiency and lifecycle costing to City planning and operating decisions and to the design of all major City facilities.

Policy 8.25.2 Work with other agencies and utility companies to develop safe, economical and renewable energy resources.

Policy 8.25.3 Consider participating in energy conservation demonstration projects and promoting the use of treatment technologies that provide for the reuse of waste and water treatment by products, such as sludge and methane gas.

In addition to the above General Plan policies related to GHG emissions and energy consumption, the City adopted a Climate Emergency Proclamation on November 16, 2021.

3.6.4 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to the emissions of greenhouse gases and energy consumption are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. They also reflect the requirements of laws other than CEQA, such as AB 32 and SB 32. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do for this project. Thus, the proposed project would have significant effects if the project would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (Impact GHG-1).

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases (Impact GHG-2).

c) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (Impact GHG-3).

d) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency (Impact GHG-4).

Significance Criteria

Impact GHG-1: GHG Emissions Generation

Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site GHG emissions principally consist of exhaust emissions from

heavy-duty construction equipment. Off-site GHG emissions would occur from motor vehicle exhaust from material delivery vehicles and construction worker traffic.

Neither the City of American Canyon nor the BAAQMD has an adopted threshold of significance for construction-related GHG emissions. Because construction would be temporary and would not result in a permanent increase in emissions, construction of the proposed project is presumed to not interfere with the implementation of SB 32. Nonetheless, the BAAQMD, in their 2017 CEQA Air Quality Guidelines, states that lead agencies are encouraged to incorporate Best Management Practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable.

The use of GHG-reducing construction BMPs is considered by the City to be a pragmatic and effective approach for the control of construction-related GHG emissions. The BAAQMD, in their 2017 CEQA Air Quality Guidelines, specifically mention the following pragmatic and effective construction BMPs for reducing GHG emissions:

- The use of alternative fueled construction vehicles and equipment for at least 15 percent of the fleet.
- The use of local building materials for at least 10 percent of materials uses.
- The recycling and reuse of at least 50 percent of construction and demolition waste materials.

The incorporation of feasible and applicable GHG-reducing construction BMPs serves herein as the basis for whether project construction would contribute its "fair share" of GHG emission reductions consistent with the legislative reduction targets codified by SB 32 and the State's long-term climate goal of carbon neutrality by 2045, thereby resulting in a less than significant impact. As explained below in the discussion of the approach for assessing the significance of the proposed project's operational emissions, the California Supreme Court, in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) (62 Cal.4th 204, 220-223), explained that an approach by which a lead agency ascertains a proposed project's "fair share" of required Statewide GHG reductions is a legitimate approach for formulating significance thresholds for GHG emissions. Under this approach, which here is focused on the proposed project incorporating BAAQMD-recommended BMPs for construction-related emissions, the proposed project would be considered to result in a potentially significant impact if project construction would not incorporate feasible and applicable GHG-reducing construction BMPs including, at a minimum, those listed above.

Operation

The BAAQMD is currently updating their GHG significance thresholds and is expected to adopt new significance thresholds in 2022. The BAAQMD's proposed 2022 significance thresholds for land use projects are listed below. If a land use development project cannot demonstrate consistency with Criterion A or Criterion B, then that project would result in a potentially significant impact related to GHG emissions.

A. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).
B. Projects must include, at a minimum, the following project design elements.

a. Buildings:
    i. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
    ii. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
b. Transportation:
    i. Achieve compliance with EV requirements in the most recently adopted version of CALGreen Tier 2.
    ii. Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted SB 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
        1. Residential projects: 15 percent below the existing VMT per capita.
        2. Office projects: 15 percent below the existing VMT per employee.
        3. Retail projects: no net increase in existing VMT.

The BAAQMD's GHG significance thresholds from their 2017 CEQA Air Quality Guidelines were established based on meeting the 2020 GHG targets set forth in the AB 32 Scoping Plan.[87] AB 32 required that Statewide GHG emissions be reduced to 1990 levels by 2020. SB 32 extended California's GHG reduction programs beyond 2020 and contains language to authorize the ARB to achieve a Statewide GHG emission reduction of at least 40 percent below 1990 levels by December 31, 2030. The ARB approved the 2017 California's Climate Change Scoping Plan update.[88] The 2017 Scoping Plan Update outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels.

Because the proposed project would be constructed after 2020, the BAAQMD's GHG significance thresholds from their 2017 CEQA Air Quality Guidelines would be inappropriate to use in determining whether the proposed project could result in potentially significant impacts related to meeting the 2030 GHG emission reduction targets codified by SB 32. For land use development projects, the BAAQMD is proposing that lead agencies use one of the approaches endorsed by the California Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) (62 Cal.4th 204), which evaluates a project based on its effect on California's efforts to meet the State's long-term climate goals.[89] As the Supreme Court held in that case, a project that would be consistent with meeting those goals can be found to have a less than significant impact on climate change under CEQA. This approach, endorsed by the *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) court decision, evaluates whether a project's GHG emissions are cumulatively considerable based on "their effect on the state's efforts to meet [those] goals." (*Center for*

[87] California Air Resources Board (ARB). 2008. Climate Change Scoping Plan. December. Website: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed June 11, 2021.
[88] California Air Resources Board (ARB). 2017. California's 2017 Climate Change Scoping Plan. Website: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf. Accessed June 11, 2021.
[89] Bay Area Air Quality Management District (BAAQMD). 2022. Draft Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. February. Website: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/~/media/ffb719cfa04a438d9c7be10007a5abdf.ashx. Accessed April 4, 2022.

Biological Diversity v. Department of Fish & Wildlife [2015] 62 Cal.4th at p. 221.) If a project would contribute its "fair share" of what will be required to achieve those long-term climate goals, then a reviewing agency can find that the impact would not be significant because the project will help to solve the problem of global climate change (62 Cal.4th at pp. 220-223).

If a new land use project would serve California's pressing need to provide housing, jobs, and related infrastructure in a manner that supports achieving those climate goals, then the project would help to solve the climate change problem, and its GHG emissions should not be treated as cumulatively considerable. As the Supreme Court held, "consistency with meeting [those] Statewide goals [is] a permissible significance criterion for project emissions" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th at p. 220), and an agency's "choice to use that criterion does not violate CEQA" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th at p. 223). This approach is based on the principle inherent in CEQA that an individual project would make a less than cumulatively considerable contribution if it would do its part to address the cumulative problem. As the Supreme Court explained, "if a plan is in place to address a cumulatively problem, a new project's incremental addition to the problem will not be 'cumulatively considerable' if it is consistent with the plan and is doing its fair share to achieve the plan's goals" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th at p. 223). Given that the problem is the result of such numerous and diverse emission sources, no individual project needs to or could solve the entire cumulative problem by itself. However, each individual project does need to do what is required of it to ensure that the overall solution is implemented, and if it does that, then its impacts on climate change can be treated as less than cumulatively considerable. As the Supreme Court put it in the climate context, "[t]o the extent a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall greenhouse gas reductions necessary [to achieve the State's climate goals], one can reasonably argue that the project's impact is not cumulatively considerable, because it is helping to solve the cumulative problem" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th at p. 220).

The *Center for Biological Diversity v. Department of Fish & Wildlife* court case was decided in 2015, and it specifically addressed only the AB 32 goal of attaining 1990 emission levels by 2020 Statewide, not the longer-term goal for carbon neutrality in 2045. However, it is now past the 2020 goal horizon and the focus of State climate legislation and Statewide and local reduction targets have since shifted to longer-term goals. The Supreme Court has recognized the necessity and appropriateness of using these longer-term goals as the basis for the CEQA analysis. As it held in *Cleveland National Forest Foundation v. SANDAG*, these longer-term goals express "what scientific research has determined to be the level of emissions reductions necessary to stabilize the climate by midcentury and thereby avoid catastrophic effects of climate change" (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th 497, 513).[90]

Although the 2045 carbon neutrality goal is set forth in an Executive Order and not in a statute, as with the 2020 AB 32 goal that the Supreme Court addressed in *Center for Biological Diversity*, the Executive Order B-55-18 goal is appropriate to use for developing a threshold of significance given

[90] These statements were referring to Executive Order S-3-05, which included an 80 percent reduction target by 2050, but they equally apply to the more recent Executive Order B-55-18, which includes a carbon neutrality target by 2045.

the science supporting it. The Supreme Court explicitly rejected the argument that an Executive Order cannot be used for this purpose because it has not been adopted by statute in the *SANDAG* case. The Court explained that the Executive Order at issue there "expresses the pace and magnitude of reduction efforts that the scientific community believes is necessary to stabilize the climate. This scientific information has important value to policymakers and citizens in considering the emission impacts of a project" (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th at p. 515). Agencies are required to design their CEQA analyses "based to the extent possible on scientific and factual data," and if an Executive Order best embodies the current state of the scientific and factual data, an agency may use it as the basis for its CEQA analysis (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th at p. 515).

In developing the their proposed 2022 GHG significance thresholds, the BAAQMD analyzed what will be required of new land use development projects to achieve California's long-term climate goal of carbon neutrality by 2045, thereby better representing what design elements new land use development projects need to incorporate to sufficiently contribute to achieving the State's goal of carbon neutrality by 2045. As GHG emissions from the land use sector come primarily from building energy use and from transportation, these are the areas that need to be evaluated to determine whether the project can or will be carbon neutral. With respect to building energy use, this can be achieved by replacing natural gas with electric power and by eliminating inefficient or wasteful electricity usage. These strategies will support California's transition away from fossil fuel-based energy sources and will bring the project's GHG emissions associated with building energy use down to zero as SB 100 incrementally requires greater and greater proportions of in-state sales of electricity are generated from renewable and carbon-free sources, ultimately requiring 100 percent of in-state electricity sales to be generated from carbon-free sources by 2045. With respect to transportation, projects need to be designed to reduce project-generated VMT and to provide sufficient EV charging infrastructure to support the adoption of EVs.

As illustrated above in the BAAQMD's proposed 2022 GHG significance thresholds, the draft BAAQMD document recommends that residential and office projects use a threshold of a 15 percent reduction in project-generated VMT per capita compared with existing levels (or other, more current percentage to the extent further analysis shows that a different level of reduction is needed) and providing EV charging infrastructure as specified in the CALGreen Tier 2 standards. If a land use project being designed and built today incorporates the design elements necessary for the project to be carbon neutral by 2045, then it will contribute its "fair share" to achieving the State's climate goals, resulting in a less than cumulatively considerable climate impact. Therefore, the proposed 2022 GHG significance thresholds will be utilized to determine whether the proposed project would result in potentially significant impacts related to GHG emissions. Please refer to a copy of the BAAQMD's *Draft Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* contained in Appendix B for more information supporting the use of these GHG significance thresholds.

Although the BAAQMD has not yet formally adopted these thresholds, the City of American Canyon exercises its discretion as the CEQA lead agency to embrace and adopt the BAAQMD's draft approach, with minor refinements, as being reflective of what the City considers to be the best current thinking on the subject. As the Supreme Court said in (*Center for Biological Diversity v.*

Department of Fish & Wildlife [2015] 62 Cal.4th at p. 228), "[a] lead agency enjoys substantial discretion in its choice of methodology."

The refinements made by the City relate to the manner of dealing with VMT. The BAAQMD proposal does not specify what level of VMT reduction, vis-à-vis a regional average, should be used for an *industrial* project such as the proposed project. Rather, BAAQMD is silent on this subject. The City therefore had to consider how to address this particular issue. One option was to consider the approach that BAAQMD is considering with respect to retail projects: to assess whether such projects will result in a *net increase* in existing VMT. A second option was to consider BAAQMD's approach with respect to residential projects: to assess whether such projects will result in 15 percent below the existing regional VMT per capita. And a third option was to consider BAAQMD's approach with respect to office projects: to assess whether such projects will result in VMT 15 percent below the existing VMT per employee.

Because industrial projects more closely resemble office projects than residential projects, and because the BAAQMD approach for office projects is more conservative than the approach for retail projects, the City has conservatively determined that it should use the BAAQMD's proposed approach used for office projects: 15 percent below the existing VMT per employee.

BAAQMD's silence on the issue of how to address VMT with respect to industrial projects is not the only example of a lack of guidance on this subject from expert regulatory agencies. Neither CEQA Guidelines Section 15064.3 nor the 2018 *Technical Advisory on Evaluating Transportation Impact in CEQA* published by the Governor's Office of Planning and Research (OPR) provides specific guidance related to industrial land uses. As with the proposed BAAQMD thresholds, OPR's Technical Advisory provides guidance relative to VMT significance criteria for residential, office, and retail uses but does not address industrial land uses.

The majority of trips generated by industrial land uses are typically attributed to employees and heavy-duty vehicles used to transport commercial goods. CEQA Guidelines Section 15064.3(a) states that VMT refers to the amount and distance of *automobile* travel attributable to a project (italics added). The OPR Technical Advisory states that the term "automobile," as used in Section 15064.3(a), refers to on-road passenger vehicles, specifically cars and light trucks; heavy vehicles are not included in the definition.

The legislature's stated intent in abandoning level of service as a metric for transportation-related impacts, as set forth in Public Resources Code Section 21099(b)(1), was to promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses. The GHG emissions of trips associated with heavy vehicles serving industrial uses are addressed through the implementation of Statewide programs such as the ARB's Sustainable Freight Strategy, which through regulations such as the Truck and Bus Regulation and ACT Regulation will transition a larger and larger portion of heavy-duty trucks operating within California to be electric through 2050. Additionally, heavy-duty vehicle trips associated with industrial land uses would occur regardless of the available modes of transportation (e.g., walking, bicycling, public transit) or the mix of land uses in the project vicinity. Therefore, limiting the VMT analysis to employee automobile travel is consistent with State policy to reduce GHG emissions from land use decisions and the

availability of alternatives to automobile travel. For these reasons, the City has determined that it is appropriate to employ a VMT metric for GHG analysis based on the proposed BAAQMD approach for office land uses, namely, one focused on employee VMT.

Impact GHG-2: GHG Emissions Reduction Plan Consistency

While the above methodology is employed under Impact GHG-1, which focuses on the proposed project's direct and indirect generation of GHG emissions, Impact GHG-2 methodology for determining whether a potentially significance impact would occur focuses on the proposed project's consistency with the applicable plan adopted for the purpose of reducing GHG emissions. Consistent with the BAAQMD's CEQA Air Quality Guidelines, for this impact to be less than significant, the proposed project must demonstrate consistency with the applicable GHG emissions reduction plan. As such, the proposed project would be determined to conflict with the applicable GHG emissions reduction plan if it would not adhere to applicable GHG reduction measures and policies included in the City's General Plan and EECAP, the MTC/ABAG Plan Bay Area 2050, and the ARB's 2017 Scoping Plan.

Impact GHG-3: Wasteful, Inefficient, or Unnecessary Energy Consumption

The methodology employed under Impact GHG-3, which focuses on determining whether the proposed project would result in the wasteful, inefficient, or unnecessary consumption of energy resources, follows the guidance provided in Appendix F of the CEQA Guidelines as well as the analytical precedent set by *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) 75 Cal.App.5th 63, 164-168).

According to Appendix F of the CEQA Guidelines, the goal of conserving energy is translated to include decreasing overall per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources. In *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) 75 Cal.App.5th at pp. 164-168), the Appellate Court concluded that the analysis of wasteful, inefficient, and unnecessary energy consumption was not adequate because it did not consider whether additional renewable energy features can be added to the project.

The proposed project would be considered to result in a potentially significant impact if it would result in wasteful, inefficient, or unnecessary consumption of energy resources. Considering the guidance provided by Appendix F of the CEQA Guidelines and the Appellate Court decision in *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) 75 Cal.App.5th at pp. 164-168, the proposed project would be considered to result in wasteful, inefficient, or unnecessary consumption of energy resources if it would conflict with the following energy conservation goals:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, or oil; and
- Increasing reliance on renewable energy sources.

Impact GHG-4: Renewable Energy and Energy Efficiency Plan Consistency

Similar to the impact discussion under Impact GHG-2, this impact discussion focuses on project consistency with a local plan or policy adopted for the purpose of improving energy efficiency or reliance on renewable energy sources. The impact discussion under Impact GHG-2 differs from this impact discussion in that Impact GHG-2 explores project consistency with relevant policies intended to reduce GHG emissions, which often encompass energy efficiency and renewable energy measures. Impact GHG-4, by contrast, focuses on project consistency with relevant policies intended to improve energy efficiency and encourage the use of renewable energy sources. Therefore, while both Impact GHG-2 and Impact GHG-4 will discuss project consistency with the City's General Plan and EECAP, Impact GHG-4 focuses solely on policies applicable to energy consumption. As such, the proposed project would be determined to conflict with the applicable energy efficiency or renewable energy plan if it would not adhere to applicable energy consumption related measures included in the City's General Plan and EECAP.

Approach to the Analysis

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was developed in collaboration with the South Coast Air Quality Management District and other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential GHG emissions associated with construction and operation from various land uses. The modeling used to support this analysis follows BAAQMD guidance where applicable from its CEQA Air Quality Guidelines.

At the time of this analysis, the construction of Phase 1 of the proposed project was anticipated to begin in early 2022 and be completed 10 months later. Construction of Phase 2 of the proposed project was expected to begin immediately following the completion of Phase 1 construction and be completed 10 months later. In general, this analysis also included estimated project trip generation and trip length provided by W-Trans (Appendix H). As the proposed project is a speculative warehouse development which could accommodate cold storage and accompanying Transport Refrigeration Units (TRU), this analysis considers two project scenarios: a cold warehouse project scenario and a dry warehouse project scenario. Where appropriate, both project scenarios are presented herein to determine project impacts.

Construction-Related GHG Emissions

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from both on-site and off-site activities. On-site emissions consist of exhaust emissions from the activity levels of heavy-duty construction equipment and motor vehicle operation. Off-site emissions result from motor vehicle exhaust from hauling and vendor trucks and worker traffic.

Construction emissions are generally calculated as the product of an activity factor and an emission factor. The activity factor for construction equipment is a measure of how active a piece of equipment is and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or the amount of fuel consumed in a given amount of time. The emission factor relates the process activity to the amount

of pollutant emitted. Examples of emission factors include grams of emissions per VMT and grams of emissions per horsepower-hour. The operation of a piece of equipment is tempered by its load factor, which is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity. This analysis uses the CalEEMod default load factors for off-road equipment.

Operation-Related GHG Emissions

The operational-phase emissions are based on the development of the proposed industrial park. The modeling accounts for the average daily vehicle and truck trips and VMT, energy usage, water demand, and wastewater and solid waste generation. For purposes of this analysis, hours of operation for the proposed project are 24 hours per day, 7 days per week.

Transportation

On-road transportation sources are based on passenger vehicle and truck trip generation rates and VMT provided in the Traffic Impact Study (TIS) prepared by W-Trans for the proposed project (see Appendix H). According to the VMT information provided therein, which is based on regional demographic information, the proposed project would result in an average employee daily VMT of 16.24 miles. Please refer to the TIS in Appendix H for more information regarding the methodology behind determining the proposed project's average employee daily VMT. As this VMT would represent all travel to and from the project site for employees in addition to any other destinations those employees will travel to and from each day, an average of 8.12 miles per one-way vehicle trip was conservatively utilized in this analysis to estimate associated emissions from employee passenger vehicle activity. However, as provided in the TIS, the proposed project would also generate truck traffic for deliveries and shipments. As indicated by the project applicant, the most likely port of origin for freight deliveries and shipments would be the Port of Oakland, approximately 32.8 miles from the project site. Therefore, truck travel distances utilized in emission estimates contained in this analysis were assumed to be 32.8 miles per trip.

Furthermore, the proposed project would include locomotive operations beginning with operation of Phase 1. The quantity and frequency of rail shipments to the project site are currently unknown; therefore, various assumptions are utilized in this analysis to characterize future operations. For instance, according to the United States Bureau of Transportation Statistics, the average weight of a loaded railcar ranges from 63 to 67 tons;[91] therefore, for the purposes of this analysis, a loaded railcar being shipped to the proposed project is assumed to weigh 65 tons on average. Assuming an average travel distance of 50 miles and an average loaded railcar weight of 65 tons,[92] this would represent nearly two loaded, 20-railcar locomotive deliveries per week. Please refer to the locomotive emissions estimations contained in Appendix B for more details.

[91] United States Bureau of Transportation Statistics. 2012. Railcar Weights. Website: https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02/railcar_weights#:~:text=The%20average%20weight%20of%20a,trends%20among%20selected%20freight%20commodities. Accessed July 29, 2021.

[92] United States Department of Transportation, Bureau of Transportation Statistics. 2012. Railcar Weights. Website: https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2003/chapter_02/railcar_weights#:~:text=The%20average%20weight%20of%20a,trends%20among%20selected%20freight%20commodities. Accessed August 2, 2021.

CalEEMod, Version 2020.4.0 was used to quantify passenger vehicle emissions using vehicle emission rates based on vehicle emissions data obtained from the ARB's EMFAC2017 Version 1.0.3 web database and adjusted based on methodology provided in Appendix B of the CalEEMod User's Guide.[93] The passenger vehicle trips were assumed to be distributed among the light-duty auto (LDA), light-duty truck 1 (LDT1), light-duty truck 2 (LDT2), and medium-duty vehicle (MDV) EMFAC2007 vehicle categories proportional to that respective vehicle category's share between those four passenger vehicle categories within the CalEEMod for Napa County.

Truck and TRU emissions were calculated utilizing the ARB's EMFAC2017 Version 1.0.3 and OFFROAD web databases, respectively, and adjusted based on methodology provided in Appendix B. Please refer to the fleet mix adjustment calculations contained in Appendix B for more details.

Other Operational Emissions

Solid Waste Disposal

Indirect emissions from waste generation are based on the CalEEMod default solid waste generation rates, which are based on data from the California Department of Resources, Recycling, and Recovery (CalRecycle).

Water/Wastewater

GHG emissions from this sector are associated with the embodied energy used to supply water, treat water, distribute water, and then treat wastewater and fugitive GHG emissions from wastewater treatment. Indoor water consumption is based on CalEEMod default indoor water use rates.

Area Sources

Area sources are based on the CalEEMod defaults for use of consumer products and landscaping equipment.

Energy

Emissions from this sector are from use of natural gas for space and water heating and electricity use for lighting and power needs at the proposed buildings.

Stationary Sources

Stationary sources are based on the anticipated stationary source equipment included in the proposed project. Given the type and size of the proposed project, the project applicant anticipates the use of a back-up diesel generator and diesel-fueled fire pump for each of the proposed buildings; however, the exact specifications for this equipment are unknown at the time of this analysis. To account for potential operational emissions generated from the non-emergency use of this equipment, the proposed project was assumed to include three back-up diesel generators and three diesel-fueled fire pumps, each assumed to be rated at 50 horsepower and operate for a 4-hour maintenance period one day per month, totaling an estimated 48 hours of operation per year.

[93] California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2020.4.0 Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

3.6.5 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the project and provides mitigation measures where necessary.

Greenhouse Gas Emissions

Impact GHG-1:	**The proposed project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

Impact Analysis

Both construction and operational activities have the potential to generate GHG emissions. The proposed project would generate GHG emissions during temporary (short-term) construction activities such as site grading, operation of construction equipment, operation of on-site heavy-duty construction vehicles, hauling of materials to and from the project site, asphalt paving, and construction worker vehicle trips. On-site construction activities would vary depending on the level of construction activity.

Long-term, operational GHG emissions would result from project-generated vehicular traffic, operation of any landscaping equipment, off-site generation of electrical power over the life of the proposed project, the energy required to convey water to and wastewater from the project site, the emissions associated with the hauling and disposal of solid waste from the project site, any fugitive refrigerants from air conditioning or refrigerators, and the operation of any proposed stationary sources such as back-up generators or fire pumps.

Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact. Therefore, this section measures the proposed project's incremental contribution to the cumulative environmental impact. The following is a discussion of the proposed project's contribution to GHG emissions during both the construction and operation phases.

Construction

As previously discussed, neither the City nor the BAAQMD has thresholds of significance for construction-related GHG emissions; therefore, the incorporation of feasible and applicable GHG-reducing construction BMPs, including but not limited to those listed above, serves herein as the basis for whether project construction would contribute its "fair share" of GHG emission reductions consistent with the legislative reduction targets codified by SB 32 and the State's long-term climate goal of carbon neutrality by 2045. As such, the proposed project would be considered to result in a potentially significant impact if project construction would *not* incorporate feasible and applicable GHG-reducing construction BMPs including those recommended by the BAAQMD. The BAAQMD-recommended GHG-reducing construction BMPs are listed below:

- The use of alternative fueled construction vehicles and equipment for at least 15 percent of the fleet.

- The use of local building materials for at least 10 percent of materials uses.
- The recycling and reuse of at least 50 percent of construction and demolition waste materials.

The proposed project's Phase 1 and Phase 2 construction emissions for both dry and cold storage project scenarios are shown in Table 3.6-3. It should be noted that the analysis conservatively assumes that construction would start in January 2022. As vehicle and equipment fuel efficiencies and emission control standards continue to incrementally improve with each year, project construction emissions are likely to decrease nominally from what is shown in Table 3.6-3 should the construction schedule move to later years. Therefore, the construction GHG emissions contained in Table 3.6-3 represent a conservative assessment of project construction emissions.

Table 3.6-3: Construction Greenhouse Gas Emissions

Construction Activity	Calendar Year	Dry Storage Scenario MT CO_2e	Cold Storage Scenario MT CO_2e
Project Phase 1			
Site Preparation	2022	3	3
Grading	2022	70	70
Building Construction[1]	2022	1,591	1,606
Paving	2022	12	12
Architectural Coating	2022	8	8
Project Phase 2			
Site Preparation	2022	3	3
Grading	2022	48	48
Building Construction	2022	294	294
Total 2022 Construction Emissions		**2,029**	**2,044**
Building Construction[1]	2023	1,690	1,705
Paving	2023	13	13
Architectural Coating	2023	11	11
Total 2023 Construction Emissions		**1,714**	**1,729**

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent
Emission estimates shown above incorporate implementation of Mitigation Measure (MM) AIR-2a and MM AIR-2b.
[1] Cold Storage Scenario Building Construction emission estimates include fugitive refrigerants during the installation of the anticipated refrigeration system.
Source: CalEEMod Output (Appendix B).

As shown above in Table 3.6-3, construction of the proposed project would result in an estimated 2,029 MT CO_2e under a dry storage scenario and 2,044 MT CO_2e under a cold storage scenario in the first analyzed construction year of 2022. Also illustrated above, construction of the proposed project would result in an estimated 1,714 MT CO_2e under a dry storage scenario and 1,729 MT CO_2e under

a cold storage scenario in the second analyzed construction year of 2023. Nonetheless, the proposed project would need to incorporate GHG-reducing construction BMPs for construction impacts to be considered less than significant, including the use of alternative fueled construction vehicles and equipment, the use of local building materials, and the recycling and reuse of construction and demolition waste. As the proposed project would not explicitly incorporate GHG-reducing construction BMPs, such as those listed above, the proposed project would be required to implement MM GHG-1a to reduce construction GHG emissions through the implementation of GHG-reducing BMPs.

Moreover, the primary source for GHG emission generation during construction activities consists of the anticipated construction equipment included in the modeling to support the estimated emissions contained in Table 3.6-3. As GHG emission generation from off-road construction equipment is generally correlated with fuel consumption, the proposed project would be required to utilize alternatively fueled or electric construction equipment as a principal component of MM GHG-1a to reduce construction-generated GHG emissions. Therefore, MM GHG-1a would mandate the use of electric and alternatively fueled equipment for at least 15 percent of the construction fleet, the use of local building materials and contractors for at least 10 percent of all building materials used, and the recycling and reuse of at least 65 percent of construction and demolition waste generated during project construction, consistent with the current CALGreen model construction and demolition waste diversion requirement (see CALGreen Sections 4.408 and 5.408). MM GHG-1a would also require the proposed project to incorporate a variety of feasible and applicable GHG-reducing construction BMPs, such as utilizing local contractors and implementing idling restrictions, in addition to those recommended by the BAAQMD to maximize the potential reduction in construction GHG emissions. MM GHG-1a notably has more construction BMPs than those recommended by the BAAQMD. The project applicant has identified these additional construction BMPs as feasible and applicable means to maximize GHG emission reductions during project construction; therefore, MM GHG-1a incorporates additional BMPs beyond those recommended by the BAAQMD to further the proposed project's contribution to its "fair share" in GHG emission reductions during construction toward the State's long-term climate goal of carbon neutrality by 2045.

In addition, as shown in Table 3.6-3, project construction could generate up to 2,044 MT CO_2e per year during project construction before mitigation, or a potential total of 3,773 MT CO_2e for total project construction before mitigation. As shown in Table 3.6-4 and discussed further below, project operation could generate up to 21,360 MT CO_2e per year before mitigation targeting GHG emissions. As is customary in GHG emissions analyses, emissions are analyzed over an assumed lifetime of the proposed project. Considering a 30-year lifetime of project operations, construction GHG emissions amortized over 30 years would equate to an estimated 126 MT CO_2e per year, constituting approximately 0.6 percent of annual project GHG emissions. As project construction would constitute a small proportion of overall project GHG emissions, and with the incorporation of feasible and applicable GHG-reducing construction BMPs, the proposed project is considered to contribute its "fair share" of GHG emission reductions during construction consistent with the legislative reduction targets codified by SB 32 and the State's long-term climate goal of carbon neutrality by 2045. Therefore, with the implementation of MM GHG-1a, project construction impacts would be less than significant with mitigation.

Operation

The proposed project would contribute to global climate change through direct and indirect emissions of GHGs from mobile sources (e.g., passenger vehicles, trucks, locomotives), energy (e.g., on-site natural gas consumption and purchased electricity), water use and wastewater generation, and solid waste generation. All modeling parameters utilized in the Air Quality analysis are also utilized for this GHG analysis, including but not limited to trip generation rates, trip distances, building sizes and operations, energy consumption, water consumption, and waste generation. Please refer to Appendix B for modeling results and detailed calculations.

The GHG emissions associated with full operation of the proposed project for operational years 2023 and 2030 are shown in Table 3.6-4, which incorporates implementation of MMs AIR-2c and AIR-2d. Under a dry storage scenario, the proposed project is estimated to generate approximately 18,266 MT CO_2e/year starting in 2023. Under a cold storage scenario, the proposed project is estimated to generate approximately 21,360 MT CO_2e/year starting.

Table 3.6-4: Operational GHG Emissions

Source	Dry Storage Scenario	Cold Storage Scenario
	Year 2023	
	MT CO_2e/year	
Area	0	0
Fugitive Refrigerants	–	903
Energy–Electricity	895	2,292
Energy–Natural Gas	443	487
Mobile–Passenger Vehicles	2,517	2,517
Mobile–Trucks	13,175	13,175
Mobile–Locomotives	66	66
Mobile–TRUs	–	751
Waste	677	677
Water	493	493
Totals	**18,266**	**21,360**

Notes:
BAAQMD = Bay Area Air Quality Management District
CO_2e = carbon dioxide equivalent
MT = metric tons
TRU = Transport Refrigeration Unit
Manual summation of the sources may not equal to the Total due to rounding. Emission estimates shown above incorporate implementation of MM AIR-2c and MM AIR-2d.
Source: CalEEMod Version 2020.4.0; Appendix B.

As previously discussed, the BAAQMD's proposed 2022 GHG significance thresholds represent a method for determining whether the proposed project would be cumulatively considerable or

whether the proposed project contributes to solving the cumulative problem of climate change, taking into consideration the State's long-term climate goal of carbon neutrality by 2045. As such, the BAAQMD's proposed 2022 GHG significance thresholds reflect California's current short-term climate goal of reducing Statewide emissions by 40 percent below 1990 levels by 2030 as well as California's long-term climate goal of achieving carbon neutrality by 2045. Therefore, the proposed project is analyzed herein against the BAAQMD's proposed 2022 GHG significance thresholds to determine whether potentially significant impacts related to GHG emissions would occur.

As previously discussed, the BAAQMD's proposed 2022 GHG significance thresholds identifies two pathways for determining consistency with the State's climate goals: demonstrating project consistency with a qualified GHG reduction strategy under CEQA Section 15183.5(b), or ensuring that the proposed project incorporates design and operational features that support the region and State's adoption of EVs, facilitate reductions in project-generated VMT, and preclude the use of legacy emission sources such as natural gas. The BAAQMD's proposed 2022 GHG significance thresholds for land use projects are listed below. As noted above, the City has modified them only as necessary to address VMT from industrial projects, a subject on which the BAAQMD was silent. If the proposed project cannot demonstrate consistency with Criterion A or Criterion B, then the proposed project would result in a potentially significant impact related to GHG emissions.

A. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).
B. Projects must include, at a minimum, the following project design elements.
    a. Buildings:
        i. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
        ii. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
    b. Transportation:
        i. Achieve compliance with EV requirements in the most recently adopted version of CALGreen Tier 2.
        ii. Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted SB 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
            1. Residential projects: 15 percent below the existing VMT per capita.
            2. Office projects: 15 percent below the existing VMT per employee.
            3. Retail projects: no net increase in existing VMT.

Criterion A

As previously mentioned, the City's EECAP does not meet the requirements to be considered a qualified GHG reduction strategy capable of being tiered from under CEQA Guidelines Section 15183.5(b). Therefore, the proposed project is not capable of satisfying Criterion B from the above

2022 GHG significance thresholds and must demonstrate consistency with the provisions of Criterion A to determine a less than significant impact related to GHG emissions. As illustrated above, Criterion A contains four notable provisions, against which the proposed project is analyzed herein.

Criterion B

Natural Gas Prohibition Provision

The first provision requires that the proposed project not include natural gas plumbing and instead relies on electricity as the primary building energy source. As the proposed project's design does not specifically include the prohibition of natural gas plumbing, MM GHG-1b would be required to ensure that no natural gas plumbing be built into the design of the proposed project.

It should be noted that the emission estimates contained in Table 3.6-4 do not reflect the prohibition of natural gas plumbing and conservatively includes GHG emissions generated from the on-site combustion of natural gas for space and water heating. As shown therein, the proposed project could generate up to 443 MT CO2e per year under a dry storage scenario or up to 487 MT CO2e per year under a cold storage scenario if future tenants require natural gas for critical operations. The proposed project would be compliant with this provision with the incorporation of MM GHG-1b.

Wasteful, Inefficient, or Unnecessary Electricity Consumption Provision

The second provision of the BAAQMD's proposed 2022 GHG significance thresholds requires that electricity consumption would not be considered wasteful, inefficient, or unnecessary. As discussed in greater detail under Impact GHG-3, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. However, this provision specifically refers to electricity consumption as opposed to the consumption of general energy resources. The proposed project would be required to be constructed compliant with the California Building Code Title 24 requirements, which requires that new buildings be designed to accommodate future rooftop solar systems among other energy conservation and energy efficiency standards. As such, the proposed project would be designed to accommodate the future use of on-site renewable energy and would not by design preclude the use of EVs or renewable energy sources. Moreover, MM GHG-1b would require the proposed project to prohibit the use of natural gas during project operation, thereby reducing project dependence on fossil fuels and removing legacy GHG emission sources in contributing to achieving the State's long-term climate goal of carbon neutrality by 2045.

Nonetheless, the proposed project could consume up to an estimated 24,495,402 kWh electricity per year during operation, as discussed in greater detail under Impact GHG-3, and the proposed buildings would be constructed to at least the minimum energy efficiency standards contained in the California Building Code. Moreover, until California's electricity grid is 100 percent generated from renewable and carbon-free sources in 2045, the proposed project's electricity consumption would result in additional demand of fossil fuel resources for electricity generation. As such, MM GHG-1c would be required to increase the energy efficient standards met for the proposed buildings, thereby minimizing the potentially wasteful, inefficient, or unnecessary consumption of electricity, and MM GHG-1d would be required to reduce project reliance on fossil fuels for electricity consumption until the State's electricity grid achieves 100 percent carbon-free status in 2045 under SB 100. MM GHG-1c would require the proposed buildings to be designed and built to meet the Tier 2 energy

efficiency requirements of the Nonresidential Voluntary Measures of the California Building Code, and MM GHG-1d would require the proposed project to source its electricity consumption from 100 percent carbon-free sources. Therefore, after incorporation of MM GHG-1c and MM GHG-1d, the proposed project's design would not result in building electricity consumption that is wasteful, inefficient, or unnecessary.

Electric Vehicle Charging Infrastructure Provision

The third provision of the BAAQMD's proposed 2022 GHG significance thresholds requires that the proposed project achieve compliance with the EV charging infrastructure standards contained in the Tier 2 requirements of CALGreen. Because the proposed project does not currently involve a site design which demonstrates compliance with the Tier 2 requirements of CALGreen's EV charging infrastructure standards, MM GHG-1e would be required to ensure project compliance with this provision. MM GHG-1e would require that the proposed parking areas are designed and will be built to accommodate EV charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2. Considering that trucking activities constitute a major operational activity for the proposed project, the Tier 2 EV charging infrastructure requirements contained in MM GHG-1e would apply to both passenger automobiles as well as trucks. Loading docks would also be required under MM GHG-1e to contain 240-volt outlets to accommodate EV and TRU charging while trucks are loading or unloading goods. The inclusion of MM GHG-1e would ensure that the proposed project meets the provision requiring compliance with the Tier 2 EV charging infrastructure of CALGreen. MM GHG-1e would also further reduce the potential for the wasteful, inefficient, or unnecessary consumption of energy resources from automobiles by supporting the region and State's adoption of EVs and reducing reliance on fossil fuels. Therefore, with incorporation of MM GHG-1e, the proposed project would be compliant with this provision.

Vehicle Miles Traveled Provision

Lastly, the fourth provision of the BAAQMD's proposed 2022 GHG significance thresholds requires a 15 percent decrease below existing VMT per capita for residential projects, a 15 percent decrease below existing VMT per employee for office projects, and a no net increase in existing VMT for retail projects. As the proposed project would be a logistics center, none of these VMT reduction requirements directly apply. As explained above, the City has therefore chosen to formulate a VMT formula specific to industrial uses—15 percent below existing regional average for employees. With this project-specific formula/threshold in mind, the TIS prepared by W-Trans for the proposed project.[94] The study found that the proposed project's employees would see a roughly 29 percent reduction in VMT when compared to existing regional VMT. As discussed therein, the region's existing average daily employee VMT is 23 miles while the proposed project's employee VMT would be 16.24 miles. Therefore, the proposed project's employee-generated VMT would conform to the 15 percent reduction requirement formulated by the City based on similar provisions of the BAAQMD's proposed 2022 GHG significance thresholds. Moreover, the State's overarching GHG reduction strategy for the transportation sector for medium and heavy-duty trucks focuses on

[94] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. July 22.

making trucks more fuel-efficient and expediting truck turnover rather than reducing VMT from trucks. This is in contrast to the passenger vehicle component of the transportation sector, where both per capita VMT reductions and an increase in vehicle efficiency are forecast to be needed to achieve the overall State emissions reductions goals.

Emissions associated with heavy-duty trucks involved in goods movements are generally controlled on the technology side and through fleet turnover of older trucks and engines to newer and cleaner trucks and engines. The following State strategies reduce GHG emissions from medium and heavy-duty trucks:

- ARB's Mobile Source Strategy focuses on reducing GHGs by transitioning to zero and low emission vehicles and from medium-duty and heavy-duty trucks.[95]
- ARB's Sustainable Freight Action Plan establishes a goal to improve freight efficiency by 25 percent by 2030, deploy over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize both zero and near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.[96]
- ARB's Truck and Bus Regulation requires diesel-fueled trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. [97]
- ARB's Emissions Reduction Plan for Ports and Goods Movement (Goods Movement Plan) in California focuses on reducing heavy-duty truck-related emissions and the establishment of emissions standards for trucks, fleet turnover, truck retrofits, and restriction on truck idling.[98] While the focus of the Goods Movement Plan is to reduce criteria air pollutant and air toxic emissions, the strategies to reduce these pollutants would also generally have a beneficial effect in reducing GHG emissions.

Trucks and truck fleet owners and operators accessing the proposed project would be subject to the above trucking and freight regulations. Thus, these strategies would contribute to controlling heavy-duty truck GHG emissions associated with the proposed project, and the proposed project would not conflict with or inhibit these Statewide strategies. Any on-site trucks would be required to comply with ARB's Heavy-Duty (Tractor-Trailer) GHG Regulation, which requires SmartWay tractor trailers that include idle-reduction technologies, aerodynamic technologies, and low-rolling resistant tires that would reduce fuel consumption and associated GHG emissions. Furthermore, truck manufacturers would be required to comply with the ARB ACT Rule, which requires manufacturers of medium- and heavy-duty trucks and vans to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. Under the ACT Rule, by 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b to Class 3 truck sales, 75 percent of Class

[95] California Air Resources Board (ARB). 2017. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. November. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed May 17, 2021.

[96] Ibid.

[97] California Air Resources Board (ARB). 2015. On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Website: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed September 22, 2017.

[98] California Air Resources Board (ARB). 2006. Emission Reduction Plan for Ports and Goods Movement in California. April 20. Website: https://bayplanningcoalition.org/downloads/library/Emission_Reduction_Plan_for_Ports_and_Intl_Goods_Movement_in_CA.pdf. Accessed May 17, 2021.

4 to Class 8 straight truck sales, and 40 percent of truck tractor sales.[99] Moreover, as required under Mitigation Measure (MM) AIR-1d, the proposed project would utilize trucks no older than model year 2014, which would provide additional reductions in truck-associated GHG emissions. As the proposed project would not include any feature or design which would prohibit the implementation of these vehicle emission standards, the proposed project would be compliant with this provision.

Considering the above assessment, the project operation would be consistent with the BAAQMD's proposed 2022 GHG significance thresholds. As such, the project operation would have a less than significant impact related to GHG emissions after the incorporation of MM AIR-1d and MMs GHG-1a through MM GHG-1e.

Conclusion

The proposed project would generate GHG emissions during construction and operation. The BAAQMD or City do not have an emissions threshold for determining potentially significant impacts related to construction GHG emissions; therefore, the BAAQMD's recommended GHG-reducing BMPs was utilized as the basis for determining the proposed project's construction-related impact. The proposed project would include the applicable GHG-reducing BMPs during construction through implementation of MM GHG-1a. MM GHG-1a notably has more construction BMPs than those recommended by the BAAQMD. The project applicant has identified these additional construction BMPs as feasible and applicable means to maximize GHG emission reductions during project construction; therefore, MM GHG-1a incorporates additional BMPs beyond those recommended by the BAAQMD to further the proposed project's contribution to its "fair share" in GHG emission reductions during construction toward the State's long-term climate goal of carbon neutrality by 2045. Because MM GHG-1a would require the proposed project to meet and exceed implementation of the BAAQMD-recommended BMPs for reducing construction GHG emissions, project construction would be considered to commit its "fair share" of GHG emission reductions consistent with the State's long-term climate goal of carbon neutrality and would therefore be less than significant.

GHG emissions associated with full operation of the proposed project for the anticipated first operation in 2023 are shown in Table 3.6-4, which incorporates implementation of MMs AIR-2c and AIR-2d. As discussed in Section 3.2, Air Quality, MM AIR-2c would be required to ensure the use of low-VOC (i.e., reactive organic gas [ROG]) architectural coating products that contain no more than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during project operation. Any GHG emissions generated during architectural coating reapplication would be captured under area-source emissions in Table 3.6-4. As shown therein, area-source emissions generated during project operation would be less than 0.5 MT CO_2e per year and was therefore rounded down to zero. As such, MM AIR-2c would result in a negligible effect on operational GHG emission generated by the proposed project.

As discussed in Section 3.2, Air Quality, MM AIR-2d would be required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe NO_X emissions. Model year 2014 was selected because it is the first homogenous model year

[99] California Air Resources Board (ARB). 2020. Advanced Clean Trucks: Accelerating Zero-Emission Truck Markets. June 25. Website: https://ww2.arb.ca.gov/sites/default/files/2020-06/200625factsheet_ADA.pdf. Accessed May 17, 2021.

for a trucking fleet in Napa County, based on EMFAC2017 data, to demonstrate a reduction in NO_X emissions when compared with unmitigated emission estimates. This is considered a feasible trucking mitigation measure as the ARB's Truck and Bus Regulation[100] would otherwise require trucks greater than a 26,000-pound gross vehicle weight rating which operate in California to be no older than 2010 model year by the time the proposed project would become operational in 2023. This would allow the proposed project to utilize trucks which are 9 years old and would not constitute an infeasible financial burden.

While the trucking fleet serving the proposed project would represent the greatest GHG emission source during project operation, as illustrated in Table 3.6-4, MM AIR-2d was determined to be the most feasible trucking mitigation to reduce tailpipe emissions of all types, including GHG emissions, due to the size of the trucking fleet. With over 500 trucks accessing the proposed project each day, the financial burden associated with implementing more stringent trucking mitigation is very likely to amount a cost greater than what a "prudent investor" would otherwise bear to develop the proposed project. In addition, the other principal emission source of passenger vehicles would not be possible to mitigate through project design as the operation of privately owned vehicles by employees and visitors would not be under the direct control of the proposed project.

Moreover, as discussed under Impact GHG-1, MMs GHG-1b through GHG-1e would ensure project consistency with the BAAQMD's proposed 2022 GHG significance thresholds, as refined by the City, by prohibiting the use of natural gas infrastructure, complying with the Tier 2 EV charging infrastructure requirements of CALGreen, complying with the Tier 2 energy efficiency standards of CALGreen, and sourcing project electricity consumption from carbon-free sources. In addition, MMs GHG-1b through GHG-1e would reduce the proposed project's reliance on fossil fuels and reduce the potential for the wasteful, inefficient, or unnecessary consumption of energy resources.

Lastly, as discussed further under Impact GHG-1, the proposed project would demonstrate a 15 percent reduction in employee-generated VMT from the region's existing employee VMT, consistent with the BAAQMD's proposed 2022 GHG significance thresholds for VMT reductions for other identified land use types, including office uses, which the City has determined are similar to industrial uses. In addition, the proposed project's trucking operations would be subject to incrementally more stringent tailpipe emission standards and fleet turnover requirements through various ARB programs and rules, further facilitating the use of EVs and reducing the generation of truck-generated GHG emissions. As such, incorporation of MMs GHG-1b through GHG-1e would reduce the proposed project's potentially significant operational impacts related to GHG emissions to a less than significant level.

The proposed project's construction and operational GHG emissions impacts would be considered less than significant.

[100] California Air Resources Board (ARB). 2019. Truck and Bus Regulation Compliance Requirement Overview. June 18. Website: https://www.arb.ca.gov/msprog/onrdiesel/documents/fsregsum.pdf?_ga=2.176823522.653555524.1631722616-611272733.1590599157. Accessed September 16, 2021.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM GHG-1a Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs):

- At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric.
- At least 10 percent of building materials used for project construction shall be sourced from local suppliers.
- At least 65 percent of construction and demolition waste materials shall be recycled or reused.
- At least one contractor that has a business location in American Canyon shall be contracted for project construction.
- All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) using during construction be electrically powered.
- Architectural coatings used for project construction shall be "Low-VOC," containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product.
- Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective action within 48 hours. The Bay Area Air Quality Management District (BAAQMD) phone number shall also be identified and visible to ensure compliance with applicable regulations.

MM GHG-1b Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing.

MM GHG-1c Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.

MM GHG-1d Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2.

Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that each loading dock is each outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while trucks are loading and unloading goods.

MM GHG-1e Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045.

Level of Significance After Mitigation

Less than significant impact.

Conflict with Plan, Policy, or Regulation that Reduces Emissions

Impact GHG-2:	**The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.**

Impact Analysis

The following discusses project consistency with applicable plans adopted to reduce GHG emissions, including ARB's 2017 Scoping Plan, MTC/ABAG Plan Bay Area 2040, and the City of American Canyon EECAP.

California Air Resources Board Scoping Plan

The principal State plan and policy for GHG emission reduction targets are set forth in Executive Order S-03-05, AB 32, and the subsequent SB 32. The quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. AB 32 required the ARB to develop a Scoping Plan that describes California's approach to reduce GHGs to achieve the 2020 emission target. SB 32 then accelerated the GHG emission reduction goals of AB 32. The 2017 Scoping Plan Update, the most recent update to the ARB Scoping Plan, reflects the 2030 target of a 40 percent reduction below 1990 levels as set

by Executive Order B-30-15 and codified by SB 32. It applies to State agencies but is not directly applicable to cities, counties, or individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the State agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other Statewide actions that affect a local jurisdiction's emissions inventory from the top down.

Transportation Sector

Trucks

In general, the State strategy for the transportation sector for medium and heavy-duty trucks focuses on making trucks more efficient and expediting truck turnover rather than reducing VMT from trucks. This is in contrast to the passenger vehicle component of the transportation sector, where both per capita VMT reductions and an increase in vehicle efficiency are forecast to be needed to achieve the overall State emissions reductions goals.

Emissions associated with heavy-duty trucks involved in goods movements are generally controlled on the technology side and through fleet turnover of older trucks and engines to newer and cleaner trucks and engines. The following State strategies reduce GHG emissions from medium and heavy-duty trucks:

- ARB's Mobile Source Strategy focuses on reducing GHGs by transitioning to zero and low emission vehicles and from medium-duty and heavy-duty trucks.[101]
- ARB's Sustainable Freight Action Plan establishes a goal to improve freight efficiency by 25 percent by 2030, deploy over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize both zero and near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.[102]
- ARB's Truck and Bus Regulation requires diesel-fueled trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. [103]
- ARB's Emissions Reduction Plan for Ports and Goods Movement (Goods Movement Plan) in California focuses on reducing heavy-duty truck-related emissions and the establishment of emissions standards for trucks, fleet turnover, truck retrofits, and restriction on truck idling.[104] While the focus of the Goods Movement Plan is to reduce criteria air pollutant and air toxic emissions, the strategies to reduce these pollutants would also generally have a beneficial effect in reducing GHG emissions.

[101] California Air Resources Board (ARB). 2017. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. November. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed May 17, 2021.
[102] Ibid.
[103] California Air Resources Board (ARB). 2015. On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Website: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed September 22, 2017.
[104] California Air Resources Board (ARB). 2006. Emission Reduction Plan for Ports and Goods Movement in California. April 20. Website: https://bayplanningcoalition.org/downloads/library/Emission_Reduction_Plan_for_Ports_and_Intl_Goods_Movement_in_CA.pdf. Accessed May 17, 2021.

The proposed project would be subject to the above trucking and freight regulations. Thus, these strategies would contribute to controlling heavy-duty truck GHG emissions associated with the proposed project. The proposed project would not conflict with or inhibit these Statewide strategies. Any on-site trucks would be required to comply with ARB's Heavy-Duty (Tractor-Trailer) GHG Regulation, which requires SmartWay tractor trailers that include idle-reduction technologies, aerodynamic technologies, and low-rolling resistant tires that would reduce fuel consumption and associated GHG emissions. Furthermore, truck manufacturers would be required to comply with the ARB ACT Rule, which requires manufacturers of medium- and heavy-duty trucks and vans to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. Under the ACT Rule, by 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b to Class 3 truck sales, 75 percent of Class 4 to Class 8 straight truck sales, and 40 percent of truck tractor sales.[105] As the proposed project would not include any feature or design which would prohibit the implementation of these vehicle emission standards, the proposed project would be consistent with these requirements.

Passenger Vehicles

Statewide strategies to reduce GHG emissions from passenger vehicles and the transportation sector in general include the LCFS and changes in the Corporate Average Fuel Economy Standards (e.g., Pavley I and Pavley California Advanced Clean Cars program). Furthermore, Executive Order N-79-20 would also require that 100 percent of new passenger cars and trucks sold in California be zero-emission by 2035, which would indirectly contribute to the extent of EV utilization in the proposed project's passenger vehicle fleet beyond 2035. As the proposed project would not include any feature or design which would prohibit the implementation of these vehicle emission standards, the proposed project would be consistent with these requirements.

Energy Sector

As shown in Table 3.6-4, energy use generated by the proposed project represents the second largest source of emissions after considering mobile source GHG emissions. As discussed under Impact GHG-1, MM GHG-1c the proposed project would meet the Tier 2 energy efficiency requirements of the current CALGreen and Building Energy Efficiency Standards. Moreover, the proposed project would be sourcing electricity from on-site generation sources and/or utility providers in the State. As required by MM GHG-1e, any electricity consumed by the proposed project would be from carbon-free sources, such as an on-site photovoltaic system. If the proposed project secures electricity purchases from a utility provider, the proposed project would be required by MM GHG-1e to purchase 100 percent carbon-free electricity through the year 2045, at which time utility providers would be required to supply 100 percent carbon-free electricity for all in-state sales, as required by SB 100. As such, the proposed project would meet the requirements contained in the 2019 California Building Code and would be consistent with the State's current CALGreen and Building Energy Efficiency Standards and the State's renewable energy legislation, SB 100.

[105] California Air Resources Board (ARB). 2020. Advanced Clean Trucks: Accelerating Zero-Emission Truck Markets. June 25. Website: https://ww2.arb.ca.gov/sites/default/files/2020-06/200625factsheet_ADA.pdf. Accessed May 17, 2021.

Other Sources

Other sources of GHG emissions include solid waste disposal, which is associated with landfilling municipal solid waste. The amount of methane emitted to the atmosphere as a fraction of the total amount of methane generated from the decomposition of accumulated waste has gradually declined over time as more landfills install landfill gas collection and control systems and existing systems are operated more efficiently as a result of ARB's Landfill Methane Control Measure.[106] Therefore, the proposed project would be consistent with the State's goals for the recycling and waste sector.

Metropolitan Transportation Commission Plan Bay Area

As part of the implementing framework for Plan Bay Area 2050, local governments have identified planned development areas to focus growth. The project site is within the Napa County Airport Land Use Compatibility Plan area. Thus, the proposed project would be consistent with the overall goals of Plan Bay Area, which include concentrating new investment in areas that would encourage job growth. In addition, the proposed project would be developed in an area with existing infrastructure. Therefore, the proposed project would generally not conflict with the land use concept plan in Plan Bay Area 2050.

The project site is located approximately 700 feet from State Route (SR) 29. The closest public transit option would be the Vine bus system, operated by the Napa Valley Transportation Authority. The Vine provides transit opportunities throughout Napa County. The closest Vine stop is the American Canyon City Hall bus stop on Napa-Vallejo Connector Route 11, which extends from the Redwood Park n Ride in Napa, CA to the Vallejo Ferry Terminal. The stop is 1.5 miles from the project site. As such, it is not likely that many employees would travel to the project site using public transit.

City of American Canyon Energy Efficient Climate Action Plan

The City of American Canyon adopted its EECAP in 2012.[107] The EECAP identifies reduction measures and implementation responsibilities that the City used to achieve the State-recommended GHG emissions reduction target of 15 percent below 2005 emission levels by the year 2020 to fulfill the requirements of AB 32 and SB 375. Many of these measures are not mandatory or apply to government agencies rather than a project applicant or lead agency. The City would impose the requirements of these measures as applicable through local regulations and ordinances. Table 3.6-6 lists the relevant measures of the City's EECAP and analyzes how the proposed project would conflict or be consistent with the EECAP and the relevant measures therein.

Table 3.6-5: Consistency with American Canyon Energy Efficient Climate Action Plan

Climate Action Plan Measure	Description	Applicability and Compliance
Community Strategy 1. Existing Uses–Nonresidential. Increase voluntary energy efficiency efforts and participation in PG&E energy efficiency programs by targeting sectors that are responsible for the largest portions of energy use, currently have low or medium participation rates, and/or have low savings-to-use ratios.		

[106] California Air Resources Board (ARB). 2020. Advanced Clean Trucks: Accelerating Zero-Emission Truck Markets. June 25. Website: https://ww2.arb.ca.gov/sites/default/files/2020-06/200625factsheet_ADA.pdf. Accessed May 17, 2021.

[107] City of American Canyon. 2012. Energy Efficiency Climate Action Plan. Website: https://www.cityofamericancanyon.org/home/showdocument?id=5024. Accessed May 19, 2021.

Climate Action Plan Measure	Description	Applicability and Compliance
Community Measure C-1: Targeted Energy Efficiency Outreach to Nonresidential Energy Customers.	Use PG&E data to target specific nonresidential customer sectors for participation in PG&E programs or other local, regional, or State programs.	**Not Applicable**. This measure applies to the City and/or PG&E outreach effort.
Community Measure C-2: Develop of Voluntary Nonresidential Energy Efficiency Checklist.	Build upon the energy disclosure requirements of AB 1103 to develop a voluntary nonresidential energy efficiency checklist that will be available at the time of building sale.	**Not Applicable**. This measure applies to the City's responsibility to develop a nonresidential energy efficiency checklist.
Community Measure C-3: Participate in a Nonresidential Property Assessed Clean Energy (PACE) Program.	Provide additional financing opportunities for energy efficiency improvements for commercial structures by participating in a PACE program.	**Not Applicable**. This measure applies to the City's responsibility to provide financing opportunities for participation in energy efficiency programs.
Community Strategy 3: New Development–Nonresidential. Ensure new development exceeds California's Title 24 energy efficiency standard by 15 percent or more.		
Community Measure C-6: Savings By Design for New Nonresidential Construction.	Require participation in PG&E's Savings by Design Program (or future iterations of such a program) for all new nonresidential new construction projects.	**Not Applicable**. This measure applies to the City's responsibility for requiring participation in PG&E's Savings by Design Program, which is currently not accepting new applications.[108]
Community Measure C-7: Require Energy Efficiency Beyond State Code for New Nonresidential Construction	Through 2013, provide a streamlined permit process for new nonresidential construction projects that incorporate energy efficiency improvements beyond Title 24, include all items on a voluntary energy efficiency checklist, or include renewable energy improvements. Starting in 2014 or 2017, require that all new construction achieve Tier 1 of Title 24 standards (15 percent more stringent than the mandatory standards.)	**Not Applicable.** This measure applies to the City's responsibility to require more stringent energy efficiency standards which exceed the energy efficiency performance experienced under minimal compliance with Title 24 requirements.
Community Strategy 6. Renewable Energy. Increase the number of distributed renewable energy installations on residential and Nonresidential properties to three new nonresidential sites/year and 15 residential sites/year by 2020.		

[108] Pacific Gas and Electric Company (PG&E). 2021. Explore the Savings By Design Program. Website: https://www.pge.com/en_US/large-business/save-energy-and-money/facility-improvement/savings-by-design.page?WT.mc_id=Vanity_savingsbydesign. Accessed April 28, 2021.

Climate Action Plan Measure	Description	Applicability and Compliance
Community Measure C-11: Solar Ready Roofs for New Construction	Require solar ready roofs that are pre-wired and ready for the installation of solar photovoltaic panels and solar water heating systems.	**Consistent.** The proposed project would include roof structures designed to accommodate additional weight for rooftop photovoltaic electricity generation panel arrays.
Community Strategy 7. Water Conservation. Reduce per capita community water use 20 percent by 2020 from the 2005 baseline.		
Community Measure C-13: Community Water Reduction	Reduce community water use through building and landscape design and improvements.	**Consistent**. The proposed project would include water efficient landscaping and water use reduction methods. Moreover, the proposed project anticipates using recycled water for all irrigated lands.[109]
Source: City of American Canyon. 2012. Energy Efficiency Climate Action Plan (EECAP). Website: https://www.cityofamericancanyon.org/home/showdocument?id=5024. Accessed April 7, 2021.		

As shown in Table 3.6-6, the proposed project incorporates features that would contribute to the City's strategy to minimize GHG emissions. With these features, the proposed project would not conflict with the applicable measures and implementing actions identified by the City of American Canyon EECAP.

SB 32 2017 Scoping Plan Update

As discussed above, the 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. Table 3.6-6 analyzes the proposed project's consistency with the 2017 Scoping Plan Update measures. As shown in Table 3.6-6, none of the measures are applicable to the proposed project.

Table 3.6-6: Consistency with SB 32 2017 Scoping Plan Update

2017 Scoping Plan Update Reduction Measure	Project Consistency
SB 350 50 Percent Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33 percent in 2020 to 50 percent in 2030.	**Not Applicable.** This measure would apply to utilities and not to individual development projects. The proposed project would purchase electricity from a utility subject to the SB 350 and SB 100 Renewable Portfolio Standards requirements.
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not Applicable**. This measure applies to existing buildings. New structures are required to comply with the Tier 2 energy efficiency standards of the California Building Code through implementation of MM GHG-1c. In addition, the proposed project would source its electricity consumption from 100 percent carbon-free sources, as required by MM GHG-1d.

[109] Balance Hydrologics. 2021. Draft Water Supply Assessment for the Giovannoni Logistics Center Project. September.

2017 Scoping Plan Update Reduction Measure	Project Consistency
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Not Applicable.** This is a Statewide measure that cannot be implemented by a project applicant or lead agency. However, vehicles accessing the buildings at the proposed project site would benefit from the standards.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Not Applicable.** This measure is not applicable to the proposed project; however, vehicles accessing the buildings at the project site would benefit from the increased availability of cleaner technology and fuels.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.	**Consistent.** This measure applies to owners and operators of trucks and freight operations. While the proposed project is industrial in nature and would support truck and freight operations, neither the proposed project's design nor nature would prevent truck fleet owners and operators from utilizing zero-emission or near-ZEVs by 2030. Moreover, as required by MM GHG-1e, the proposed project would design and construct all automobile and truck parking areas to meet the Tier 2 EV charging infrastructure requirements of CALGreen. MM GHG-1e would further accelerate the possible adoption of EVs and support this measure.
Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Not Applicable**. Black carbon is formed by the incomplete combustion of fossil fuels, wood, and other fuels. Households currently constitute the largest source of black carbon worldwide, primarily originating from the use of biomass and coal cooking and heating stoves.[110] Nonetheless, the proposed project would involve trucking activities. As such, freight vehicles accessing the project site would be required to meet the standards of the ARB's Sustainable Freight Action Plan and Truck and Bus Regulation, which would serve to reduce potential freight-related black carbon emissions resulting from fossil fuel combustion. Therefore, the proposed project would not constitute a major source of black carbon.
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a sustainable communities' strategy for reduction of per capita VMT.	**Not Applicable.** The proposed project does not include the development of a Regional Transportation Plan.

[110] Climate and Clean Air Coalition (CCAC). N.d. Black carbon. Website: https://www.ccacoalition.org/en/slcps/black-carbon. Accessed April 1, 2022.

2017 Scoping Plan Update Reduction Measure	Project Consistency
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Not Applicable.** The proposed project is not one targeted by the cap-and-trade system regulations, and, therefore, this measure does not apply to the proposed project.
Natural and Working Lands Action Plan. The ARB is working in coordination with several other agencies at the federal, State, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the Governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The proposed project is in a built-up urban area and would not be considered natural or working lands.
Source: California Air Resource Board (ARB). 2017. California's 2017 Climate Change Scoping Plan. November. Website: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed May 17, 2021.	

As shown in Table 3.6-6, the proposed project's implementation would not conflict with the reduction measures proposed in SB 32. As such, the proposed project would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Impact GHG-3: The proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Impact Analysis

A significant impact would occur if the proposed project would result in the inefficient, wasteful, or unnecessary use of energy.

Construction

The anticipated construction schedule for the proposed project was assumed to begin in January 2022 and conclude in August 2023, lasting approximately 20 months. If the anticipated construction schedule moves to later years, construction energy demand would likely decrease because of improvements in

technology and more stringent regulatory requirements as older, less efficient equipment is replaced by newer and cleaner equipment. The proposed project would require site preparation, grading, building construction, architectural coating, and paving activities. Project construction would require energy for the manufacture and transportation of building materials, preparation of the site (e.g., site clearing, and grading), and the actual construction of the building. Petroleum-based fuels such as diesel fuel and gasoline would be the primary sources of energy for these tasks.

The types of on-site equipment used during the proposed project's construction could include gasoline- and diesel-powered construction and transportation equipment, including trucks, bulldozers, front-end loaders, forklifts, and cranes. Construction equipment is estimated to consume a total of 51,911 gallons of diesel fuel during project construction (Appendix B).

Fuel use associated with construction vehicle trips generated by the proposed project was also estimated; trips include construction worker trips, haul truck trips for material transport, and vendor trips for construction material deliveries. Fuel use from these vehicles traveling to the project site was based on (1) the projected number of trips the proposed project would generate during construction, (2) average trip distances by trip type, and (3) fuel efficiencies estimated in the ARB Emissions Factors model (EMFAC) mobile source emission model. The specific parameters used to estimate fuel usage are included in Appendix B. In total, the proposed project is estimated to consume a combined 337,528 gallons of gasoline and diesel for vehicle travel during construction.

Other equipment could include construction lighting, field services (office trailers), and electrically driven equipment such as pumps and other tools. Singlewide mobile office trailers, commonly used in construction staging areas, generally range in size from 160 square feet to 720 square feet. A typical 720-square-foot office trailer would consume approximately 20,152 kilowatt-hours (kWh) during the 20-month construction phase (Appendix B).

The proposed project’s construction is not anticipated to result in unusually high energy use. Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. Similarly, compliance with State regulations would limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. Additionally, the overall construction schedule and process is already designed to be efficient to avoid excess monetary costs. For example, equipment and fuel are not typically used wastefully due to the added expense associated with renting the equipment, maintaining it, and fueling it. Therefore, the opportunities for future efficiency gains during construction are limited. Therefore, it is anticipated that the construction phase of the proposed project would not result in wasteful, inefficient, and unnecessary consumption of energy. Construction-related energy impacts would be less than significant.

Operation

The proposed project would consume energy as part of building operations and transportation activities. Project energy consumption is summarized in Table 3.6-7.

Table 3.6-7: Annual Project Energy Consumption

Energy Consumption Activity	Annual Consumption	
	Dry Storage Scenario	Cold Storage Scenario
Electricity Consumption	8,834,476 kWh/year	24,495,402 kWh/year
Natural Gas Consumption	8,260,000 kBTU/year	9,060,000 kBTU/year
Total Passenger Vehicle Fuel Consumption	280,981 gallons/year	280,981 gallons/year
Total Truck Fuel Consumption	971,529 gallons/year	971,529 gallons/year
Total Locomotive Fuel Consumption	537 gallons/year	537 gallons/year
Total TRU Fuel Consumption	–	1,304 gallons/year

Notes:
kBTU = kilo-British Thermal Unit
kWh = kilowatt-hour
TRU = Transport Refrigeration Unit
Locomotive fuel consumption is based on an average monthly delivery capacity of 500,000 ton-miles.
Source: Appendix B

Operation of the proposed project would consume an estimated 24,495,402 kWh of electricity and an estimated 9,060,000 kBTU of natural gas annually under the cold storage project scenario and an estimated 8,834,476 kWh of electricity and an estimated 8,260,000 kBTU of natural gas annually under the dry storage project scenario. As previously discussed, the proposed project would be considered to result in a potentially significant impact if it would result in wasteful, inefficient, or unnecessary consumption of energy resources. Considering the guidance provided by Appendix F of the CEQA Guidelines and the Appellate Court decision in *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) 75 Cal.App.5th 63, 164-168, the proposed project would be considered to result in wasteful, inefficient, or unnecessary consumption of energy resources if it would conflict with the following energy conservation goals:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, or oil; and
- Increasing reliance on renewable energy sources.

Decreasing Overall Per Capita Energy Consumption

As discussed under Impact GHG-1, the proposed project would result in an approximately 29 percent reduction in employee VMT from regional average estimates. As such, the proposed project would result in an overall decrease in per capita transportation energy consumption with respect to employee transportation energy resources. As discussed under Impact GHG-1, trucking activities envisioned by the proposed project would be generally controlled by new technologies and the mandatory turnover of fleets through medium and heavy-duty truck emission standards and regulations. Moreover, the movement of freight goods and trucking and locomotive travel distances subsequent to that activity is largely dictated by market demand rather than the implementation of a specific development project, such as the proposed project. As such, overall energy consumption

related to trucking and locomotive activities is expected to not change as a result of implementation of the proposed project, and overall energy consumption related to employee transportation would decrease from that experienced by the region's current average employee transportation behavior.

As discussed above in Section 3.6.2, Environmental Setting, the County currently has estimated per capita energy consumption of 7,471 kWh and 28.45 MMBtu per year. The County estimates are utilized herein rather than City estimates because this energy consumption data is not available at the City level. As shown in Table 3.6-7, the proposed project would result in up to 24,495,402 kWh per year and up to 9,060 MMBtu per year under a cold storage scenario starting in 2023 without considering any mitigation. As the proposed project is nonresidential, the number of estimated employees is used herein to identify the proposed project's per capita energy consumption. As the proposed project is expected to generate employment for an estimated 3,643 people, the proposed project would result in a per capita energy consumption of 6,724 kWh per year and 2.49 MMBtu per year, both of which would be below the County's average electricity and natural gas consumption rates.

It should be noted that with implementation of MM GHG-1c, the proposed project is likely to consume less electricity than what is disclosed in Table 3.6-7 due to the required additional energy efficiency improvements and the fact that CalEEMod Version 2020.4.0 assumes minimum energy efficiency design compliance with the 2019 California Building Code. Should the permitting of the proposed project occur after January 1, 2023, the proposed project would be subject to additional energy efficiency standards beyond what is currently required at the time of this analysis. Nonetheless, the proposed project is likely to result in greater electricity consumption than what would otherwise occur as a result of implementation of MM GHG-1b, which would require the proposed project to implement an all-electric building design. Nevertheless, with implementation of MM GHG-1b, the proposed project would reduce natural gas-related energy consumption by 100 percent even if electricity consumption increased, thereby contributing to the overall decrease in per capita energy consumption. Considering the above assessment as well as the fact that the proposed project would result in an overall decrease in per capita building energy consumption before mitigation, the proposed project is considered consistent with this criterion with respect to per capita building energy consumption.

Decreasing Reliance on Fossil Fuels

The proposed project would be considered to conflict with this criterion if it did not take steps to decrease the reliance on fossil fuels. As discussed under Impact GHG-1, the proposed project would be required to implement MMs GHG-1a through GHG-1e to reduce GHG emissions. MMs GHG-1a through GHG-1e would also contribute to greater energy efficiency, the reduction in fossil fuel consumption, and an increase in consumption of renewable energy resources. Specifically focusing on decreased reliance on fossil fuels, MM GHG-1a would require the project applicant to utilize electric and alternatively fueled construction equipment and local contractors, among other requirements, which would reduce the proposed project's commitment of fossil fuel energy resources during project construction. Moreover, MM GHG-1b would require the proposed project to prohibit the installation of natural gas infrastructure, thereby precluding the proposed project's future use of natural gas. Lastly, MM GHG-1d would require the proposed project to source 100

percent of its electricity from carbon-free source, either from installing on-site renewable generation technologies, purchasing eligible renewable electricity services from PG&E or MCE, or a combination thereof. As such, the implementation of MMs GHG-1a, GHG-1b, and GHG-1d would actively promote the proposed project's decreased reliance on fossil fuels through the design and operation of the proposed project. Therefore, the proposed project would be consistent with this criterion with mitigation.

Increasing Reliance on Renewable Energy Sources

As previously discussed, MM GHG-1a would require the project applicant to utilize electric and alternatively fueled construction equipment and local contractors, among other requirements, which would reduce the proposed project's commitment of fossil fuel energy resources during project construction. MM GHG-1a would increase the proposed project's reliance on renewable energy sources during project construction. During operations, the proposed project's buildings would be designed and constructed, consistent with MM GHG-1c, in accordance with the State's Tier 2 Nonresidential Building Energy Efficiency Standards, which are widely regarded as some of the most advanced building energy efficiency standards in the country. In addition, the proposed project would be required under MM GHG-1e to install a greater amount of EV charging infrastructure than what would otherwise be experienced through minimum code compliance.

The proposed project would also include roof structures designed to accommodate additional weight for rooftop photovoltaic panel arrays should they be installed. MM GHG-1d would additionally require that the proposed project source its electricity consumption from carbon-free sources, either with on-site renewable generation technologies or through subscription with a 100 percent carbon-free electricity service with PG&E or MCE. Moreover, MM GHG-1b would require the proposed project to out-right prohibit the use of natural gas during project operation, thereby reducing project dependence on fossil fuels and removing legacy GHG emission sources in contributing to achieving the State's long-term climate goal of carbon neutrality by 2045.

Moreover, MM GHG-1e would require that the proposed parking areas are designed and will be built to accommodate additional EV charging stations than would be required with minimum code compliance. At a minimum, the parking shall be designed to accommodate EV charging stations in an amount equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2. Considering that trucking activities constitute a major operational activity for the proposed project, the Tier 2 EV charging infrastructure requirements contained in MM GHG-1e would apply to both passenger automobile as well as truck parking areas. Loading docks would also be required under MM GHG-1e to contain 240-volt outlets to accommodate EV and TRU charging while trucks are loading or unloading goods. The inclusion of MM GHG-1e would ensure that the proposed project meets the provision requiring compliance with the Tier 2 EV charging infrastructure of CALGreen. MM GHG-1e would further reduce the potential for the wasteful, inefficient, or unnecessary consumption of energy resources from automobiles by supporting the region and State's adoption of EVs and reducing reliance on fossil fuels.

As a result, the proposed project's energy consumption would not be wasteful, inefficient, or unnecessary. Impacts would be less than significant with mitigation.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

MM GHG-1a through MM GHG-1e

Level of Significance After Mitigation

Less than significant impact.

Impact GHG-4: The proposed project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Impact Analysis

A significant impact would occur if the proposed project conflicted with or obstructs a State or local plan for renewable energy or energy efficiency. Therefore, a significant impact would occur if the proposed project were considered inconsistent with applicable plans adopted to promote or improve energy efficiency or renewable energy, including the City's EECAP. In addition, the City's General Plan Natural and Historic and Cultural Resources Element contains several energy efficiency goals that would relate to the proposed project.

The proposed project would be designed in accordance with Title 24, California's Energy Efficiency Standards for Nonresidential Buildings techniques and practices. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning [HVAC] and water heating systems), and indoor and outdoor lighting. Incorporating the Title 24 standards into the proposed project's design would ensure that the proposed project would not result in the use of energy in a wasteful manner. Furthermore, the proposed project would have roof structures designed to accommodate additional weight for rooftop photovoltaic electricity generation panel arrays, so it is possible that the project could use solar electricity generation. MM GHG-1d would also require the proposed project to source its electricity from 100 percent carbon-free sources, which could include on-site renewable generation technologies such as rooftop solar.

The City's General Plan Natural and Historic and Cultural Resources Element contains policies related to energy conservation that are relevant to the proposed project, such as Goal 8F to reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources. Compliance with Title 24 standards would help the project meet this goal, and implementation of MMs GHG-1a through GHG-1e would further serve to reduce project reliance on nonrenewable energy resources. Moreover, as previously illustrated in Table 3.6-5, the proposed project would be consistent with the energy efficiency measures contained in the EECAP.

The proposed project would comply with existing State energy standards and be consistent with the energy efficiency goals and measures contained in the City's General Plan Natural and Historic and Cultural Resources Element and EECAP. As such, the proposed project would not conflict with State or local renewable or energy efficiency objectives. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

3.7 - Hazards and Hazardous Materials

3.7.1 - Introduction

This section describes the existing hazards and hazardous materials setting and the potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on review of the GeoTracker Database and site reconnaissance performed by FirstCarbon Solutions (FCS).

3.7.2 - Environmental Setting

Hazardous Materials

Hazardous materials, as defined by the California Code of Regulations, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed of, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties:

- Toxic: Causes human health effects
- Ignitable: Has the ability to burn
- Corrosive: Causes severe burns or damage to materials
- Reactive: Causes explosions or generates toxic gases

A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. The criteria that define a material as hazardous also define a waste as hazardous. If improperly handled, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, Sections 66261.20-24 contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

Records Search

FCS performed a query of the California State Water Resources Control Board (State Water Board) GeoTracker Database, which lists reported hazardous materials sites compiled pursuant to Government Code 65962.5 (The Cortese List). These sites include sites where releases have occurred as well as sites that have permitted hazardous materials storage vessels, including underground storage tanks (USTs). The project site was not listed on the GeoTracker Database.

Four sites within 0.5-mile of the project site were listed on the GeoTracker Database and are summarized in Table 3.7-1. All four sites had reported releases of petroleum hydrocarbons into soil and groundwater. All four sites are listed as “Case Closed,” signifying that the regulatory agency with jurisdiction has determined that no further action is necessary.

Table 3.7-1: Recorded Hazardous Materials Sites

Name	Relationship to Project Site	Summary
5747 Highway 29 (Diablo Timber)	200 feet east of the project site	**Case Closed (1998):** An 8,000-gallon gasoline UST and a 6,000-gallon diesel UST were removed in 1993 and evidence of petroleum hydrocarbons was found in nearby soils. Impacted soils were removed and monitoring wells were installed. No groundwater contamination detected. No Further Action Letter issued in 1998.
		Case Closed (2014): As part of a property ownership transfer, a Phase II soil and groundwater investigation was conducted that identified low levels of petroleum hydrocarbons in soil and groundwater. No Further Action Letter issued in 2014.
1500 Green Island Road (Zeneca ICI Resins)	200 feet south of the project site	**Case Closed (2000):** Releases of petroleum hydrocarbons occurred in early 1990s. Low levels were detected in soil, soil vapor, and groundwater. No Further Action Letter issued in 2000.
1554 Green Island Road (Auto Salvage)	2,400 feet west of project site	**Case Closed (2002):** Former auto salvage facility. Petroleum hydrocarbons detected in soil and groundwater. Well purged and abandoned. No Further Action Letter issued in 2002.
4000 Airport Road (Napa County Airport)	2,400 feet north of the project site	**Case Closed (1992):** Leaking UST site. No additional information available. No Further Action Letter issued in 1992.

Notes:
UST = underground storage tank
Source: California State Water Resources Control Board (State Water Board) 2021.

Common Hazardous Materials

Asbestos

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties, such as thermal insulation, chemical and thermal stability, and high tensile strength. Asbestos is commonly used for acoustic insulation, thermal insulation, fireproofing, and in other building materials. Asbestos is made up of microscopic bundles of fibers that may become airborne when asbestos-containing materials are damaged or disturbed. When these fibers get into the air, they may be inhaled into the lungs, where they can cause significant health problems. The California Occupational Health and Safety Administration (Cal/OSHA) defines asbestos-containing construction materials as any material that contains more than 0.1 percent asbestos by weight.

There are no structures on the project site. Thus, there is no basis to assume presence of asbestos-containing materials.

Lead

Lead is a highly toxic metal that was used until the late 1970s in a number of products, most notably in paint. Lead may cause a range of health effects, from behavioral problems and learning disabilities

to seizures and death. Primary sources of lead exposure are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil. Both the United States Environmental Protection Agency (EPA) and the California Department of Health Services define lead paint as containing a minimum of 0.5 percent by weight. Lead-containing waste materials with a concentration greater than 0.1 percent are considered hazardous waste by California law.

There are no structures on the project site. Thus, there is no basis to assume presence of lead-based paint.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are mixtures of synthetic chemicals with similar chemical structures. PCBs can range from oily liquids to waxy solids. Because of their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications, including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other applications. Electrical transformers are one of the most common sources of PCBs.

There are no structures or electrical transformers on the project site. Thus, there is no basis to assume presence of PCBs.

Radon

Radon is a carcinogenic, radioactive gas resulting from the natural breakdown of uranium in soil, rock, and water. Radon gas enters a building through cracks in foundations and walls. Once inside the building, radon decay products may become attached to dust particles and inhaled, or the decayed radioactive particles alone may be inhaled and cause damage to lung tissue. The EPA has established a safe radon exposure threshold of 4 picocuries per liter of air (pCi/l).

The California Department of Health Services has conducted more than 48,000 indoor radon tests in more than 1,700 zip codes through the State, including in the 94503 (American Canyon) zip code. A total of 18 tests have been conducted in the 94503 zip code, none of which yielded indoor radon levels above 4 pCi/l.

Low-Frequency Electromagnetic Fields

Electrical transmission and distribution lines emit extremely low-frequency electromagnetic fields (EMFs), which have been suspected to be linked to cancer. However, scientific research has never conclusively established a link between EMFs and cancer. In 2007, the World Health Organization issued a report titled “Extremely Low-Frequency Fields, Environmental Health Criteria Monograph No. 238” that concluded that evidence between extremely low-frequency EMFs and childhood leukemia is not strong enough to be considered causal, although it did note that the issue still was of concern. The same report indicated that there is inadequate evidence or no evidence linking low-frequency EMFs and health effects associated with all other diseases.

According to the California Energy Commission, no major electrical transmission lines are located within 0.5-mile of the project site.

Aviation

The Napa County Airport is located 2,400 feet north of the project site. The County-owned airport consists of three runways, ranging from 2,510 to 5,931 feet in length. The airport averages 148 operations per day and 54,020 operations annually. (The Federal Aviation Administration [FAA] defines an "operation" as one takeoff or landing.)

3.7.3 - Regulatory Framework

Federal

Federal Toxic Substances Control Act and Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) regulate the generation, transportation, treatment, storage, and disposal of hazardous and non-hazardous waste. The regulatory program is administered by the EPA. It mandates that hazardous wastes be tracked from the point of generation to their ultimate fate in the environment. This includes detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The HSWA also prohibited the use of certain techniques for the disposal of some hazardous wastes and provided the framework for a regulatory program designed to prevent releases from USTs. The program establishes tank and leak detection standards, including spill and overflow protection devices for new tanks and performance standards to ensure that the stored material will not corrode the tanks.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. The Act was intended to be comprehensive in encompassing both the prevention of and response to uncontrolled hazardous substances releases. The Act deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

Transportation of Hazardous Materials

The Hazardous Materials Transportation Act of 1974, as amended, is the basic statute regulating hazardous materials transportation in the United States. Transportation of hazardous materials is regulated by the United States Department of Transportation (USDOT) Office of Hazardous Materials Safety. The Office of Hazardous Materials Safety formulates, issues, and revises hazardous materials regulations under the Federal Hazardous Materials Transportation Law. The hazardous materials

regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications. The hazardous materials transportation regulations are codified in 49 Code of Federal Regulations Parts 100-185.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections; use of vehicle controls and equipment, including emergency equipment; procedures for safe operation of the transport vehicle; instruction on the properties of the hazardous material being transported; and loading and unloading procedures. All drivers must possess a commercial driver's license as required by 49 Code of Federal Regulations Part 383. Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

State

Cortese List

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." The list, or a site's presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). While Government Code Section 65962.5 makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992 and this information is now largely available on the websites of GeoTracker and EnviroStor. Those requesting a copy of the Cortese "list" are now referred directly to the appropriate information resources contained on the internet web sites (e.g., GeoTracker and EnviroStor).

Handling and Storage of Hazardous Waste

The handling and storage of hazardous materials is regulated on the federal level by the EPA under the CERCLA as amended by the Superfund Amendments and Reauthorization Act (SARA). Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses that store, handle, or produce significant quantities of hazardous or acutely toxic substances as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility.

In California, the handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500-25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan. The business plan provides information to the local emergency response agency regarding the types and quantities of hazardous materials stored at a facility and provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by the California code, facilities are

required to prepare a Risk Management Plan and California Accidental Release Plan, which provide information on the potential impact zone of a worst-case release and requires plans and programs designed to minimize the probability of a release and mitigate potential impacts.

California Hazardous Waste Control Law

The California Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency (Cal/EPA) to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the EPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

The California Code of Regulations, Title 22, Chapter 11, Article 2, Section 66261.10 defines hazardous waste as a substance that may:

> (1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed or otherwise managed.

According to California Code of Regulations Title 22, substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated or is being stored prior to proper disposal.

Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels. (The level depends on the substance involved.) Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances are hazardous because of their flammable properties. Gasoline, hexane, and natural gas are examples of ignitable substances. Corrosive substances are chemically active and can damage other materials or cause severe bums upon contact. Examples include strong acids and bases such as sulfuric (battery) acid or lye. Reactive substances may cause explosions or generate gases or fumes. Explosives, pressurized canisters, and pure sodium metal (which reacts violently with water) are examples of reactive materials.

Other types of hazardous materials include radioactive and biohazardous materials. Radioactive materials and wastes contain radioisotopes, which are atoms with unstable nuclei that emit ionizing radiation to increase their stability. Radioactive waste mixed with chemical hazardous waste is referred to as “mixed wastes.” Biohazardous materials and wastes include anything derived from living organisms. They may be contaminated with disease-causing agents, such as bacteria or viruses.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan that must include details, including floor plans, of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on the site, an emergency response plan, a training program in safety procedures and emergency response for new employees, and an annual refresher course in the same topics for all employees.

The Porter-Cologne Water Quality Act (California Water Code, Section 13000, et seq.) established the authority of the State Water Board and provided the Regional Water Quality Control Board (RWQCB) with the primary responsibility of the protection of water quality in the State of California.

Hazardous Materials Worker Safety

Cal/OSHA and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety by developing and enforcing workplace safety regulations in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR §§ 337-340, Chapter 3.2). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

California Fire Code

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code at Part 9. The California Fire Code includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. The Fire Code requires two points of vehicular access for any nonresidential building 30 feet tall or higher.

California Department of Transportation and California Highway Patrol

The California Vehicle Code Section 31303 requires that hazardous materials be transported via routes with the least overall travel time and prohibits the transportation of hazardous materials through residential neighborhoods. In California, the California Highway Patrol (CHP) is authorized to designate and enforce route restrictions for the transportation of hazardous materials. To operate in California, all hazardous waste transporters must be registered with the California Department of Toxic Substances Control (DTSC). Unless specifically exempted, hazardous waste transporters must comply with the CHP Regulations, the California State Fire Marshal Regulations, and the USDOT Regulations. In addition, hazardous waste transporters must comply with Division 20, Chapter 6.5, Article 6 and 13 of the California Health and Safety Code, and the Title 22, Division 4.5, Chapter 13 of the California Code of Regulations, both of which are administered by the DTSC.

San Francisco Bay Regional Water Quality Control Board

There are nine RWQCBs throughout the State. The San Francisco Bay RWQCB has jurisdiction over the City of American Canyon. Individual RWQCBs function as the lead agencies responsible for identifying, monitoring, and cleaning up Leaking Underground Storage Tanks (LUSTs). Storage of

hazardous materials in USTs is regulated by the State Water Board, which oversees the nine RWQCBs.

California State Aeronautics Act

The State Aeronautics Act, Public Utilities Code Section 21001, et seq., is the foundation for the California Department of Transportation (Caltrans) Division of Aeronautics aviation policies. The Division issues permits for and annually inspects hospital heliports and public use airports, makes recommendations regarding proposed school sites within 2 miles of an airport runway, and authorizes helicopter landing sites at/near schools. Aviation system planning provides for the integration of aviation into transportation system planning on a regional, statewide, and national basis. The Division of Aeronautics administers noise regulation and land use planning laws that foster compatible land use around airports and encourages environmental mitigation measures to lessen noise, air pollution, and other impacts caused by aviation. The Division of Aeronautics also provides grants and loans for safety, maintenance, and capital improvement projects at airports.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following guiding and implementing policies relevant to hazards and hazardous materials:

Goal 1N Ensure the compatibility of development within American Canyon with the Napa County Airport.

Objective 1.27 Ensure that lands in American Canyon are developed in a manner which protects them from the noise and operational impacts of, and does not adversely constrain, the Napa County Airport.

Policy

Policy 1.27.2 Review all applications for new development, expansion of existing uses, and re-use within Napa County Airport Compatibility Zones “A” through “E” for compliance with the appropriate use and development conditions.

Goal 6A Maintain a high level of fire protection and emergency services to City/District businesses and residences.

Objective 6.3 Ensure that the Fire District’s facility, manpower and equipment needs keep pace with the City’s growth.

Policy

Policy 6.3.1 Require that City planning staff work closely with Fire District officials to ensure that fie facilities and personnel are expanded commensurably to serve the needs of the City’s growing population and development base.

Policy 6.4.3 Require, through the development review process, that all structures and facilities subject to the District's jurisdiction adhere to City, State, and federal regulatory standards such as the Uniform Building and Fire Codes and other applicable safety guidelines.

County of Napa

Napa County Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan (ALUCP) governs land use around two Napa County aviation facilities: the Napa County Airport and Parrett Field in Angwin. The ALUCP was adopted by the Napa County Airport Land Use Commission in April 1991 and revised in December 1999.

Flight Hazards

The ALUCP identifies two categories of flight hazards: physical obstructions and land use characteristics.

Physical obstructions are associated with tall objects or structures. The ALUCP establishes a height restriction ranging from 50 feet to 185 feet above ground level.

Land use characteristics involve uses that may produce hazards to aviation. Specific characteristics prohibited within the airport land use planning boundaries are listed below:

- Glare or distracting lights, which could be mistaken for airport lights
- Sources of dust, steam, or smoke that may impair pilot visibility
- Sources of electrical interference with aircraft communications or navigation
- Any use that may attract large flocks or birds, especially landfills or certain agricultural uses

Zone D

The ALUCP provides the following description of Zone D in Table 3-1:

> Common Traffic Pattern: This area is defined by the flight pattern of each airport and illustrated in the respective "Airport Impact Areas" figures contained in Part III. These areas are routinely overflown by aircraft operating to and from the airport with frequent single-event noise intrusion. Overflights in these areas can range from near the traffic pattern altitude (about 1,000 feet above the ground) to as low as 300 feet above the ground. Accident risk varies from low to moderate. Areas where aircraft are near pattern altitude (e.g., downwind leg) have the lowest risk. In areas where aircraft are at lower altitudes (especially on circle-to-land instrument approaches), a moderate level of risk exists.

The ALUCP establishes the following standards for Zone D:

- Maximum density recommendation of 100 persons per acre inside structures for nonresidential uses.
- Maximum density recommendation of 150 persons per acre (both indoors and outdoors) for nonresidential uses.

- Residential uses are prohibited.
- Uses hazardous to flight are prohibited (i.e., features that attract large numbers of birds and sources of smoke, glare, distracting lights, or electrical interference).
- Overflight easement or deed restrictions are required.
- Building envelopes and approach surfaces are required on all development plans within 100 feet of approach zones.
- Clustering is encouraged to maximize open land areas.
- Noise level reduction measures may be required for noise-sensitive uses.

The ALUCP states that most nonresidential uses are considered "normally acceptable" within Zone D. Schools, libraries, hospitals, nursing homes, large shopping malls, amphitheaters, and ponds are identified as "not normally acceptable" within Zone D.

3.7.4 - Methodology

FirstCarbon Solutions evaluated potential impacts on hazards and hazardous materials through site reconnaissance, review of the State Water Board GeoTracker Database, and site reconnaissance performed in February 2021.

3.7.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to hazards and hazardous materials are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (refer to Section 7, Effects Found not to be Significant);

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

e) (For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport) result in a safety hazard or excessive noise for people residing or working the project area;

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury, or death involving wildland fires (refer to Section 7, Effects Found not to be Significant).

3.7.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Routine Transport, Use, or Disposal of Hazardous Materials/Risk of Upset

Impact HAZ-1:	**Buildout of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.**

Impact Analysis

Phases 1 and 2

The proposed project contemplates the development of a 2.4-million-square-foot logistics center on 163 acres of the project site and the preservation of the remaining 45 acres as open space.

Construction

Construction activities would entail the use of heavy equipment on the project site. Potential hazardous materials transported, used, or disposed of during project construction would be limited to commonly used substances such as gasoline, diesel, oil, grease, mechanical fluids, paints, and cleaning solvents. Construction equipment would be serviced by trained technicians and potentially hazardous materials would be stored in secured facilities. Furthermore, the safe handling of these commonly used substances is governed by occupational health and safety laws and regulations and construction contract requirements. Therefore, the use of this equipment and these substances during construction would not present any undue risks to the public or the environment.

Operation

High-cube warehouse facilities are typically used for distribution, fulfillment, and storage of non-hazardous commodities, goods, and manufactured products. As such, no large quantity hazardous materials users are contemplated as end users.

Project end users would be expected to handle small quantities of commonly used hazardous substances such as cleaning solvents, diesel, gasoline, grease/degreasers, mechanical fluids, and oil as part of daily operations. Given the small quantities involved and the characteristics of use (e.g., routine maintenance and cleaning), their use would not be considered a potential risk to human

health or the environment. The use of acutely hazardous materials of any quantity that have the potential to result in releases that could potentially expose substantial numbers of people or the environment to harm is not anticipated by project end uses.

Conclusion

In summary, the construction and operational activities of the proposed project would not create a significant hazard to the public or environment. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Government Code Section 65962.5 Sites

Impact HAZ-2:	**The proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.**

Impact Analysis

Phases 1 and 2

The proposed project contemplates the development of a 2.4-million-square-foot logistics center on 163 acres of the project site and the preservation of the remaining 45 acres as open space.

Cortese List

The project site is not listed on the Cortese List, which includes various hazardous materials databases compiled to Government Code 65962.5.

Four sites within 0.5 mile of the project site are listed on the Cortese List. All are listed as "Case Closed," signifying that the regulatory agency with jurisdiction has determined that no further action is necessary. Thus, they do not pose a risk to human health or the environment.

Agricultural Chemicals

The project site does not support cultivated agriculture. Aerial photographs and historic topographical maps indicate that the project site has not supported cultivated agricultural production. Thus, there is no basis to assume presence of agricultural chemicals, including herbicides and pesticides.

Hazardous Building Materials

The project site does not contain any structures. Aerial photographs and historic topographical maps indicate that the project site has not supported structures. Thus, there is no basis to assume presence of hazardous building materials including asbestos, lead, or PCBs.

Radon

The California Department of Health Services has conducted more than 48,000 indoor radon tests in more than 1,700 zip codes through the State, including in the 94503 (American Canyon) zip code. A total of 18 tests have been conducted in the 94503 zip code, none of which yielded indoor radon levels above 4 pCi/l.

Moreover, the proposed project proposes slab-on-grade construction, which has a low susceptibility to radon intrusion. In contrast, buildings with subsurface spaces such as basements or parking garages have a much higher susceptibility to radon intrusion.

Electromagnetic Fields

There are no high voltage electrical facilities within 0.5 mile of the project site. As such, the proposed project site would not be exposed to high levels of low-frequency EMFs.

Conclusion

The proposed project would not be exposed to hazards or hazardous materials from past uses of the project site. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Airports

Impact HAZ-3:	**The proposed project may create aviation safety hazards for persons residing or working within 2 miles of the Napa County Airport.**

Impact Analysis

Phases 1 and 2

The 208-acre project site is located 2,400 feet south of the Napa County Airport and is within Zone D of the Napa County Airport Land Use Compatibility Plan.

Although, as explained in Section 3.5.6 of this Draft Environmental Impact Report (Draft EIR), the California Supreme Court, in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377, has held generally "agencies subject to CEQA generally are *not* required to analyze the impact of existing environmental conditions on a project's

future users or residents," the Court recognized that the Legislature has created an exception with respect to noise, safety, and land use compatibility issues near airports (*Id*. at p. 391). Public Resources Code Section 21096[a] creates special rules for EIRs prepared for projects either "situated within airport land use compatibility plan boundaries" or, where no such plan is in place, "within two nautical miles of a public airport or public use airport." Such EIRs must use "the Airport Land Use Planning Handbook" published by the Division of Aeronautics of the Department of Transportation as a technical resource.

The Napa County Airport Land Use Compatibility Plan states that most nonresidential uses are considered "normally acceptable" within Zone D. Schools, libraries, hospitals, nursing homes, large shopping malls, amphitheaters, and ponds are identified as "not normally acceptable" within Zone D. In addition, uses that are hazardous to flight are prohibited (i.e., features that attract large numbers of birds and are sources of smoke, glare, distracting lights, or electrical interference). The ALUCP encourages clustering to maximize open land areas and requires limits on building envelopes and building heights on all development plans within 100 feet of approach zones.

The proposed project's end uses are all nonresidential and are acceptable within Zone D.

Finally, there are no project attributes that would produce sources of smoke, glare, distracting lights, or electrical interference. Therefore, the proposed project complies with the applicable safety requirements of Zone D. As such, the proposed project would not create aviation safety hazards for persons residing or working within 2 miles of the Napa County Airport. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Emergency Response and Evacuation

Impact HAZ-4:	**The proposed project would not impair emergency response or evacuation in the project vicinity.**

Impact Analysis

Phases 1 and 2

The proposed project would take vehicular access from multiple driveways on Green Island Road and Devlin Road. Phase 1 would have four driveways of Green Island Road and three driveways on Devlin Road. Reciprocal access would be provided between the two Phase 1 buildings. Accordingly, the proposed project would provide two points of emergency access and, thus, would comply with California Fire Code requirements.

For these reasons, the proposed project would enhance access by emergency responders and would not impair emergency response or evacuation in the project vicinity. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

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3.8 - Hydrology and Water Quality

3.8.1 - Introduction

This section describes the existing hydrology and water quality setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on a Preliminary Hydrologic and Hydraulic Modeling Memo, prepared by Balance Hydrologics, provided in Appendix F. Additional information was obtained through site reconnaissance, review of project plans, and review of resources, including the City of American Canyon General Plan, the California Department of Water Resources (DWR) Bulletin 118, the Clean Water Act 303(d) list, and the Western Regional Climate Center.

3.8.2 - Environmental Setting

Climate and Meteorology

The City of American Canyon is characterized by a Mediterranean climate with warm summers, mild winters, and moderate precipitation. Temperatures in American Canyon range from an average monthly low of 38.3°F (degrees Fahrenheit) in January to an average monthly high of 82.1°F in September. Average annual rainfall is 24.6 inches with the majority occurring from November to March. General meteorological data for the American Canyon area, as measured at the Napa State Hospital weather station, are presented in Table 3.8-1.

Table 3.8-1: American Canyon Meteorological Summary

Month	Temperature (°F)		Average Precipitation (inches)
	Average Low	Average High	
January	38.3	57.0	5.14
February	40.8	61.5	4.38
March	42.0	65.0	3.35
April	43.7	69.6	1.65
May	47.6	74.6	0.68
June	51.3	79.8	0.21
July	53.4	81.9	0.02
August	53.2	81.7	0.06
September	51.5	82.1	0.31
October	47.9	76.5	1.36
November	42.6	65.9	2.98
December	38.8	57.6	4.50
Annual Average	**45.9**	**71.1**	**24.66**

Month	Temperature (°F)		Average Precipitation (inches)
	Average Low	Average High	

Notes:
Averages derived from measurements taken between January 1, 1893, and June 10, 2016, at Napa State Hospital (WRCC ID# 046074).
Source: Western Regional Climate Center 2021.

Regional Hydrology

The project site is located within the 426-square-mile Napa River Watershed. The Napa River drains 47 tributaries along its 55-mile length from the headwaters of Mount St. Helena in the Mayacamas Mountain Range at approximately 3,700 feet above mean sea level to San Pablo Bay, part of San Francisco Bay.

Within the large Napa River Watershed, major land cover types are forest (35 percent), grassland/rangeland (23 percent), and agriculture (19 percent). The San Francisco Bay Regional Water Quality Control Board (RWQCB) indicates that two-thirds of the agricultural land is vineyards, and urban development covers approximately 8 percent of the watershed. The majority of streams in the Napa Valley have been altered by urbanization, agriculture, and grazing. Since the 1800s, large sections of the Napa River have been straightened, the banks hardened, flows redirected, and several levees constructed.

At a more local scale, the project site has a contributing watershed area of 650 acres, measured where No Name Creek leaves the northwest corner of the site. Site drainage and the watershed boundary have been heavily influenced by the construction of ditches, roadway embankments, and other development. It is plausible that an additional area east of State Route 29 (SR-29) contributes runoff to the project site; however, this area does not affect the hydrology of the development footprint because it is either (1) routed through the drainage channel along Airport Road (which will not be affected by the project), or (2) routed through the undeveloped land to the south of the project site (also unaffected by the project). The watershed is not part of one of the larger, regional watersheds used for stormwater master planning.

Storm Drainage

The project site is undeveloped and does not have any existing storm drainage facilities. Runoff either ponds on-site and percolates into the soil or sheet flows into the municipal storm drainage facilities within Green Island Road.

Surface Water Quality

The Napa River is listed as impaired on the Clean Water Act 303(d) list for pathogens and sediment/siltation. These pollutants are a result of agriculture, urban runoff, and storm sewers; land development; and construction. The Napa River was previously listed on the Clean Water Act 303(d) list for nutrients; however, the RWQCB de-listed the Napa River for this pollutant in 2014 (Resolution Number R2-2014-0006).

Groundwater

The project site is located within the 40,500-acre Napa-Sonoma Lowlands Groundwater Subbasin. The subbasin consists primarily of alluvium and alluvial fans that were deposited at and near the mouths of the Napa River and Sonoma Creek adjacent to San Pablo Bay. To a lesser extent, portions of the City are underlain by sandstone and mudstone/shale, of which the former comprises some of the more productive water-bearing units within the region. The City of American Canyon does not maintain any municipal groundwater wells; however, as many as 41 private wells have been identified that draw from the subbasin within and near the City. Nearly all of these wells reported relatively low-flow rates, ranging from 0.5 gallon per minute (gpm) to 45 gpm.

Groundwater Quality

Groundwater quality in the Napa-Sonoma Lowlands Subbasin is generally suitable for municipal and agricultural uses. Primary constituents of concern are high total dissolved solids (TDS), nitrate, boron, and organic compounds. High TDS are typically found in wells in areas closest to the San Francisco Bay. The DWR indicates that the Napa-Sonoma Lowlands Subbasin shows a TDS range of 50 to 300 milligrams per liter (mg/L) with an average of 185 mg/L.

Geology and Soils

Napa County lies within the Coast Range of California, formed at and near the boundary of two major tectonic plates—the North American and Pacific plates. The lower Napa Valley can generally be considered a down-warped basin, the depth of which has been accentuated by additional down-faulting. The oldest rocks in the area, exposed along the flanks of the valley, are the sedimentary units of the Cretaceous-period Great Valley sequence. These units were originally part of the intact, overriding (North American) plate that were uplifted after the plate margin changed from a subduction zone to a transform fault, approximately 25 million years ago. The Great Valley sequence, in turn, is overlain by shales, sandstones, and siltstones of early to mid-Tertiary period. These sedimentary units were deformed and, in some places, moderately metamorphosed as a result of the uplift of the region. Thick deposits of late-Tertiary-period volcanic material, primarily tuff and rhyolite, cover the sedimentary units throughout much of the valley, as far south as Suscol Canyon. The Napa Valley floor is composed of Quaternary-period sediments, deposited on the Napa River floodplain and in alluvial fans built-up at tributary mouths along the base of the valley flanks.

The project site is located near the southern end of the Napa Valley, at the distal end of the younger alluvial fan deposits that emanate from the hills to the east of the site. Young alluvial silt and clay floodplain and tidal deposits are also present at the site, deposited by the nearby Napa River.

The vast majority of the project site is underlain by Clear Lake clay and small areas of Haire loam, 2-9 percent slopes; and Fagan clay loam, 5-15 percent slopes. These soils are classified as hydrologic soils group D, meaning they have high runoff potential and very low infiltration rates, particularly when thoroughly wetted.

3.8.3 - Regulatory Framework

Federal

Clean Water Act

Section 303 of the Clean Water Act (CWA) requires states to adopt water quality standards for all surface waters of the United States. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards (see description of the Porter-Cologne Water Quality Control Act, below). Standards are based on the designated beneficial use(s) of the water body. Where multiple uses exist, water quality standards must protect the most sensitive use.

Section 401 of the CWA requires any person applying for a federal permit or license that may result in the discharge of pollutants into waters of the United States (including wetlands) to obtain a state water quality certification. In California, such certifications are administered by the California State Water Resources Control Board (State Water Board) through the nine RWQCBs (see a description of state regulations below). In order to acquire certification, it must be demonstrated that the activity complies with all applicable water quality standards, limitations, and restrictions. No license or permit by a federal agency may be granted until 401 certification has been granted. Section 401 water quality certifications are typically required prior to obtaining a Section 404 permit from the United States Army Corps of Engineers (USACE).

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of National Pollutant Discharge Elimination System (NPDES) stormwater program. In California, any construction activity (with the exception of certain industrial activities, none of which are proposed for this project) that disturbs at least 1 acre is covered under the Construction General Permit issued by the State Water Board and implemented and enforced by RWQCBs.

Pursuant to Section 402 of the CWA and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the City of American Canyon are regulated under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, MS4 Order No. 2013-0001-DWQ (General Permit). In 1987, Congress amended the CWA to mandate controls on discharges from municipal separate storm sewer systems (MS4s). Acting under the federal mandate and the California Water Code, California RWQCBs require cities, towns, and counties to regulate activities that can result in pollutants entering their storm drains. All municipalities prohibit non-stormwater discharges to storm drains and require residents and businesses to use Best Management Practices (BMPs) to minimize the amount of pollutants in runoff. The Municipal Regional Permit is overseen by the San Francisco Bay RWQCB. On February 5, 2013, the State Water Board reissued the Phase II Stormwater NPDES Permit for small MS4s. Provision E.12, "Post-Construction Stormwater Management Program," mandates municipalities to require specified features and facilities—to control pollutant sources, runoff volumes, rates, and durations and to treat runoff before discharge from the site—be included in development plans of projects that create or replace 5,000 square feet or more impervious surface as conditions of issuing approvals and permits. The new requirements continue a progression of increasingly stringent requirements since 1989.

Provision E.12 requires all municipal permittees to implement these requirements by June 30, 2015, to the extent allowed by applicable law. This includes projects requiring discretionary approvals that have not been deemed complete for processing and discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals.

In July of 2014, the Bay Area Stormwater Management Agencies Association (BASMAA), through the BASMAA Phase II Committee, created the BASMAA Manual to assist applicants for development approvals to prepare submittals to demonstrate that their project complies with the NPDES permit requirements. Applicants who seek development approvals for applicable projects should follow the manual when preparing their submittals. The manual is designed to ensure compliance with the requirements and promote integrated Low Impact Development (LID) design.

Section E.12.c of the General Permit pertains to LID and how it relates to hydromodification management. This Permit provision requires that stormwater discharges not cause an increase in the erosion potential of the receiving stream over the existing condition. Increases in runoff flow and volume must be managed so that the post-project runoff does not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force.

Section 404 of the CWA requires that a permit be obtained from the USACE prior to any activity associated with discharge of dredged or fill material into waters of the United States, including wetlands.

Floodplains

The Federal Emergency Management Agency (FEMA) oversees floodplains and administers the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. The program makes federally subsidized flood insurance available to property owners within communities who participate in the program. Areas of special flood hazard (those subject to inundation by a 100-year flood) are identified by FEMA through regulatory flood maps titled Flood Insurance Rate Maps. The NFIP mandates that development cannot occur within the regulatory floodplain (typically the 100-year floodplain) if that development results in more than a 1-foot increase in flood elevation. In addition, development is not allowed in delineated floodways within the regulatory floodplain.

Federal Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to do the following:

- Avoid incompatible floodplain development,
- Be consistent with the standards and criteria of the NFIP, and
- Restore and preserve natural and beneficial floodplain values.

Executive Order 11990 requires federal agencies to follow avoidance, mitigation, and preservation procedures, with public input, before proposing new construction in wetlands. It generally requires:

- Avoidance of wetlands,
- Minimization of activities in wetlands, and
- Coordination with the USACE and CWA Section 404 regarding wetlands mitigation.

State

Water Quality Statutes and Regulations

Section 303(d) of the CWA requires that the State Water Board identify surface water bodies within California that do not meet established water quality standards. Once identified, the affected water body is included in the State Water Board "303(d) Listing of Impaired Water Bodies" and a comprehensive program must then be developed to limit the amount of pollutant discharges into that water body. This program includes the establishment of Total Maximum Daily Loads (TMDL) for pollutant discharges into the designated water body. The most recent 303(d) listing for California was approved by the United States Environmental Protection Agency (EPA) in 2010.

The Porter-Cologne Water Quality Control Act of 1969 authorized the State Water Board to provide comprehensive protection for California's waters through water allocation and water quality protection. The State Water Board implements the requirement of the CWA Section 303, indicating that water quality standards have to be set for certain waters by adopting water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans for areas in the region, identifying water quality objectives, and issuing NPDES permits and Waste Discharge Requirements (WDRs). Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. The Porter-Cologne Act was later amended to provide the authority delegated from the EPA to issue NPDES permits. The RWQCB with jurisdiction over the project site is the San Francisco Bay Region.

Post-construction stormwater controls to satisfy requirements of the NPDES Program are permitted under the Phase II Small Municipal Separate Storm Sewer System (MS4) Permit (Order R2-2015-0049). Facilities must be designed to evapotranspire, infiltrate, harvest/use, and bio treat stormwater. As of July 1, 2016, hydromodification management procedures are required.

Projects disturbing more than 1 acre of land during construction are required to comply with the Construction General Permit (Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ, effective February 14, 2011; NPDES No. CAS000002). Construction General Permit activities are regulated at a local level by the RWQCB pursuant to a general permit. No site-specific authorization is needed. To obtain coverage under the Construction General Permit, a project applicant must provide a Notice of Intent (NOI), a Storm Water Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as grubbing or excavation.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on project location and timing (such as wet season versus dry season activities). The

receiving water risk depends on whether the project would discharge to a sediment-sensitive receiving water. The determination of the project risk level would be made when the NOI is filed (once more details of the timing of the construction activity are known).

The performance standard in the Construction General Permit is that dischargers minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and BMPs. A SWPPP must be prepared by a qualified SWPPP developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges, and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. Examples of BMPs include silt fencing, street sweeping, and inspection. Operation of BMPs must be overseen by a qualified SWPPP practitioner who meets the requirements outlined in the permit.

Section 1600–1616 of the California Fish and Game Code requires that the California Department of Fish and Wildlife (CDFW) be notified of activity that will: substantially divert or obstruct the natural flow of any river, stream, or lake; or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. If CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared that outlines reasonable conditions necessary to protect natural resources threatened by the proposed activity.

Stormwater Guidance Publications

California Stormwater Quality Association (CASQA), a professional organization, has published guidance for stormwater management. The organization's Stormwater Best Management Handbook provides guidance for compliance with State stormwater regulations for construction. The Handbook provides detailed monitoring guidance and inspection forms, including a SWPPP Template. The Handbook addresses selection and implementation of BMPs to eliminate or to reduce the discharge of pollutants and control or reduce impacts to the hydrologic cycle associated with development and redevelopment activities.

The California Department of Transportation (Caltrans) also has published a Stormwater Quality Handbook Construction Site Best Management Practices Manual that provides similar guidance for transportation projects.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following guiding and implementing policies relevant to hydrology and water quality:

Goal 10 Protect the lives and property of American Canyon's residents and visitors from flood hazards.

Objective 10.1 Design both new development and redevelopment projects in a manner that minimizes hazards associated with flooding.

Policies

Policy 10.1.1 Retain and enhance natural watercourses, including perennial and intermittent streams, as the City's primary flood control channels whenever feasible.

Policy 10.1.4 Ensure that stormwater drainage is designed for peak flow conditions.

Policy 10.1.5 Prohibit the development of structures designed for human occupancy within the 100-year floodplain, unless flood hazards are adequately mitigated. Mitigation can be accomplished by building foundations a minimum of one (1) foot above the 100-year flood elevation, or by other means approved by the City Engineer.

Policy 10.1.12 Require that proposed developments within the 100-year floodplain submit information regarding the flood hazard prepared by a qualified Civil Engineer or Hydrologist.

Policy 10.1.13 Require that proposed developments within the 100-year floodplain submit plans to adequately mitigate flood hazards and demonstrate that such improvements will not create or increase downstream or upstream flood hazards.

Stormwater Management

As required under State Water Board Order No. 2013-001 DWQ, the City of American Canyon maintains a Storm Water Management Plan (SWMP) (NPDES Permit No. CAS 612007). As one element of that Program, the City requires regulated projects to address post-construction stormwater quality. The City of American Canyon requires regulated projects, such as this one, to prepare a Stormwater Control Plan in accordance with the Bay Area Stormwater Management Agencies Association–Post Construction Manual. The Stormwater Control Plan must include post-construction stormwater treatment measures such as bioretention facilities and source control BMPs. The SWMP must also address ongoing maintenances of those facilities.

A Stormwater Control Plan and a Stormwater BMP Operations and Maintenance Plan will be required for the proposed project in accordance with the Bay Area Stormwater Management Agencies Association–Post Construction Manual. The proposed project would also incorporate LID design strategies including bioretention and inlet markings.

In addition, the City requires that a Preliminary Hydrology and Hydraulics Study be prepared to determine whether there are significant impacts. Storm drain design is required to conform to Section 4 of the City's Engineering Standard Plans and Specifications for Public Improvements. Those standards require, among other things, that post-development runoff be no greater than 90 percent of pre-development runoff.

3.8.4 - Methodology

Balance Hydrologics prepared a Preliminary Hydrologic and Hydraulic Modeling Memo that assessed and outlined how the changes in existing and proposed land cover, along with the proposed construction of Devlin Road, will impact the hydrology and hydraulics of the creek directly downstream of the project area and along the reach to its confluence with the Napa River. The memo is provided in Appendix F.

Additional information was provided by site reconnaissance, review of project plans, and review of resources including the City of American Canyon General Plan, the DWR Bulletin 118, the CWA 303(d) list, and the Western Regional Climate Center.

3.8.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to utilities and service systems are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
   (i) result in substantial erosion or siltation on- or off-site;
   (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
   (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
   (iv) impede or redirect flood flows;

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.8.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Water Quality

Impact HYD-1:	**Construction activities and changes to drainage patterns associated with the proposed project may degrade surface water quality in downstream water bodies.**

Impact Analysis

Phases 1 and 2

This analysis assesses the potential for the proposed project to degrade surface water quality in downstream water bodies.

The potential for the proposed project to degrade water quality arises from (1) short-term land disturbance from construction activities and presence of contaminants associated with construction machinery, and (2) long-term changes to land use and drainage patterns that may increase the delivery of sediments, nutrients, organic compounds, trash/debris, and other contaminants to waterways tributary to the Napa River. Left unabated, increased loading of such pollutants could cause geomorphic change in downstream channel reaches, degrade habitat, and undermine TMDL and other water quality requirements.

Construction activities would disturb approximately 163 acres of the project site and include grading, building construction, paving, and utility installation. Construction would require the use of gasoline and diesel-powered heavy equipment, such as bulldozers, backhoes, water pumps, and air compressors. Chemicals, such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances, could be used during construction. An accidental release of any of these substances could degrade the quality of the surface water runoff and adversely affect receiving waters. As such, Mitigation Measure (MM) HYD-1a is proposed, requiring the development and implementation of a SWPPP to outline site-specific stormwater quality control measures (such as Best Management Practices [BMPs]) during construction activities to prevent pollutants from entering downstream waterways. With implementation of MM HYD-1a, impacts would be reduced to a less than significant level.

Post-construction, typical urban contaminants associated with roadways, parking areas, and rooftops will be introduced to the project site. Moreover, the increase in impervious area increases the efficiency by which sediment and other pollutants are delivered downstream. Concentration of flow by the storm drain system could increase the erosive energy of flows, thereby increasing sediment supply from the project site. Runoff from landscaped areas may also contain residual pesticides and nutrients. Consequently, there is potential for long-term degradation of runoff water quality from the implementation of the project.

The project proposes the following post-construction stormwater management features, according to a three-tiered LID/BMP design approach:

- The purpose of site design BMPs is to maintain pre-development runoff characteristics, protect sensitive resource areas, and attempt to minimize new impervious areas. The site has been designed to limit the amount of disturbed area and new impervious areas.
- Source control BMPs use structural controls and operational procedures to limit pollutants at their source. The project would implement the following source control BMPs: mark "No Dumping! Flows to River" on storm drain inlets; plumb interior floor drains to sanitary sewer; carefully manage pesticide use for landscaped areas; post "Do Not Dump Hazardous Materials Here" on refuse areas; utilize enclosed trash compactors; grade loading docks to minimize run-on and contain spills; and drain parking areas to bioretention planters.
- Treatment control BMPs are designed to reduce the amount of pollutants in stormwater and to reduce runoff rates or volumes. All new impervious areas will be routed through either a bioretention basin or an infiltration planter. The floors of bioretention basins will be amended with a layer of gravel overlain by a layer of specialized biosoil. The biosoil will be a sandy loam material to promote infiltration while allowing for vegetation to establish. An underdrain will be installed to facilitate infiltration as the local soils have low infiltration potential. Bioretention basins have been configured to drain within 48 hours to prevent vector concerns.

Additionally, the wetland preserve would facilitate the natural sequestration of pollutants of stormwater leaving the project site.

MM HYD-1b is proposed requiring (1) that the Stormwater Control Plan be reviewed and verified by the City of American Canyon to ensure the proposed stormwater controls are adequate pursuant to the requirements Order No. R2-2015-0049 (or more recent permit), and (2) that an operation and maintenance program is in place to ensure the long-term functionality of the stormwater controls. The various RWQCBs have evaluated the effectiveness of the types of BMPs required by MM HYD-1b and have determined that BMPs are known to be effective in protecting receiving waters. Thus, there is a high degree of certainty that the proposed project would not exacerbate the existing water quality status of the Napa River. Impacts would be less than significant with mitigation.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM HYD-1a Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing,

street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

MM HYD-1b Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include the applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design concepts, as well as concepts that accomplish a "first flush" objective that would remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.

Level of Significance After Mitigation

Less than significant impact.

Groundwater

Impact HYD-2: The proposed project would not deplete groundwater supplies or interfere substantially with groundwater recharge.

Impact Analysis

Phases 1 and 2

This analysis assesses the potential for the proposed project to deplete groundwater supplies or interfere substantially with groundwater recharge.

Groundwater Overdraft

The proposed project would be served with potable water service provided by the City of American Canyon; the proposed project would not rely groundwater wells as a water supply source. Therefore,

the proposed project would not exacerbate groundwater overdraft (to the extent that it exists) or conflict with the provisions of a sustainable groundwater management plan. Impacts would be less than significant.

Groundwater Recharge

The proposed project would result in an increase in additional pervious surfaces. However, the project site is at a relatively low elevation and is near the Napa River; thus, groundwater levels tend to be high and soils in the lowest portions of the site are often saturated. Accordingly, the groundwater water recharge potential of the project site would be limited. For these reasons, impacts to groundwater recharge would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Drainage

Impact HYD-3:	**The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.**

Impact Analysis

Phases 1 and 2

This impact assesses the potential for the proposed project to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or cause flooding on- or off-site.

The proposed project would result in the development of 2.4 million square feet of new industrial development and infrastructure on 163 acres of the project site. The remaining 45 acres would be preserved as open space. Thus, the proposed project would increase the amount of impervious surface coverage on the project site and would create the potential for increased runoff leaving the project site that may create potential flooding conditions in downstream waterways.

The proposed project would install a storm drainage system designed for a 15-year storm event. Inlets would capture surface runoff, where it would enter an underground piping system that would convey stormwater to one of four basins. The basins would provide 110,766 square feet (2.6 acres) of stormwater retention.

In accordance with applicable provisions of Section C.3 of the San Francisco Bay RWQCB Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit) as required under MM HYD-1b, the proposed project would implement LID stormwater management

methods into the on-site storm drainage system consisting of rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment.

Collectively, these measures would serve to slow, reduce, and meter the volume of runoff leaving the project site and ensure that downstream storm drainage facilities are not inundated with project-related stormwater. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

3.9 - Land Use

3.9.1 - Introduction

This section describes the existing land use and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on-site reconnaissance and review of the City of American Canyon General Plan, the American Canyon Municipal Code, and the Napa County Airport Land Use Compatibility Plan.

3.9.2 - Environmental Setting

Land Use

Project Site

The project site contains undeveloped land. There are no structures on-site. Vegetation consists primarily of non-native grasslands, with seasonal wetlands and associated plant species scattered throughout the site. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. The headwaters of No Name Creek are located in the northwestern portion of the site. No Name Creek flows off the site at the northwestern corner of the property into the Napa Logistics Park Wetland Preserve. The drainage is hydrologically connected to Fagan Slough, which flows into the Napa River. The majority of wetlands that occur throughout the site are supported by direct precipitation. Small soil mounds are located in various places throughout the site.

The West Napa Fault bisects the project site in a northwest/southeast direction. An existing 18-inch diameter force main that connects the Tower Road Pump Station with the Green Island Pump Station crosses the western portion of the project site.

The City of American Canyon owns an approximately 8-acre strip of land that bisects the site north-to-south. This strip of land would support the planned extension of Devlin Road from Middleton Way to Green Island Road, which was under construction as of Summer 2021.

Photographs of the project site are provided in Exhibit 2-3.

Surrounding Area

West

The California Northern Railroad line, connecting American Canyon and Sonoma, and the Biagi Brothers distribution warehouse form the western boundary of the project site.

North

Devlin Road and the Napa Logistics Park form the northern boundary of the project site. Napa Logistics Park contains more than 2 million square feet of distribution warehouses as well as a planned Pacific Gas and Electric Company regional operations and maintenance center. Further north is the Napa County Airport.

East

The Napa Branch Line, a railroad that connects American Canyon and Napa, forms the eastern boundary of the project site. East of the branch line are several industrial and commercial business that front State Route 29 (SR-29).

South

Green Island Road, Crown Hill Stone Supply, and the Wine Direct warehouse form the southern boundary of the project site. Further south are industrial and commercial businesses within the Green Island Business Park.

Land Use Designations

Project Site

The project site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial." The project site is within the boundaries of the Napa County Airport Land Use Compatibility Plan.

Surrounding Land Uses

Table 3.9-1 summarizes the surrounding land uses. As shown in the table, all surrounding properties are designated for industrial use.

Table 3.9-1: Surrounding Land Use Designations

Land Use	Relationship to Project Site	Land Use Designation	
		General Plan	Zoning
Green Island Business Park	West and South	Industrial	General Industrial (GI)
Napa Logistics Park	North	Industrial	Napa County Airport Industrial Area (SP-2)
Diablo Timber	East	Industrial	Light Industrial (LI)
Undeveloped Land	East	Industrial	Light Industrial (LI)
Crown Hill Stone Supply and Wine Direct	South	Industrial	General Industrial (GI)
Source: City of American Canyon 2021.			

Napa County Airport

The Napa County Airport is located north of the project site, just beyond the Napa Logistics property. The County-owned airport occupies approximately 824 acres and contains three runways (ranging from 2,510 to 5,931 feet in length), associated taxiways and tarmacs, a control tower, approximately 200 hangars, approximately 160 tie down spaces, and a helicopter pad. The airport averages 148 operations per day and 54,020 operations annually. (The Federal Aviation Administration defines an "operation" as one takeoff or landing).

The project site is located within Napa County Airport Land Use Compatibility Zone D (Common Traffic Pattern). Zone D is defined as the area where structures are routinely over flown by aircraft at altitudes of 300 to 1,000 feet with frequent single-event noise intrusion.

3.9.3 - Regulatory Framework

State

State Aeronautics Act

The State Aeronautics Act requires each county with an airport to establish an Airport Land Use Commission (ALUC) to regulate land use around airports to protect public safety and ensure that land uses near airports do not interfere with aviation operations. The Napa County Airport Land Use Compatibility Plan regulates land use around the Napa County Airport, as well as two other aviation facilities in the County, by requiring compliance with the policies of the plan. In certain circumstances, local governments may override the decisions of the ALUC.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan provides a blueprint for future development within American Canyon and the Sphere of Influence. The American Canyon Council adopted its most recent General Plan on November 3, 1994. The General Plan contains the following chapters: land use, housing, economic development, circulation, utilities, public facilities and services, parks and recreation, natural historic/cultural resources, geology, flooding, and noise. Each chapter establishes goals and policies to guide future land use activities and development within the General Plan boundaries. Note that the Circulation Element was comprehensively updated in 2013, the Housing Element was comprehensively updated in 2015, and incremental amendments have been made to the Land Use Element over time and as recently as 2021.

Industrial

The City of American Canyon General Plan designates the project site as Industrial. The following land use activities are identified as permitted uses within the Industrial land use designation: light manufacturing (including auto manufacturing); aviation-related; agribusiness related; industrial sector "clusters;" thematic industries; business parks; warehouses; professional offices; supporting retail, restaurant, and financial; and similar uses. The General Plan establishes a floor area ratio (FAR) of 0.5 for labor-intensive industries and a FAR of 0.7 for low labor uses.

American Canyon Zoning Ordinance

American Canyon Municipal Code Title 19 contains the Zoning Ordinance. The project site is designated General Industrial (GI) by the Zoning Ordinance. The General Industrial zoning district is defined as follows: "To provide areas appropriate for functional industrial activities, including warehousing, manufacturing, food processing, product and equipment assembly, and similar types of uses that may involve both indoor and outdoor activities, and related ancillary uses." The Zoning Ordinance lists research and development, wholesaling, distribution, and storage as permitted uses within the General Industrial zoning district. New development within the General Industrial zoning

district is limited to 40 feet above finished grade and no more than 0.5 FAR for labor-intensive industries and no more than 0.7 FAR for low labor uses.

County of Napa

Napa County Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan governs land use around two Napa County aviation facilities: the Napa County Airport and Parrett Field in Angwin. The Airport Land Use Compatibility Plan was adopted by the Napa County ALUC in April 1991 and revised in December 1999.

Noise

Table 2-1 of the Airport Land Use Compatibility Plan identifies acceptable aviation noise levels by land use. For warehouse and light industrial uses, aviation noise levels of up to 60 A-weighted decibel (dBA) Community Noise Equivalent Level (CNEL) are listed as "clearly acceptable" and noise levels between 60 and 65 dBA CNEL are listed as "normally acceptable." Noise levels between 65 and 75 dBA CNEL are listed as "marginally acceptable."

Flight Hazards

The Airport Land Use Compatibility Plan identifies two categories of flight hazards: physical obstructions and land use characteristics.

Physical obstructions are associated with tall objects or structures. The Airport Land Use Compatibility Plan establishes a height restriction ranging from 50 feet to 185 feet above ground level.

Certain land use activities may pose hazards to aviation. Specific characteristics that should be avoided within the airport land use planning boundaries are listed below:

- Glare or distracting lights, which could be mistaken for airport lights.
- Sources of dust, steam, or smoke that may impair pilot visibility.
- Sources of electrical interference with aircraft communications or navigation.
- Any use that may attract large flocks or birds, especially landfills or certain agricultural uses.

Zone D

The Airport Land Use Compatibility Plan provides the following description of Zone D in Table 3-1:

> Common Traffic Pattern: This area is defined by the flight pattern of each airport and illustrated in the respective "Airport Impact Areas" figures contained in Part III. These areas are routinely overflown by aircraft operating to and from the airport with frequent single-event noise intrusion. Overflights in these areas can range from near the traffic pattern altitude (about 1,000 feet above the ground) to as low as 300 feet above the ground. Accident risk varies from low to moderate. Areas where aircraft are near pattern altitude (e.g., downwind leg) have the lowest risk. In areas where aircraft are at lower altitudes (especially on circle-to-land instrument approaches) a moderate level of risk exists.

The Airport Land Use Compatibility Plan establishes the following standards for Zone D:

- Maximum density recommendation of 100 persons per acre inside structures for nonresidential uses.
- Maximum density recommendation of 150 persons per acre (both indoors and outdoors) for nonresidential uses.
- Residential uses are prohibited.
- Uses hazardous to flight are prohibited (i.e., features that attract large numbers of birds and sources of smoke, glare, distracting lights, or electrical interference).
- Overflight easement or deed restrictions are required.
- Building envelopes and approach surfaces are required on all development plans within 100 feet of approach zones.
- Clustering is encouraged to maximize open land areas.
- Noise level reduction measures may be required for noise-sensitive uses.

The Airport Land Use Compatibility Plan states that most nonresidential uses are considered "normally acceptable" within Zone D. Schools, libraries, hospitals, nursing homes, large shopping malls, amphitheaters, and ponds are identified as "not normally acceptable" within Zone D.

3.9.4 - Methodology

FirstCarbon Solutions (FCS) evaluated the potential for land use impacts through site reconnaissance and review of applicable land use policy documents. FCS performed site reconnaissance on the project site and surrounding land uses in February 2021. Photographs were taken of the project site and surrounding land uses to document existing conditions. FCS reviewed the City of American Canyon General Plan, the American Canyon Zoning Ordinance, and the Napa County Airport Land Use Compatibility Plan to identify applicable policies and provisions that pertain to the proposed project. The proposed project's plans were reviewed to evaluate consistency with General Plan and Zoning Ordinance's standards.

3.9.5 - Thresholds of Significance

Appendix G to the California Environmental Quality Act (CEQA) Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to land use are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

a) Physically divide an established community (refer to Section 7, Effects Found not to be Significant); or

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.9.6 - Project Impacts Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

General Plan Consistency

Impact LU-1:	**The proposed project would not conflict with the applicable provisions of the City of American Canyon General Plan.**

Impact Analysis

The proposed project would consist of the development of up to 2.4 million square feet of high-cube warehouse on 163 acres. The remaining 45 acres would be preserved as wetlands.

Phase 1

The applicant has developed site design-level plans for Phase 1, the 94.7-acre area east of the Devlin Road extension. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. One of the buildings would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade-level roll-up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

The Phase 1 end uses would be consistent with the types of permitted uses set forth in the General Plan. Additionally, Phase 1 would have a 0.26 FAR and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. The proposed high-cube warehouses would have 36 feet clear height and, thus, be within the 40-foot height limit.

Phase 2

Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse.

The Phase 2 end uses would be consistent with the types of permitted uses set forth in the General Plan. Additionally, Phase 2 would have a 0.26 FAR and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses.

Phases 1 and 2

Table 3.9-2 evaluates Phase 1 and Phase 2 consistency with the relevant goals, objectives, and policies of the City of American Canyon General Plan. The conclusions expressed in Table 3.9-2 reflect the best judgment of City staff. The ultimate question of the meaning of particular General Plan policies, and thus the proposed project's consistency with them, lies with the City Council. The language found in general plans is sometimes susceptible to varying interpretations. Case law interpreting the Planning and Zoning Law (Gov. Code, § 65000 *et seq*.) makes it clear that: (i) the ultimate meaning of such policies is to be determined by the elected city council or a lower tier decision-making body such as a planning commission, as opposed to city staff and EIR consultants,

applicants, or members of the public; and (ii) the decision-making body's interpretations of such policies will prevail if they are "reasonable," even though other reasonable interpretations are also possible (*See No Oil, Inc.* v. *City of Los Angeles* (1987) 196 Cal.App.3d 223, 245-246, 249). Courts also have recognized that, because general plans often contain numerous policies adopted to effect differing or competing legislative goals, a development project may be "consistent" with a general plan, taken as a whole, even though the project appears to be inconsistent or arguably inconsistent with some specific policies within a given general plan (*Sequoyah Hills Homeowners Association* v. *City of Oakland* (1993) 23 Cal.App.4th 704, 719). Furthermore, courts strive to "reconcile" or "harmonize" seemingly disparate general plan policies to the extent reasonably possible (*No Oil, supra,* 196 Cal.App.3d at p. 244).

As shown in the table, City staff concludes that the proposed project is consistent with all applicable goals, objectives, and policies. Impacts would be less than significant. Should City decision-makers choose to approve the proposed project, they may rely on the analysis in the table as support for the conclusion that the project is consistent with the General Plan. Certification of the Final EIR will be indicative of agreement with the conclusions in the table.

Table 3.9-2: General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
Land Use	Goal 1A	Provide for a diversity of land uses that a. serve the needs of existing and future residents; b. capitalize upon the tourism and agricultural heritage of the region; c. capitalize upon and preserves the unique environmental resources and character of the area; d. offer sustained employment opportunities for residents of the City and the surrounding region; e. sustain and enhance the long-term economic viability of the City; f. revitalize areas of physical and economic deterioration and/or obsolescence; g. are developed at densities/intensities that are economically viable and complementary with the natural environmental setting and existing development; and h. provide a greater balance of jobs and housing.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse on the approximately 208-acre project site. The project site is designated "Industrial" by the General Plan and the end uses are consistent with the allowable uses for this land use designation. The proposed project would create as many as 3,643 new jobs, stimulate capital investment, and expand the tax base. The proposed project would also include an existing Wetland Preserve in the western portion of the site. As such, the proposed project would be consistent with the provisions of this goal, including serving the needs of residents, protecting environmental resources, creating employment opportunities, and balancing jobs and housing.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Objective 1.1	Accommodate the development of a balance of land uses that (a) provide for the housing, commercial, employment, educational, cultural, entertainment, and recreation needs of residents, (b) capture visitor and tourist activity, (c) provide employment opportunities for residents of the greater sub region; and (d) provide open space and aesthetic relief from developed urban/suburban areas.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse that would create as many as 3,643 new jobs, primarily for residents of the region. The proposed project would also include an existing Wetland Preserve, consistent with the item that calls for open space and aesthetic relief from developed urban areas.
	Policy 1.1.4	Provide adequate transportation (vehicle, bicycle, and pedestrian) and utility (sewer, water, energy, etc.) infrastructure and public services (police, fire, schools, etc.) to support the needs of the residents and businesses of American Canyon.	**Consistent:** This Draft EIR evaluates the adequacy of public services, transportation facilities, and utility systems to serve the proposed project and identifies mitigation where necessary to achieve acceptable service levels. Refer to Section 3.11, Public Services, Section 3.12, Transportation, and Section 3.13, Utilities and Service Systems, for further discussion.
	Goal 1B	Provide for the orderly development of American Canyon that maintains its distinctive character.	**Consistent:** The proposed project would develop 2.4 million square feet of new industrial uses on a site designated for such use located within the American Canyon city limits. The project site is located within the Green Island Business Park and is surrounded by urban uses and infrastructure on three sides. As such, it is well suited for new development and would advance the goal of orderly development that maintains American Canyon's distinctive character.
	Objective 1.2	Promote a rate of growth that is consistent with the ability of the City to provide adequate infrastructure and services and does not adversely impact the distinctive character and quality of life in American Canyon.	**Consistent:** The proposed project would develop 2.4 million square feet of new industrial uses on a site designated for such use located within the American Canyon city limits. The project site is located within the Green Island Business Park and is surrounded

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
			by urban uses and infrastructure on three sides. Thus, the proposed project would occur in an area where adequate infrastructure and services exist such that it would not exceed the City's ability to serve it.
	Policy 1.2.2	Establish as a priority the development of projects that are contiguous with and infill the existing pattern of development, avoiding leap-frog development, except for large scale master planned projects that are linked to and planned to be extensions of existing development and for which infrastructure and services are in place or funded.	**Consistent:** The project site is located within the Green Island Business Park and is surrounded by urban uses and infrastructure on three sides. As such, it would meet the criteria set forth in this policy for a "priority" project.
	Objective 1.3	Ensure that land use development is coordinated with the ability to provide adequate public infrastructure (transportation facilities, wastewater collection and treatment, water supply, electrical, natural gas, telecommunications, solid waste disposal, and storm drainage) and public services (governmental administrative, capital improvements, police, fire, recreational, cultural, etc.).	**Consistent:** This Draft EIR evaluates the adequacy of public services, transportation facilities, and utility systems to serve the proposed project and identifies mitigation where necessary to achieve acceptable service levels. Refer to Section 3.11, Public Services, Section 3.12, Transportation, and Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 1.3.1	Implement public infrastructure and service improvements necessary to support land uses accommodated by the Land Use Plan (as defined in the Circulation and Public Utilities and Services Elements.)	**Consistent:** Adequate infrastructure and service levels exist in the project vicinity such that only minor improvements or upgrades are necessary to serve the proposed project. Refer to Section 3.11, Public Services, Section 3.12, Transportation, and Section 3.13, Utilities and Service Systems, for further discussion.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 1.3.2	Require that type, amount, and location of development be correlated with the provision of adequate supporting infrastructure and services (as defined in the Circulation and Public Utilities and Services Elements.)	**Consistent:** This Draft EIR evaluates the adequacy of public services, transportation facilities, and utility systems to serve the proposed project and identifies mitigation where necessary to achieve acceptable service levels. Refer to Section 3.11, Public Services, Section 3.12, Transportation, and Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 1.3.3	Regulate the type, location, and/or timing of development as necessary in the event that there is inadequate public infrastructure or services to support land use development.	**Consistent:** Adequate infrastructure and service levels exist in the project vicinity such that only minor improvements or upgrades are necessary to serve the proposed project. Refer to Section 3.11, Public Services, Section 3.12, Transportation, and Section 3.13, Utilities and Service Systems, for further discussion.
	Goal 1C	Create a pattern and character of land use development that establishes American Canyon as a distinct "place" differentiated from adjacent urban areas, maintains a semi-rural character, and respects the environmental setting.	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. The proposed project includes an existing Wetland Preserve, which occupies the western portion of the site. As such, the proposed project would promote a development pattern that differentiates American Canyon from adjacent urban areas and also respects the natural environment.
	Objective 1.4	Provide for a pattern of development that (a) establishes distinct neighborhoods, districts, places of community activity and culture and open spaces that are interlinked and promote a cohesive image, (b) locates jobs, commerce, recreation, and other places of community activity within close proximity to all housing units, minimizing the need for vehicular use, (c) achieves a balance of uses to serve both sides of Highway 29,	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. The proposed project site includes an existing Wetland Preserve, which is located on the western portion of the site. Accordingly, the proposed project would advance the objectives associated with balancing uses to serve both sides of SR-29 and promoting a

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		and (d) establishes an overall compact urban form surrounded by open space.	compact urban form surrounded by open space.
	Policy 1.4.1	Accommodate land use development in accordance with the patterns and distribution of use and density depicted on the Land Use Plan Map (Figure 1-1).	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. This is consistent with the patterns and distribution of use and density depicted on the Land Use Plan Map (Figure 1-1 of the General Plan).
	Policy 1.4.2	Require that development within each land use classification adheres to applicable requirements and standards.	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. As discussed in Impacts LU-1 and LU-2, the proposed project would comply with all applicable requirements and standards.
	Objective 1.5	Maintain the character and quality of the natural environmental resources of the City and protect the population and development from the adverse impacts of environmental hazards.	**Consistent:** The proposed project site includes an existing Wetland Preserve, located on the western portion of the site. This area coincides with a 100-year flood plain and the highest quality habitat on the project site. Given that no development would occur in the Wetland Preserve, the proposed project would advance the policy of maintaining the quality of natural resources and protecting the public from adverse impacts of environmental hazards.
	Policy 1.5.1	Require that development be designed and sited to protect significant environmental resources by adherence to the policies, standards, and programs contained in the Natural and Historic/Cultural Resources, Geology and Flood Hazards, and Noise Elements of the General Plan, as well as federal (NEPA) and State (CEQA) regulations.	**Consistent:** The proposed project site includes an existing Wetland Preserve, located on the western portion of the site. This area coincides with a 100-year flood plain and the highest quality habitat on the project site. Given that no development would occur in the Wetland Preserve, the proposed project would advance the policy of protecting significant environmental resources.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Goal 1I	Ensure the development of industrial uses that provide employment for residents of American Canyon and the surrounding region and contribute significant revenue for the City.	**Consistent:** The proposed project would develop 2.4 million square feet of new industrial uses on a site designated for such use located within the American Canyon city limits. The proposed project is estimated to create as many as 3,643 new jobs for local residents. As such, it would advance the goal of providing employment opportunities and contributing significant revenue for the City.
	Objective 1.22	Provide for the continuation of existing and development of new industries that capitalize upon the geographic advantages of the City (including adjacency to Napa County Airport and the railroad), the agricultural production of the region, and emerging types of businesses (such as "thematic" and "environmental" based industries), offer opportunities for the clustering of key economic sectors, and maintain the environmental quality of the City.	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. The proposed project would develop 2.4 million square feet of high-cube warehouse uses. At least one of the proposed buildings would be "rail-served." This is consistent with the objective of promoting the development of existing and new industries that capitalize on the geographic advantages of the City.
	Policy 1.22.1	Accommodate the continuation of existing and development of new manufacturing, research and development, warehouse and distribution, ancillary offices, and similar uses in areas designated as "Industrial (I)" on the Land Use Plan Map (Figure 1-1).	**Consistent:** The project site is located within the Green Island Business Park and is designated for industrial development. The proposed project would develop 2.4 million square feet of high-cube warehouse uses. This is consistent with the policy of promoting the development of existing and new warehouse and distribution and ancillary offices in areas designated as "Industrial (I)" on the Land Use Plan Map (Figure 1-1 of the General Plan).
	Policy 1.22.2	Allow for the inclusion of businesses that are ancillary to and support industrial uses such as related retail sales facilities for manufacturers, financial institutions, restaurants, photocopy shops, specialty recreational uses (batting cages and health clubs/spas), and similar uses.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse uses. Ancillary office space would be provided within the warehouses. The provision of these ancillary uses is consistent with the intent of this policy.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 1.22.3	Permit development according to the following standards: a. Labor-intensive uses: a maximum floor area ratio of 0.5. b. Low labor uses (such as warehousing): a maximum floor area ratio of 0.7.	**Consistent:** Phase 1 and Phase 2 would both have a 0.26 FAR, which would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses.
	Policy 1.22.4	Require that development be designed to achieve a high level of quality and compatibility with existing uses including the consideration of the following: a. architectural treatment of all building elevations; b. use of extensive landscape along the primary street frontages and parking lots; and c. enclosure of storage areas visible from principal highways (including Highway 29) and peripheral residential and commercial districts with decorative screening or other elements.	**Consistent:** The proposed buildings would use concrete tilt-up panel construction and contemporary finishes and treatments similar to other industrial buildings in the project vicinity. Landscaping would be installed within parking areas and along the Devlin Road frontage. Outdoor storage areas would be enclosed where necessary to screen them from view from major roadways. The City's design review process would ensure consistency with the applicable policies.
	Policy 1.22.5	Require that industrial areas developed as research and development and office-oriented business parks be designed to convey a unified character by consideration of Policy 1.22.4 and the following: a. inclusion of pedestrian walkways, arcades, an/or other visual elements to interconnect individual buildings; b. differentiation of building facades by materials, color, architectural details and modulation of building volumes; c. incorporation of extensive landscape in parking areas, along building frontages, and other public areas; d. use of consistent and well-designed public and informational signage; and e. installation of elements that define the key entries to the industrial district.	**Consistent:** The proposed project would provide internal pedestrian facilities, contemporary finishes and treatments similar to other industrial buildings in the project vicinity, landscaping within parking areas and along the Devlin Road frontage, and signage consistent with this policy. The City's design review process would ensure consistency with the applicable policies.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 1.22.7	Require that truck access be controlled so that it is safe and efficient and minimizes exposure to adjacent residential neighborhoods.	**Consistent:** Trucks would access the project site from Green Island Road or Devlin Road. Both roads avoid residential areas. The project site's location also allows for convenient access to SR-12 (east and west) such that residential areas in American Canyon would be avoided by trucks using this highway.
	Goal 1N	Ensure the compatibility of development within American Canyon with the Napa County Airport.	**Consistent:** As discussed in Impact LU-3, the proposed project, with Mitigation Measure (MM) LU-3, is compatible with all applicable provisions of the Napa County Airport Land Use Compatibility Plan.
	Objective 1.27	Ensure that lands in American Canyon are developed in a manner which protects them from the noise and operational impacts of, and does not adversely constrain, the Napa County Airport.	**Consistent:** As discussed in Impact LU-3, the proposed project is compatible with all applicable provisions of the Napa County Airport Land Use Compatibility Plan including those that pertain to noise and safety.
	Policy 1.27.1	Require that development comply with the land use and development conditions stipulated in Tables 1-1 and 1-2 for areas depicted on Figure 1-3. […] ZONE D Common Traffic Pattern: This area is defined by the flight pattern for the Napa County Airport as illustrated on Figure 1-3. These areas are routinely overflown by aircraft operating to and from the airport with frequent single-event noise intrusion. Overflights in these areas can range from near the traffic pattern altitude (about 1,000 feet above the ground) to as low as 300 above the ground. Accident risk varies from low to moderate. Areas where aircraft are near pattern altitude (e.g., downwind leg) have the lowest risk. In areas where aircraft are at lower altitudes (especially on circle-to-land instrument approaches) a moderate level of risk exists.	**Consistent:** The project site is located within Zone D of the Napa County Airport Land Use Compatibility Plan. As discussed in Impact LU-3, the proposed project is compatible with all applicable provisions of Zone D as set forth in Tables 1-1 and 1-2.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	Policy 1.27.2	Review all applications for new development, expansion of existing uses, and reuse within Napa County Airport Compatibility Zones "A" through "E" for compliance with the appropriate use and development conditions.	**Consistent:** As discussed in Impact LU-3, the proposed project is compatible with all applicable provisions of Zone D of the Napa County Airport Land Use Compatibility Plan.
	Goal 1R	Ensure a high quality of the City's built environment, architecture, landscape, and public open spaces.	**Consistent:** The proposed project consists of a contemporary 2.4-million-square-foot industrial development that includes a Wetland Preserve. This would advance the goal of providing a high-quality built environment and open space.
	Objective 1.32	Attain residential, commercial, industrial, and public buildings and sites which convey a high-quality visual image and character.	**Consistent:** The proposed buildings would use concrete tilt-up panel construction and contemporary finishes and treatments similar to other industrial buildings in the project vicinity. Landscaping would be installed within parking areas and along the Devlin Road frontage. Outdoor storage areas would be enclosed where necessary to screen them from view from major roadways. Overall, these characteristics would advance the objective of attaining high-quality visual character. The City's design review process would ensure consistency with the applicable policies.
	Policy 1.32.1	Require adherence to the Design and Development Principles prescribed in this Plan and the City's Design Review Guidelines which shall be updated periodically.	**Consistent:** The proposed project would incorporate relevant design concepts set forth in the latest adopted edition of the Design Review Guidelines. Moreover, the City's design review process would ensure consistency with the applicable policies.
	Policy 1.32.2	Require that development projects subject to discretionary review submit and implement a landscaping plan.	**Consistent:** The proposed project is subject to discretionary review and, therefore, the applicant has prepared and submitted a preliminary landscaping plan to the City, which will be considered as part of the approval process. A final landscaping plan will be

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			required as part of the City's design review process, which would ensure consistency with the applicable policies.
	Policy 1.32.5	Require the use of drought tolerant species in landscape design in accordance with the provisions of the Water Conservation and Landscape Act.	**Consistent:** The proposed landscaping plan incorporates drought tolerant species in accordance with the provisions of the Water Conservation and Landscape Act.
	Policy 1.32.6	Require that commercial, industrial, and multi-family residential development incorporate adequate drought-conscious irrigation systems and maintain the health of the landscape.	**Consistent:** The proposed landscaping plan incorporates adequate drought-conscious irrigation systems in accordance with the provisions of the Water Conservation and Landscape Act.
	Policy 1.32.7	Require that all commercial, industrial, multi-family, and common area landscape be adequately irrigated with automatic irrigation systems.	**Consistent:** The proposed landscaping plan incorporates automatic irrigation systems.
	Policy 1.32.8	Promote the use of reclaimed water for the irrigation of public and private landscape, as available.	**Consistent:** The proposed project would be served with reclaimed water provided by the City of American Canyon for landscape irrigation purposes.
	Objective 1.33	Ensure that structures and sites are designed and constructed to maintain their long-term quality and provide for the needs of their occupants.	**Consistent:** All proposed structures would be designed to suit the needs of the end user, consistent with this objective. The City's design review process would ensure consistency with the applicable policies.
	Policy 1.33.1	Require that all structures be constructed in accordance with the requirements of the City's building and other pertinent codes and regulations; including new, adaptively reused, and renovated buildings.	**Consistent:** All proposed structures would be required to adhere to the latest adopted edition of the California Building Standards Code at the time building permits are sought.
	Policy 1.33.3	Require that all development be designed to provide adequate space for access, parking, supporting functions, open space, and other pertinent elements.	**Consistent:** Phase 1 would provide 860 off-street parking spaces. Additionally, the proposed project site includes an existing Wetland Preserve.

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	Policy 1.33.4	Require that all commercial, industrial, and public development incorporate appropriate design elements to facilitate access for and use by the physically challenged.	**Consistent:** All proposed structures would be required to incorporate all applicable disability access requirements set forth by the Americans with Disability Act (ADA).
Economic Development Element	Goal 3	Provide for the economic needs of American Canyon residents by capitalizing on the marketability of the City's industrial land and promoting a mix of uses which create quality jobs and foster fiscal stability.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse on an approximately 208-acre site in the Napa Airport Industrial Area. The proposed project would create as many as 3,643 new jobs, stimulate capital investment, and expand the tax base. These characteristics are consistent with the goal of providing for the economic needs of American Canyon residents.
	Objective 3.1	Maximize the City's market potential in terms of industrial/ business park and community-serving commercial activity. Increased industrial activity can be a catalyst for broadening the City's economic base by providing quality jobs and tax revenues, as well as, stimulating infrastructure improvements.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse on an approximately 208-acre site in the Green Island Business Park. The proposed project would create as many as 3,643 new jobs, stimulate capital investment, and expand the tax base. These characteristics are consistent with the objective of maximizing the City's market potential in terms of industrial/ business park activity.
	Policy 3.1.1	Adopt a Land Use Map which designates acreage for heavy industrial, light industrial/ business park, commercial, and recreational commercial activities.	**Consistent:** The approximately 208-acre project site is currently designated "Industrial" by the City of American Canyon General Plan and the proposed project's uses are consistent with the allowable uses of this land use designation.
	Policy 3.1.3	Seek to expand the City's economic base and development opportunities through planned annexation program that is linked to the General Plan and Land Use Plan.	**Consistent:** The project site was previously annexed into the City of American Canyon in 2005 and the proposed project contemplates the development of 2.4 million square feet of industrial uses on the site.
	Goal 3A	Generate new industrial growth through diversification of the	**Consistent:** The proposed project would develop 2.4 million square

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		industrial base and maintenance of current activity to provide employment opportunities for residents and generate fiscal revenues for the City.	feet of high-cube warehouse on an approximately 208-acre site in the Green Island Business Park. This is consistent with the goal of generating new industrial growth through diversification of the industrial base.
	Objective 3.4	Increase the number of firms within the industries now represented in the City and capture new, clean, nonpolluting industries that are stable and compatible with City needs in terms of traffic, air quality, and employment.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse on an approximately 208-acre site in the Green Island Business Park. These types of uses currently exist within the Airport Industrial Area. Additionally, the proposed project is estimated to create 3,643 new jobs. The proposed project would implement traffic improvements to mitigate for impacts on traffic operations.
	Policy 3.4.2	Establish design and FAR standards for industrial buildings which will create and maintain an attractive image for American Canyon's industrial areas without imposing overly restrictive regulations.	**Consistent:** As previously discussed, Phase 1 and Phase 2 would each have a FAR of 0.26 that would be within the allowable FARs of both 0.5 and 0.7, depending on the end user and use.
	Policy 3.4.3	In partnership with landowners and tenants, improve the infrastructure (particularly access across the North Slough drainage channel and the railroad) in the Green Island Industrial Park and Annexes and expand infrastructure services to the undeveloped sites on the north side of Green Island Road to link the two industrial areas and provide land use and design continuity to both sides of Green Island Road.	**Consistent:** The proposed project would take vehicular access from Devlin Road and Green Island Road. The City is in the process of extending Devlin Road from Green Island Road and Middleton Way and this extension will be completed by the time Phase 1 is completed. In addition, the City has planned improvements to Green Island Road that would also be in place by Phase 1.
	Objective 3.5	Make available sufficient acreage in order to capture the City's fair share of regional industrial growth through the year 2010.	**Consistent:** The project site is designated "Industrial" by the General Plan and is served with existing infrastructure. Thus, the project site is well suited to advance the objective of facilitating industrial development within American Canyon.

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	Policy 3.5.1	Designate a sufficient amount of land to accommodate the projected growth in demand for industrial space by 2010.	**Consistent:** The project site is designated "Industrial" by the General Plan and is served with existing infrastructure. Thus, the project site is well suited to advance the policy of accommodating new industrial development within American Canyon.
Circulation Element	Guiding Policy 1.1	Community Priorities. Safe and convenient access to activities in the community is provided by a well-designed local roadway system. That system serves the community's primary need for mobility and includes a planned hierarchy of roadways to meet that need. The following Community Priorities relate most directly to this Element: - Encourage and foster a strong sense of community and safety, as well as the "hometown" feeling by creation of a town center through land use and circulation planning. - Improve a hierarchy of roadway networks to achieve and maintain acceptable traffic LOS and provide a Citywide system of bicycle lanes and recreational trails that improve accessibility without the use of an automobile. - Improve SR-29 so that it serves as a visually attractive gateway into the City while providing access to commercial businesses and serving intra and inter-regional traffic and goods movement.	**Consistent:** Vehicular access to the project site would be provided from Green Island Road or the Devlin Road extension, which provides a connection to SR-29 via South Kelly Road. The project site's location also allows for convenient access to SR-12 (east and west) such that safe and convenient access can be provided for trucks and residential areas would be avoided. Additionally, this Draft EIR evaluates project impacts on the roadway system using the City's adopted Level of Service (LOS) standards. Refer to Section 3.12, Transportation for further discussion.
	Guiding Policy 1.2	Implement planned roadway improvements. Use Figure 3: General Plan Circulation System, and Table 3: Major Circulation Improvements, to identify, schedule, and implement roadway and complimentary intersection improvements to support General Plan buildout conditions. Planned	**Consistent:** This Draft EIR evaluates project impacts on the roadway system using the City's adopted LOS standards. Refer to Section 3.12, Transportation, for further discussion.

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		improvements may be phased as development occurs and need for increased capacity is identified.	
	Guiding Policy 1.3	Design circulation system to focus regional travel on SR-29. SR-29 is important for both Citywide and north–south regional travel. As both City and regional travel grow, design the City circulation system to discourage regional traffic from bypassing SR-29 and impacting City streets. Also, cooperatively work with regional partners, including Caltrans, NCTPA and others explore a complete streets approach that will expand the travel capacity of SR-29.	**Consistent:** Vehicular access to the project site would be provided from Green Island Road or the Devlin Road extension, which was completed in 2012 and provides a connection to SR-29 via South Kelly Road. The project site's location also allows for convenient access to SR-12 (east and west) such that project-related traffic would not need to use side streets. Refer to Section 3.12, Transportation, for further discussion.
	Guiding Policy 1.6	Achieve and maintain a Multimodal LOS D or better for roadways and intersections during peak hours where possible and as long as possible. However, recognizing that LOS D may not be achievable or cannot be maintained upon full buildout of the General Plan, due to traffic generated from sources beyond the control of the City, the City Council shall have the discretion to only require feasible mitigation measures that may not achieve LOS D, but will reduce the impact of any development use or density planned for in the Land Use Element of the General Plan. The following locations that may not achieve or maintain LOS D are as follows and therefore will be exempt from the LOS D policy: - State Route 29 through the City - American Canyon Road from SR 29 to Flosden Road – Newell Drive - Flosden Road south of American Canyon Road.	**Consistent:** This Draft EIR evaluates project impacts on the roadway system using the City's adopted LOS standards. Refer to Section 3.12, Transportation, for further discussion.
	Guiding Policy 1.9	Use of existing facilities. Make efficient use of existing transportation facilities, and improve these facilities as necessary in accordance with the Circulation Map.	**Consistent:** In addition to the Devlin Road extension, the proposed project would rely on existing roadways (e.g., Green Island Road, Devlin Road, and South Kelly Road) for vehicular access.

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	Guiding Policy 1.11	Reduce Vehicle Miles Traveled. Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce the total vehicle miles traveled by City residents.	**Consistent:** The project site is located within the Napa County Airport Industrial Area, which has convenient access to SR-12 and SR-29. The development of the proposed project's 2.4 million square feet of high-cube warehouse is within the North Bay Region and would contribute to reducing trip length by locating these facilities closer to customers within this region. Finally, the development of up to 3,643 new jobs in a housing-rich part of the Bay Area region would allow employees to work closer to where they live, thereby reducing vehicle miles traveled.
	Guiding Policy 1.12	Circulation System Enhancements. Achieve, maintain and/or improve mobility in the City by considering circulation system enhancements beyond improvements identified on the Circulation Map, where feasible and appropriate. Improve the circulation system, in accordance with the Circulation Map, at minimum, to support multimodal travel of all users and goods and where feasible, apply creative circulation system enhancements that increase system capacity and that are acceptable to the City and its residents and where applicable, Caltrans.	**Consistent:** This Draft EIR evaluates project impacts on the roadway system using the City's adopted LOS standards. This is consistent with the policy of maintaining and improving mobility through circulation system enhancements. Refer to Section 3.12, Transportation, for further discussion.
	Implementing Policy 1.13	Financing Program. Develop a transportation financing program that will fully fund the planned expansion of the existing transportation network consistent with the General Plan. The financing program will include an update to the existing Transportation Impact Fee (TIF) program consistent with AB 1600.	**Consistent:** The proposed project would pay fees in accordance with the City's latest adopted traffic impact fee schedule, albeit with credits for improvements installed by the proposed project. This is consistent with the policy of implementing a transportation financing program that will fully fund the planned expansion of the existing transportation network.
	Implementing Policy 1.14	Work with Caltrans on highway improvements. Continue to work	**Consistent:** This Draft EIR evaluates project impacts on

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		with the Caltrans to achieve timely context sensitive design solutions, funding and construction of programmed highway improvements.	transportation facilities under the jurisdiction of California Department of Transportation (Caltrans) (i.e., SR-29). This is consistent with the policy of working with Caltrans on highway improvements. Refer to Section 3.12, Transportation, for further discussion.
	Implementing Policy 1.16	Use of Congestion Management Process. Utilize the NCTPA Congestion Management Program (CMP) to determine the timing and degree of regional roadway facility improvements in accordance with region wide plans. Actively participate in the Community-Based SR 29 Gateway Corridor Improvement Plan process to identify a funded SR 29 travel capacity enhancement through the City.	**Consistent:** This Draft EIR evaluates project impacts on CMP transportation facilities (SR-29). Refer to Section 3.12, Transportation, for further discussion.
	Implementing Policy 1.17	Regional fair-share fee program. Work with Caltrans, NCTPA, Napa County, and other jurisdictions to establish a fair-share fee program for improvements to routes of regional significance and State highways. This fee should reflect traffic generated by individual municipalities/ unincorporated communities as well as pass-through traffic.	**Consistent:** The proposed project would pay fees in accordance with the City's latest adopted traffic impact fee schedule, albeit with credits for improvements installed by the proposed project. This includes improvements under the jurisdiction of Caltrans, Napa County Transportation and Planning Agency (NCTPA), and the County of Napa. Refer to Section 3.12, Transportation, for further discussion.

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	Implementing Policy 1.19	Complete Streets. When constructing or modifying transportation facilities, consistent with Resolution 2012-72, "Complete Streets Policy of the City of American Canyon,", strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use.	**Consistent:** All improvements required as mitigation for the proposed project would comply with the applicable provisions of Resolution 2012-72, "Complete Streets Policy of the City of American Canyon."
	Implementing Policy 1.23	Access Restriction. Minimize, where possible, the number of access points along arterial roadways, including by consolidating or relocating driveways to provide for more efficient traffic movement.	**Consistent:** Phase 1 would have four access points on both Devlin and Green Island Road. Half of these points would be designated for trucks and the other half would be designated for passenger vehicles. This is consistent with the policy of providing for more efficient traffic movement.
	Implementing Policy 1.24	Impacts of new development. Based upon the findings of a traffic impact study, consistent with Guiding Policy 1.26, new development will be responsible for mitigation of transportation related impacts.	**Consistent:** A traffic impact study was prepared as part of this Draft EIR. Refer to Section 3.12, Transportation, for further discussion.
	Implementing Policy 1.26	Update and adopt Transportation Impact Analysis (TIA) guidelines. Update and adopt Transportation Impact Analysis guidelines and a Multimodal LOS assessment methodology for the evaluation of potential transportation impacts resulting from new development that is specific to the City and that will supersede existing LOS standards and guidelines.	**Consistent:** A traffic impact study was prepared as part of this Draft EIR in accordance with the City of American Canyon's latest guidance for such studies. Refer to Section 3.12, Transportation, for further discussion.

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	Implementing Policy 1.35	General transit and pedestrian access. In reviewing designs of proposed developments, ensure that provision is made for access to current and future public transit services. In particular, pedestrian access to arterial and collector streets from subdivisions should not be impeded by continuous segments of sound walls.	**Consistent:** The applicant would develop the segment of the Class I Napa Valley Vine Trail along the project frontages with Devlin Road and Green Island Road. The proposed project's internal pedestrian facilities would connect to the Vine Trail. Additionally, there would be safe and convenient locations within the project site to allow for future transit service.
	Guiding Policy 2.1	Promote walking and bicycling. Promote walking and bike riding for transportation, recreation, and improvement of public and environmental health.	**Consistent:** The applicant would develop the segment of the Class I Napa Valley Vine Trail along the project frontages with Devlin Road and Green Island Road. The proposed project's internal pedestrian facilities would connect to the Napa Valley Vine Trail. Additionally, the proposed project would be accessible to bicycles. Collectively, these characteristics would promote walking and bicycling.
	Guiding Policy 2.3	Develop a safe and efficient non-motorized circulation system. Provide safe and direct pedestrian routes and bikeways between places.	**Consistent:** The applicant would develop the segment of the Class I Napa Valley Vine Trail along the project frontages with Devlin Road and Green Island Road. The proposed project's internal pedestrian facilities would connect to the Napa Valley Vine Trail. Additionally, the proposed project would be accessible to bicycles. Collectively, these characteristics would promote a safe and efficient non-motorized circulation system.
	Implementing Policy 2.7	Universal design. Provide pedestrian facilities that are accessible to persons with disabilities and ensure that roadway improvement projects address accessibility by using universal design concepts.	**Consistent:** The applicant would develop the segment of the Class I Napa Valley Vine Trail along the project frontages with Devlin Road and Green Island Road. These new trail segments would comply with the ADA. The proposed project's internal pedestrian facilities would also comply with the ADA.

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	Implementing Policy 2.18	Pedestrian connections to employment destinations. Encourage the development of a network of continuous walkways within new commercial, town center, public, and industrial uses to improve workers' ability to walk safely around, to, and from their workplaces. Where possible, route pedestrians to grade-separated crossings over State Route 29.	**Consistent:** The proposed project's internal pedestrian facilities would connect to the Napa Valley Vine Trail and, thus, advance the policy of providing pedestrian connections to employment destinations. The City's design review process would ensure consistency with this policy.
	Guiding Policy 4.1	Promote safe and efficient goods movement. Promote the safe and efficient movement of goods via truck and rail with minimum disruptions to residential areas.	**Consistent:** The project site is located within the Green Island Business Park, which has convenient access to SR-12 and SR-29. Additionally, at least one project building may be rail-served. This is consistent with the policy of promoting safe and efficient goods movement.
	Guiding Policy 4.2	Promote railroad safety. Minimize the safety problems associated with the railroad, including the construction and maintenance of at-grade crossings and the physical barrier effect of the track alignment on the City.	**Consistent:** Devlin Road provides a grade-separated overcrossing of the Napa Branch Line. Thus, vehicles traveling to and from the project site on Devlin Road would avoid any related safety problems. Additionally, both railroad grade crossings on Green Island Road would receive safety improvements as part of the City-led Green Island Road Widening Project.
	Guiding Policy 4.4	New truck route designation. All highways, arterials, and industrial streets shall be designated truck routes.	**Consistent:** Devlin Road, which was completed in 2012, is a designated truck route. The Devlin Road extension would also be a truck route. Additionally, Green Island Road is a designated truck route and would be improved along the project frontage as part of the City-led Green Island Road Widening Project.
	Guiding Policy 4.6	Location of industrial development. Continue industrial expansion in the north industrial area to minimize the neighborhood impacts of truck movements.	**Consistent:** The project site is located within the Green Island Business Park, which is designated for industrial development. There are no residential areas near this area, nor would project-related

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			truck routes travel through such areas.
	Guiding Policy 4.7	Secure truck parking. Encourage high-security off-street parking for tractor-trailer rigs in industrial designated areas.	**Consistent:** Phase 1 would provide 806 off-street parking spaces, most of which would be suitable for tractor-trailer rigs. The project site would be secured with fencing and lighting. As such, the proposed project would provide secure truck parking.
Utilities	Goal 5	It shall be the goal of American Canyon to establish and maintain a secure water supply and treatment, distribution and storage system to serve the land uses proposed under the general plan.	**Consistent:** This Draft EIR evaluates project impacts on water supply and distribution and concludes that adequate supplies and infrastructure are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Objective 5.2	Obtain additional water supply sources as necessary to supplement the [North Bay Aqueduct] supply and serve anticipated growth under the proposed land use plan.	**Consistent:** A Water Supply Assessment (WSA) was prepared for the proposed project and concludes that adequate supplies are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 5.2.4	Promote water conservation and wastewater reclamation as additional water supply sources.	**Consistent:** The proposed project would employ drought tolerant landscaping and be served with recycled water for non-potable irrigation purposes. This is consistent with the policy of promoting water conservation and wastewater reclamation. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 5.2.5	In the event that sufficient capacity is not available to serve a proposed project, the City shall not approve the project until additional capacity or adequate mitigation is provided.	**Consistent:** A WSA was prepared for the proposed project and concludes that adequate supplies are available to serve the project. In addition, the proposed project would comply with the City's Zero Water Footprint Policy, which requires new development projects to secure offsets to ensure that existing customers do

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			not experience a loss in reliability or an increase in rates.
	Objective 5.4	Establish a water management program to promote water conservation and wastewater reuse.	**Consistent:** The proposed project would employ drought tolerant landscaping and be served with recycled water for non-potable irrigation purposes. This is consistent with the objective of promoting water conservation and wastewater reuse. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 5.4.1	Promote the use of water-saving plumbing fixtures and water-saving landscaping.	**Consistent:** The proposed project would employ drought tolerant landscaping. The proposed project's plumbing fixtures would comply with the water conservation standards set forth in the latest adopted edition of the California Plumbing Code.
	Goal 5B	It shall be the goal of American Canyon to develop and maintain a water treatment and distribution system that meets generally accepted operational criteria for service to provide daily and peak demands, including fire flow requirements, to meet present and future needs in a timely and cost effective manner.	**Consistent:** This Draft EIR evaluates project impacts on water supply and distribution and concludes that adequate supplies and infrastructure are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Objective 5.7	Expand water treatment, storage and distribution facilities as necessary to meet increasing water demands.	**Consistent:** The existing water distribution lines in Green Island Road have adequate capacity to serve the project. Additionally, a WSA was prepared for the proposed project and concludes that adequate supplies are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.

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	Policy 5.7.3	Require adequate water supply, distribution, storage, and treatment facilities to be operational prior to the issuance of certificates of occupancy.	**Consistent:** The existing water distribution lines in Green Island Road have adequate capacity to serve the project. Additionally, a WSA was prepared for the proposed project and concludes that adequate supplies are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Policy 5.7.4	Require all new development to be served from an approved domestic water supply.	**Consistent:** The proposed project would be served with potable water provided by the City of American Canyon, which is an approved domestic water supply.
	Policy 5.7.5	Monitor the demands on the water system and, as necessary, manage development to mitigate impacts and/or facilitate improvements.	**Consistent:** This Draft EIR evaluates project impacts on water supply and distribution and concludes that adequate supplies and infrastructure are available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Objective 5.8	Ensure that the costs of improvements to the water supply, distribution, storage, and treatment system are borne by those who benefit.	**Consistent:** The project applicant would construct or provide the full cost of on-site water infrastructure and off-site improvements necessary to serve the proposed project.
	Policy 5.8.1	Require improvements to the existing water supply, distribution, storage, and treatment facilities necessitated by a new development proposal be borne by the project proponent (in proportion to benefit); either through the payment of fees, or by the actual construction of the improvements.	**Consistent:** The project applicant would construct or provide the full cost of on-site water infrastructure and off-site improvements necessary to serve the proposed project.

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	Goal 5C	Establish and maintain adequate planning, construction, maintenance, and funding for storm drain and flood control facilities to support permitted land uses and preserve the public safety; upgrading existing deficient systems and expanding, where necessary, to accommodate new permitted development and to protect existing development in the City. Pursue public funding sources (i.e., grants) to reduce fiscal impacts of implementation to the City.	**Consistent:** The proposed project would install an on-site stormwater drainage system that would include a network of detention basins. The system would be designed to accommodate peak storm event runoff in accordance with the City's latest adopted standards. This is consistent with the goal of providing adequate storm drain and flood control facilities to support permitted land uses and preserve the public safety. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.
	Objective 5.10	Ensure that adequate storm drain and flood control facilities are provided and properly maintained to protect life and property from flood hazards.	**Consistent:** The proposed project would install an on-site stormwater drainage system that would be designed to accommodate peak storm event runoff in accordance with the City's latest adopted standards. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.
	Policy 5.10.1	Provide for the maintenance of existing public storm drains and flood control facilities and for the construction of upgraded and expanded storm drain and flood control facilities, where necessary, to protect existing and accommodate new permitted development.	**Consistent:** The project applicant would install on-site storm drainage infrastructure and be responsible for its maintenance and upkeep.
	Policy 5.10.3	Require that adequate storm drain and flood control facilities be constructed coincident with new development.	**Consistent:** The project applicant would be required to install on-site storm drainage infrastructure prior to issuance of the certificate of occupancy.
	Policy 5.10.4	Limit new development, when necessary, until adequate flood control facilities are constructed to protect existing development and accommodate the new development runoff, or until mitigation is provided.	**Consistent:** The project applicant would be required to install on-site storm drainage infrastructure prior to issuance of the certificate of occupancy. This is consistent with the policy of requiring adequate flood control facilities to

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			be constructed in conjunction with new development.
	Objective 5.11	Ensure that the costs of improvements to the storm drain and flood control system are borne by those who benefit.	**Consistent:** The project applicant would construct or provide the full cost of on-site storm drainage infrastructure and off-site improvements necessary to serve the proposed project.
	Policy 5.11.1	Require improvements to existing storm drain and flood control facilities necessitated by a new development proposal be borne by the project proponent; either through the payment of fees, or by the actual construction of the improvements in accordance with State Nexus Legislation.	**Consistent:** The project applicant would construct or provide the full cost of on-site storm drainage infrastructure and off-site improvements necessary to serve the proposed project.
	Policy 5.11.3	Collect adequate amounts of fees and charges to fund the operation/maintenance of existing facilities and to construct new facilities.	**Consistent:** The project applicant would provide all required storm drainage fees to the City of American Canyon.
	Goal 5D	Maintain the quality of surface and subsurface water resources within the City of American Canyon and its Planning Area.	**Consistent:** As required by applicable laws and regulations, the proposed project would implement stormwater quality measures and practices to maintain the quality of surface and subsurface water resources.
	Objective 5.12	Enhance runoff water quality upstream of points of discharge to channelized drainage courses.	**Consistent:** As required by applicable laws and regulations, the proposed project would implement stormwater quality measures and practices that would enhance runoff water quality prior to discharge in downstream waterways.
	Policy 5.12.1	Capitalize on opportunities to reduce pollutant loading through passive treatment systems such as vegetated filter strips, grass swales, and infiltration/ sedimentation areas in suitable open space areas, and incorporated into landscaping adjacent to parking lots and streets.	**Consistent:** Passive treatment systems would be incorporated into the proposed project's storm drainage system where appropriate.

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	Policy 5.12.2	Incorporate features in new drainage detention facilities which enhance the water quality of discharges from the facility.	**Consistent:** The proposed project's storm drainage system would include a network of detention basins, which would serve to enhance the water quality of discharges from the facility through percolation of pollutants into the soil. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.
	Policy 5.12.3	Minimize impervious area that is directly connected to piped or channelized drainage systems in new development.	**Consistent:** Approximately 44.8 acres of the project site (22 percent) would be dedicated for Wetland Preserve and detention basin use. This would be consistent with the policy of minimizing impervious area that is directly connected to piped or channelized drainage systems in new development. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.
	Objective 5.13	Prevent degradation of surface water quality due to construction activities and industrial operations.	**Consistent**: As required by applicable laws and regulations, the proposed project would implement construction and operation stormwater pollution prevention measures to prevent degradation of surface water quality. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.
	Policy 5.13.1	Require that development activities comply with the State General Storm Water Permit For Construction Activities with measures that protect surface water quality to the maximum extent practicable.	**Consistent:** The proposed project's construction and operation stormwater pollution prevention measures would comply with the applicable stormwater permits. Refer to Section 3.8, Hydrology and Water Quality, for further discussion.

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	Goal 5E	It shall be the goal of the City of American Canyon to establish and maintain adequate planning, construction, maintenance, and funding for wastewater collection and treatment facilities to support land uses; upgrading existing deficient systems, and expanding, where necessary, in the City's service area.	**Consistent:** This Draft EIR evaluates project impacts on wastewater collection and treatment and concludes that adequate capacity is available to serve the project. Refer to Section 3.13, Utilities and Service Systems, for further discussion.
	Objective 5.14	Provide a system of wastewater collection and treatment facilities which will adequately convey and treat wastewater generated by existing and future development in the City's service area.	**Consistent:** Aside from laterals to serve proposed buildings, all wastewater infrastructure necessary to serve the proposed project is currently in place. The laterals would be required to be in place prior to the issuance of a certificate of occupancy.
	Policy 5.14.2	Provide for the construction of upgraded and expanded wastewater collection and treatment improvements to support existing and new development.	**Consistent:** The proposed project would connect to an existing sewer line located within Green Island Road. Aside from laterals to serve proposed buildings, no other wastewater upgrades would be required.
	Policy 5.14.4	Require new development to connect to a master planned sanitary sewer system. Where construction of master planned facilities is not feasible, and where the future construction of master planned faculties will not be jeopardized, the City Council may permit the construction of interim faculties sufficient to serve the present and short-term future needs.	**Consistent:** The proposed project would be served with sanitary sewer service provided by the City of American Canyon. The proposed project would connect to an existing sewer line located within Green Island Road; no interim facilities would be necessary.
	Policy 5.14.5	Require all new development to secure sewer capacity rights prior to or at the time building permits are issued.	**Consistent:** The City of American Canyon has indicated that the proposed project would be served with adequate sewer capacity.
	Objective 5.15	Ensure that wastewater collection and treatment facilities are upgraded and installed in a timely manner to meet usage requirements and maximize cost efficiency.	**Consistent:** Aside from laterals to serve proposed buildings, all wastewater infrastructure necessary to serve the proposed project is currently in place. The laterals would be required to be in

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			place prior to the issuance of a certificate of occupancy.
	Policy 5.15.1	Require that wastewater collection and treatment facilities be installed and available for use prior to the issuance of a certificate of occupancy.	**Consistent:** Aside from laterals to serve proposed buildings, all wastewater infrastructure necessary to serve the proposed project is currently in place. The laterals would be required to be in place prior to the issuance of a certificate of occupancy.
	Objective 5.16	Ensure that the costs of infrastructure improvements are borne by those who benefit.	**Consistent:** The project applicant would construct or provide the full cost of on-site sewer infrastructure and off-site improvements necessary to serve the proposed project and would be subject to City fee programs.
	Policy 5.16.1	Require that the cost for improvements to the existing wastewater collection and treatment facilities necessitated by a new development proposal be borne by the project proponent in proportion to benefit; either through the payment of fees, or by the actual construction of the improvements.	**Consistent:** The project applicant would construct or provide the full cost of on-site sewer infrastructure and off-site improvements necessary to serve the proposed project and would be subject to City fee programs.
Public Services and Facilities	Goal 6A	Maintain a high level of fire protection and emergency services to City/District businesses and residences.	**Consistent:** This Draft EIR evaluates project impacts on the American Canyon Fire Protection District and concludes that adequate levels of service can be provided. Refer to Section 3.11, Public Services, for further discussion.
	Objective 6.3	Ensure that the Fire District's facility, manpower and equipment needs keep pace with the City's growth.	**Consistent:** This Draft EIR evaluates project impacts on the American Canyon Fire Protection District and concludes that adequate levels of service can be provided. Refer to Section 3.11, Public Services, for further discussion.
	Policy 6.3.1	Require that City planning staff work closely with Fire District officials to ensure that fire facilities and personnel are expanded	**Consistent:** The American Canyon Fire Protection District was consulted during the preparation of this Draft EIR to determine

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		commensurably to serve the needs of the City's growing population and development base.	whether the proposed project would impede its ability to provide fire protection. Refer to Section 3.11, Public Services, for further discussion.
	Policy 6.4.3	Require, through the development review process, that all structures and facilities subject to the District's jurisdiction adhere to City, State and federal regulatory standards such as the Uniform Building and Fire Codes and other applicable safety guidelines.	**Consistent:** All proposed project structures would be required to comply with the latest adopted edition of the California Fire Code.
	Goal 6B	Ensure a high level of police protection for the City's residents, businesses and visitors.	**Consistent:** This Draft EIR evaluates project impacts on the American Canyon Police Department and concludes that adequate levels of service can be provided. Refer to Section 3.11, Public Services, for further discussion.
	Objective 6.7	Coordinate development activities with the Napa County Sheriff's Department or other contract agency to ensure that adequate facilities and services are maintained for the City's residents, businesses and visitors.	**Consistent:** The American Canyon Police Department was consulted during the preparation of this Draft EIR to determine whether the proposed project would impede its ability to provide police protection. Refer to Section 3.11, Public Services, for further discussion.
	Policy 6.7.1	Work with the Sheriff's Department to ensure that enough personnel are added to the Department to serve the needs of a growing population and a developing City.	**Consistent:** The American Canyon Police Department was consulted during the preparation of this Draft EIR to determine whether the proposed project would impede its ability to provide police protection. Refer to Section 3.11, Public Services, for further discussion.
	Objective 6.9	Increase the residents' and Sheriff's Department ability to minimize crime and improve security for all uses of public and private buildings, sites, and open spaces.	**Consistent:** The proposed project incorporates design features such as low-profile landscaping and exterior lighting to prevent and deter criminal activity.
	Policy 6.9.2	Require that landscaping in proximity to commercial, industrial, multi-family, and public structures be sited to allow for security surveillance.	**Consistent:** The proposed project would provide low-profile, non-obtrusive landscaping along roadway frontages and within

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			parking areas to allow for adequate security surveillance.
	Policy 6.9.3	Require the incorporation of lighting which provides adequate exterior illumination to facilitate security surveillance around commercial, industrial, multi-family, and public structures.	**Consistent:** The proposed project would provide exterior lighting that would provide adequate illumination.
Natural and Historic/ Cultural Resources	Goal 8	Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area.	**Consistent:** This Draft EIR evaluates the proposed project's potential impacts on biological resources and requires mitigation where necessary to reduce impacts to a level of less than significant. Refer to Section 3.3, Biological Resources, for further discussion.
	Objective 8.1	Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.	**Consistent:** This Draft EIR's evaluation of potential impacts on biological resources included review of relevant databases of biological information and field surveys of the project site. The findings thereof were used in developing appropriate mitigation for project impacts. This is consistent with the objective of using best available information to facilitate resource conservation. Refer to Section 3.3, Biological Resources, for further discussion.
	Policy 8.1.1	Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.	**Consistent:** This Draft EIR's evaluation of potential impacts on biological resources included review of relevant databases of biological information and field surveys of the project site. The findings thereof were used in developing appropriate mitigation for project impacts. This is consistent with the policy of using the best available information to evaluate impacts on biological resources. Refer to Section 3.3, Biological Resources, for further discussion.

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	Policy 8.1.4	Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend appropriate mitigation measures that the developer and/or government agency can implement.	**Consistent:** This Draft EIR evaluates the proposed project's potential impacts on biological resources and requires mitigation where necessary to reduce impacts to a level of less than significant. Refer to Section 3.3, Biological Resources, for further discussion.
	Objective 8.2	Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savanna, and wetland and riparian habitats, with new development in the City.	**Consistent:** The proposed project site includes an existing Wetland Preserve that coincides with the highest quality habitat within the project site. This is consistent with the objective of balancing the preservation of natural habitat areas with new development.
	Policy 8.2.1	Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savanna, and riparian habitats or with areas potentially occupied by vernal pools (see Figure 8-2) shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining Figure 8-1 for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified Biologist to determine whether sensitive habitats exist on-site. In instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.	**Consistent:** The project site contains wetlands. This Draft EIR includes biological and wetland analysis conducted by Huffman-Broadway Group, a biological consulting firm. Refer to Section 3.3, Biological Resources, for further discussion.
	Objective 8.3	Protect natural drainages and riparian corridors within the American Canyon Planning Area.	**Consistent:** The proposed project site includes an existing Wetland Preserve that contains a segment of No Name Creek. This is consistent with the objective of

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			protecting natural drainages and riparian corridors.
	Policy 8.3.1	Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards: a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones. b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g." c. Where riparian corridors are retained, they shall be protected by an adequate buffer with a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy (see policy 8.3.2). d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible. e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages or corridors from built environment. f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible. g. Future development shall utilize appropriate open space or conservation easements in order	**Consistent:** The proposed project is designed in a manner to locate buildings and infrastructure away from the highest quality wetlands that are located in the western portion of the site. The highest quality wetlands are located within an existing Wetland Preserve. Finally, the reach of No Name Creek located within the project site is within the existing Wetland Preserve. The wetlands impacted by the project cannot be avoided due to their location; however, their loss would be offset through the creation of compensatory wetlands in the preserve. Lastly, the proposed project would be required to obtain approvals from USACE, CDFW, and Regional Water Quality Control Board (RWQCB) and adhere to all provisions of those permits. For these reasons, the proposed project is consistent with the provisions of this policy.

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		to protect sensitive species or their habitats. h. Future development shall mitigate unavoidable adverse impacts to waters of the United States, wetlands and riparian habitats (pursuant to the Federal Clean Water Act and the California Fish and Game Code, Section 1600 *et seq*.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Game and/or Army Corp. of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be effected, subject to State and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (off-site but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.	
	Policy 8.3.2	Prohibit development and grading that alters the biological integrity of the Riparian Corridors as depicted on the Biological Habitats Map, unless no feasible alternative exists or the damaged habitat is replaced with habitat of equivalent value. Development that is permitted within Riparian Corridors shall: a. minimize removal of vegetation, erosion, sedimentation and runoff by appropriate protection or vegetation and landscape; b. provide for sufficient passage of native and anadromous fish; c. minimize wastewater discharges and entrapment;	**Consistent:** A segment of No Name Creek is located within the proposed Wetland Preserve. For those riparian areas located where development is proposed, mitigation is proposed requiring any impacted riparian areas to be offset through restoration of comparable habitat within the Wetland Preserve. The features impacted by the project cannot be avoided due to their location; however, their loss would be offset through the creation of compensatory features in the preserve.

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		d. prevent ground water depletion or substantial interference with surface and subsurface flows; e. provide for natural vegetation buffers; f. minimize the channelization of streams and other watercourses; g. provide for the enhancement of riparian corridors.	
	Policy 8.3.3	Permit only the following uses within retained Riparian Corridors: a. education and research, excluding buildings and other structures; b. passive (non-motorized) recreation; c. trails and scenic overlooks on public land(s) if located outside of undeveloped buffer zones; d. fish and wildlife management activities; e. necessary water supply projects; f. resource consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code; g. flood control projects where no other methods are available to protect the public safety; h. bridges when supports are not in significant conflict with riparian resources; and i. underground utilities.	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained and, consistent with the approved Management Plan, would be available for education and research and wildlife management activities.
	Policy 8.3.5	Establish a network of open spaces along the City's natural drainages and riparian corridors and link significant biological habitats. Any recreational use of these areas shall be designed to avoid damaging sensitive habitat areas.	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained by the proposed project. As such, it would be consistent with the policy of establishing of a network of open spaces along the City's natural drainages and riparian corridors.
	Policy 8.3.6	Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained by the proposed project. As such, it would be consistent with the policy of

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		and greenbelts along their lengths throughout the City.	preserving and integrating natural drainages in new development.
	Objective 8.4	Protect local vernal pools as well as the habitats of endangered species living within American Canyon's Planning Area.	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained by the proposed project and would include vernal pools and the highest quality habitat with the project site. The vernal pools impacted by the project cannot be avoided due to their location; however, their loss would be offset through the creation of compensatory features in the preserve. As such, it would be consistent with the policy of protecting vernal pools and habitats of special-status species.
	Policy 8.4.1	Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within American Canyon's Planning Area.	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained by the proposed project and would include vernal pools. For those vernal pools located where development is proposed, mitigation is proposed requiring any impacted resources to be offset through restoration of comparable habitat within the Wetland Preserve.
	Policy 8.4.2	Preserve, where possible, the habitat of several in-fact endangered species, including those shown on Figure 8-2 and listed in Table 8-1, as well as those that may be considered by the City in the future.	**Consistent:** The proposed Wetland Preserve that includes a segment of No Name Creek would be maintained by the proposed project and includes the highest quality habitat for special-status species with the project site. As such, it would be consistent with the policy of preserving habitats of special-status species.
Geology	Goal 9	Reduce the potential level of death, injury, property damage, economic and social dislocation (i.e., business closures and homelessness due to structural damage) and disruption of vital services that could result from earthquake damage.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study and compliance with the latest adopted edition of the California Building Standards Code

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			to reduce the potential level of death, injury, property damage, and economic and social dislocation to acceptable levels. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Goal 9C	Ensure that seismic, geologic, and soils hazards that might affect areas designated for human use or habitation are properly mitigated or avoided entirely prior to development.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study and compliance with the latest adopted edition of the California Building Standards Code to ensure that seismic hazards are properly mitigated or avoided entirely prior to development. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Objective 9.1	Protect life, ensure public safety, substantially reduce the damage to and ensure the orderly evacuation of building occupants following a seismic event.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study and compliance with the latest adopted edition of the California Building Standards Code to protect life, ensure public safety, and substantially reduce damage to structures. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Policy 9.1.1	Promote the collection of relevant data on fault location and the history of fault displacement as a basis for future refinement of fault zone policies and development standards. Particular attention should be paid to the West Napa Fault that is generally depicted in Figure 9-1 and should be evaluated in conjunction with proposed development. Based on predevelopment studies, limitations on new development shall be imposed if necessary in the identified fault areas.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study to determine to location of the fault and identify appropriate setbacks for project buildings. This is consistent with the requirements of this policy. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.

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	Policy 9.1.2	Implement mandatory development restrictions and investigation requirements (by the State, under the Alquist-Priolo Act, or by the City) on that portion of the West Napa Fault zone located within American Canyon and its Planning Area.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study to determine to location of the fault and identify appropriate setbacks for project buildings in accordance with the Alquist-Priolo Act. This is consistent with the requirements of this policy. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Policy 9.1.3	Require that any building intended to have occupancy be located at least 5O feet from either side of an active or potentially active fault.	**Consistent:** The West Napa Fault crosses the project site. This Draft EIR requires mitigation measures consisting of a fault investigation study to determine to location of the fault and identify appropriate setbacks for proposed project buildings. This is consistent with the requirements of this policy. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Objective 9.2	Protect health and life safety, and reduce the level of potential property damage from the adverse effects of strong seismic ground shaking by implementing effective, state-of-the-art standards for seismic design of structures in the City.	**Consistent:** This Draft EIR requires compliance with the latest adopted edition of the California Building Standards Code to ensure that strong seismic ground shaking hazards are properly mitigated. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Policy 9.2.1	Require that development be designed in accordance with seismic requirements of the Uniform Building Code.	**Consistent:** This Draft EIR requires compliance with the latest adopted edition of the California Building Standards Code seismic design requirements. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Objective 9.3	Protect life and essential lifelines (e.g., gas, electricity, water), reduce the risk of property damage due to liquefaction, and promote the collection of more complete information on liquefaction susceptibility throughout the Planning Area.	**Consistent:** The project site is underlain by geologic units and soils that would not be susceptible to liquefaction. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.

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	Policy 9.3.1	Avoid development in areas with known liquefaction risk. If these areas cannot be avoided, require a qualified geologist, hydrologist, or civil engineer to determine the liquefaction potential at proposed development sites.	**Consistent:** The project site is underlain by geologic units and soils that would not be susceptible to liquefaction. Refer to Section 3.5, Geology, Soils, and Seismicity, for further discussion.
	Objective 9.6	Minimize to the greatest extent feasible the loss of life, serious injuries, and major social and economic disruption caused by the collapse of, or severe damage to, vulnerable structures (e.g., buildings, bridges, water storage facilities, key railroad components) resulting from an earthquake.	**Consistent:** Project structures and infrastructure would be designed and constructed in accordance with the latest adopted edition of the California Building Standard Code's seismic safety requirements. Adherence to these standards would minimize potential exposure to disruptions associated with earthquakes.
Flood Hazards	Goal 10	Protect the lives and property of American Canyon's residents and visitors from flood hazards.	**Consistent:** The developable portions of the project site are located outside of a 100-year flood hazard area. Therefore, the proposed project's uses (including employees) would not be exposed to flood hazards.
	Objective 10.1	Design both new development and redevelopment projects in a manner that minimizes hazards associated with flooding.	**Consistent:** The developable portions of the project site are located outside of a 100-year flood hazard area. Therefore, the proposed project's uses (including employees) would not be exposed to flood hazards.
	Policy 10.1.1	Retain and enhance natural watercourses, including perennial and intermittent streams, as the City's primary flood control channels whenever feasible.	**Consistent:** The western portion of the project site, which contains areas located within a 100-year flood hazard area, is protected within the existing Wetland Preserve. This is consistent with the policy of retaining and enhancing natural watercourses as the City's primary flood control channels.
	Policy 10.1.4	Ensure that stormwater drainage is designed for peak flow conditions.	**Consistent:** The proposed project's storm drainage system would be designed in accordance with the City's peak flow design standards.

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	Policy 10.1.5	Prohibit the development of structures designed for human occupancy within the 100-year floodplain, unless flood hazards are adequately mitigated. Mitigation can be accomplished by building foundations a minimum of one (1) foot above the 100-year flood elevation, or by other means approved by the City Engineer (see Figure 10-1).	**Consistent:** The developable portions of the project site are located outside of a 100-year flood hazard area. Therefore, the proposed project's structures would not be located within the 100-year floodplain.
	Policy 10.1.12	Require that proposed developments within the 100-year floodplain submit information regarding the flood hazard prepared by a qualified Civil Engineer or Hydrologist.	**Consistent:** The developable portions of the project site are located outside of a 100-year flood hazard area. The western portion of the project site, which contains areas located within a 100-year flood hazard area, is located within the proposed Wetland Preserve.
	Policy 10.1.13	Require that proposed developments within the 100-year floodplain submit plans to adequately mitigate flood hazards and demonstrate that such improvements will not create or increase downstream or upstream flood hazards.	**Consistent:** The developable portions of the project site are located outside of a 100-year flood hazard area. The western portion of the project site, which contains areas located within a 100-year flood hazard area, is located within the proposed Wetland Preserve.
Noise	Goal 11	Ensure that American Canyon's existing and future residents, employees and employers, as well as visitors to the City, are protected from the adverse human health and environmental impacts of excessive noise levels created by stationary and ambient (intrusive) noise sources and conditions. Take all necessary and appropriate action to avoid or mitigate the detrimental effects of such excessive noise on the community.	**Consistent:** This Draft EIR includes an evaluation of project-related noise impacts. Mitigation is proposed as necessary to achieve acceptable noise levels. Refer to Section 3.10, Noise, for further discussion.
	Objective 11.1	Control both ambient and stationary (intrusive) noise conditions and impacts that may occur in American Canyon. Maintain base line information regarding ambient and stationary noise sources within the community.	**Consistent:** This Draft EIR includes an evaluation of project-related noise impacts including ambient and stationary noise sources. Refer to Section 3.10, Noise, for further discussion.

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	Policy 11.1.1	Promote noise compatible land use relationships by implementing the noise standards identified in Figure 11-2, to be utilized for design purposes in new development and for establishing a program to attenuate existing noise problems.	**Consistent:** This Draft EIR includes an evaluation of project-related noise impacts and assesses noise levels against the standards identified in Figure 11-2 to determine whether significant impacts would occur. Mitigation is proposed as necessary to achieve acceptable noise levels. Refer to Section 3.10, Noise, for further discussion.
	Policy 11.1.2	Monitor and update available data regarding the community's ambient and stationary noise levels.	**Consistent:** This Draft EIR includes an evaluation of project-related noise impacts. As part of this analysis, noise measurements were taken in the project vicinity. This is consistent with the policy of monitoring and updating noise level data. Refer to Section 3.10, Noise, for further discussion.
	Objective 11.2	Protect residents, employees, and visitors to the community from excessive noise exposure. If possible, mitigate the adverse impacts of existing or unavoidable excessive noise on these same groups.	**Consistent:** This Draft EIR includes an evaluation of project-related noise impacts. Mitigation is proposed as necessary to achieve acceptable noise levels. Refer to Section 3.10, Noise, for further discussion.
	Policy 11.2.1	Require that new development for locations in which the exterior or interior noise levels indicated in Figure 11-2 are likely to be exceeded, submit a noise attenuation study prepared by a qualified acoustical engineer in order to determine appropriate mitigation measures.	**Consistent:** The project site is not located in any "Sensitive Noise Areas" depicted on Figure 11-2. Regardless, a noise analysis was prepared for the proposed project and mitigation is identified as necessary. Refer to Section 3.10, Noise, for further discussion.
	Policy 11.2.4	Require that new industrial, commercial and related land uses, or the expansion of these existing land uses, demonstrate that they would not directly cause ambient noise levels to exceed an exterior Ldn of 65 dB(A) in areas containing housing, schools, health care facilities, or other "noise-sensitive" land uses. Additionally, require that potentially significant noise generators, including uses such as	**Consistent:** The project site is located in the Green Island Business Park, which contains noise-tolerant nonresidential uses. There are no nearby noise-sensitive receptors. The proposed project would not have the potential to increase ambient noise levels above 65 dBA L_{dn}.

Element	Goal/Objective/Policy		Consistency Determination
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		night clubs that cause sporadic noise intensities, submit noise analyses prepared by an acoustical expert that include specific recommendations for mitigation when: a) the project is located in close proximity to noise-sensitive land uses or land that is planned for noise-sensitive land uses, or b) the proposed noise source could violate the noise provisions of the General Plan or City Noise ordinance.	
	Objective 11.3	Minimize the adverse impacts of traffic-generated noise on residential and other "noise sensitive" uses as depicted on Figure 11-5.	**Consistent:** The project site is located in the Green Island Business Park and there are no noise-sensitive uses within 1,000 feet of the project site. Moreover, trucks traveling to and from the project site would use Green Island Road or Devlin Road and South Kelly Road to reach SR-29 and SR-12, which would avoid areas designated for residential use by the General Plan.
	Policy 11.3.1	Minimize motor vehicle noise impacts from streets and highways through proper route location and sensitive roadway design by employing the following strategies: a. Consider the impacts of truck routes, the effects of a variety of truck traffic, and future motor vehicle volumes on noise levels adjacent to master planned roadways when improvements to the circulation system are planned. b. Mitigate traffic volumes and vehicle speed through residential neighborhoods. c. Work closely with the State of California Department of Transportation (Caltrans) in the early stages of highway improvements and design modifications to ensure that proper consideration is given to potential noise impacts on the City.	**Consistent:** The project site is located in the Green Island Business Park and trucks would use Green Island Road or Devlin Road and South Kelly Road to reach SR-29 and SR-12. This routing would avoid residential areas and, therefore, would be consistent with this policy.

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	Policy 11.3.2	Require that all new nonresidential development design and configure on-site ingress and egress points to divert traffic (and its resultant noise) away from "noise-sensitive" land uses to the greatest degree practicable.	**Consistent:** The project site is located in the Green Island Business Park, which contains noise-tolerant nonresidential uses. There are no nearby noise-sensitive receptors. Thus, the proposed project would not need to configure ingress and egress points to divert traffic away from "noise-sensitive" land uses.
	Policy 11.4.1	Restrict the development of uses located within the 65 CNEL contour of Napa Airport to industrial, agricultural, or other open space uses (see Figure 11-5).	**Consistent:** A portion of the project site is located within the 65 dBA CNEL contour of Napa County Airport. The proposed project consists of industrial uses and the site includes an existing wetland preserve use, which are "normally acceptable" land use activities within this noise contour.
	Policy 11.4.2	Require that development in the vicinity of Napa Airport comply with the noise standards contained in the Airport Land Use Compatibility Plan (ALUCP).	**Consistent:** The Napa County ALUCP identifies aviation noise levels between 60 and 65 dBA CNEL as "normally acceptable" for warehouse uses. As such, the proposed project would be consistent with the ALUCP noise standards.
	Objective 11.5	Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or "noise-sensitive" uses.	**Consistent:** The project site is located in the Green Island Business Park, which contains noise-tolerant nonresidential uses. As such, the proposed project would not have the potential to cause "spillover" noise into adjoining residential neighborhoods or "noise-sensitive" uses.
	Objective 11.7	Minimize the impacts of construction noise on adjacent uses.	**Consistent:** The project site is located in the Green Island Business Park, which contains noise-tolerant nonresidential uses. As such, surrounding land uses would not experience intrusive noise levels during project-related construction activities.
Source: City of American Canyon 2021; FirstCarbon Solutions (FCS) 2021.			

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Municipal Code Consistency

Impact LU-2: The proposed project would not conflict with the applicable provisions of the American Canyon Municipal Code.

Impact Analysis

The proposed project would consist of the development of up to 2.4 million square feet of high-cube warehouse on 163 acres. The remaining 45 acres would be preserved as wetlands.

Phase 1

The applicant has developed site design-level plans for Phase 1, the 94.7-acre area east of the Devlin Road extension. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. One of the buildings would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade-level roll-up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

The Phase 1 end uses would be consistent with the types of permitted uses set forth in the Zoning Ordinance for the General Industrial zoning district. Additionally, Phase 1 would have a 0.26 FAR and would be within the Zoning Ordinance's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. The proposed high-cube warehouses would have 36 feet clear height and, thus, be within the 40-foot height limit set by the Zoning Ordinance. Impacts would be less than significant.

Phase 2

Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse.

The Phase 2 end uses would be consistent with the types of permitted uses set forth in the Zoning Ordinance for the General Industrial zoning district. Additionally, Phase 2 would have a 0.26 FAR and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Airport Land Use Compatibility Plan Consistency

Impact LU-3:	**The proposed project may conflict with the applicable provisions of the Napa County Airport Land Use Compatibility Plan.**

Impact Analysis

Phases 1 and 2

Airport Land Use Compatibility Review

The project site falls within the Napa County Airport Land Use Compatibility Plan (ALUCP) Area.

The (ALUCP) establishes policies and compatibility zones addressing four key focus areas: noise, safety, airspace protection, and overflight. The (ALUCP) defines five compatibility zones that address the key focus areas in a composite manner:

- Zone A encompasses the Runway Protection Zones and areas lateral to the runway.
- Zone B includes the approach/departure zone where aircraft will be below 100 feet above ground.
- Zone C is defined by the extended approach/departure zone where aircraft will be below 300 feet above ground level.
- Zone D encompasses the common traffic pattern. These areas are routinely overflown by aircraft.
- Zone E includes the other airport environs and defines the Airport's influence area and ALUC's planning area.

The project site falls entirely within Zone D. Zone D is characterized by moderate risk, frequent noise intrusion and routine overflights below 1,000 feet above ground level. The ALUCP indicates that warehousing, low intensity light industrial uses and office uses are normally acceptable uses. ALUCP Table 3-2, Airport Vicinity Land Use Compatibility Criteria, establishes maximum densities for indoor and outdoor uses. Within Zone D, indoor uses are limited to no more than 100 people per net acre. Uses with an outdoor component can have up to 150 per net acre. The ALUCP does not limit the number of people that can be clustered in any one acre of the parcel within Zone D. Net acreage is defined as the total site area inclusive of parking areas and landscaping, less the area dedicated for streets.

Additionally, the ALUCP prohibits residential uses and uses posing hazards to flight. Hazards to flight include objects that penetrate FAR Part 77 airspace surfaces, uses that would attract large numbers of birds, and uses that would create smoke, glare, distracting lights, or electronic interference.

The analysis that follows assesses the ALUCP density and airspace criteria that relate to the project site.

Maximum Density

The proposed project includes several buildings that would facilitate development of industrial uses, including warehousing, manufacturing, and general office uses. These land uses are generally consistent with ALUCP criteria, provided that the uses do not attract large concentrations of people.

The ALUCP sets forth maximum density criterion of 100 people per net acre for Zone D. The ALUCP identifies three methods for calculating density: (1) parking ordinance; (2) maximum occupancy; and (3) other methodologies in cases where density cannot be reasonably estimated based upon parking or square footage. The ALUCP identifies the parking ordinance methodology as the preferred method for calculating density.

In this case, the parking ordinance methodology would not be appropriate because parking stalls would be used for trailer storage,[1] which provides no insight into the maximum number of persons on-site at any given time. Thus, it is not possible to meaningfully calculate density using the parking ordinance methodology.

The maximum occupancy methodology is most appropriate because it is based on typical Building Code occupancy limits, which can be calculated based on the known project characteristics. Because the ancillary office space within each building is the most intense use, it has been broken out separately from the warehouse use.[2] Table 3.9-3 summarizes the maximum occupancy calculation.

Table 3.9-3: Maximum Occupancy Calculation

Use	Maximum Square Feet	Maximum Floor Area Allowances per Occupant (California Building Code)	Density (Persons)
Warehouse	2,304,000	1 person/500 square feet (Gross)	4,608
Ancillary Office	96,000	1 person/100 square feet (Gross)	960
Total	*2,400,000*	–	*5,568*
Adjustment for Observed Occupancy (50 percent)			5,568 x .5
Adjusted Density			**2,784**

Notes:
Maximum Floor Area Allowances Per Occupant values obtained from California Airport Planning Land Use Handbook (Exhibit G1).
50 percent reduction applied to subtotal to reflect actual observed occupancy rates in accordance with California Airport Planning Land Use Handbook Guidance (Exhibit G2).
Source: FirstCarbon Solutions (FCS) 2021.

[1] Warehouse end users typically have provisions in their contractual agreements with trucking companies that require empty trailers to be left on-site when loaded trailers are picked up.

[2] Phase 1 is proposed for two warehouse buildings. Phase 2 was assumed to have as many as four warehouse buildings. Thus, 16,000 square feet of ancillary office per warehouse x 6 warehouses = 96,000 square feet.

Table 3.9-4 summarizes the maximum site density calculation. As shown in Table 3.9-4, the project complies with the density recommendation of no more than 100 persons per net acre. Note that the Caltrans Airport Land Use Planning Handbook was used as a technical resource in the context of the density calculations.

Table 3.9-4: Maximum Site Density Calculation

Maximum Site Density (≤ 100 persons/acre)		
Calculation	**Density**	**Maximum Allowable Density**
2,784 persons ÷ 163 acres	17.1 persons/acre	100.0 persons/acre

Notes:
Calculations follow guidance provided in Exhibit G2 of California Airport Planning Land Use Handbook.
Source: FirstCarbon Solutions (FCS) 2021.

Wildlife Attractants

Approximately 45 acres of the project site would be permanently preserved as a Wetland Preserve. This area contains wetlands that currently attract wildlife (e.g., avian species). Avian species are considered potential hazards to aviation activities due to the potential for bird strikes. The two aspects of the proposed project that have the greatest potential for creating aviation safety hazards are the open space area and the stormwater basins.

The open space area would represent the continuation of an existing condition. The proposed project would create new wetland features to offset those impacted as result of the proposed project. However, it would not substantially increase the bird attractant potential because the new compensatory wetlands represent a small portion of the total open space area. Thus, the proposed project would not introduce new aviation hazards in this respect.

The proposed stormwater basins would be designed to drain out within 48 hours of a 10-year storm event. This rapid drainage rate would minimize the amount of time the basins would hold standing water, which, in turn, would reduce their avian attractant attributes. Additionally, standing water would be prevalent in many areas in the project vicinity during and immediately after a storm event; thus, the basins would not represent a greater attractant in this respect. Moreover, the basins are not intended to hold water for extended periods or to be used as an aesthetic water feature.

Furthermore, the proposed project would result in an approximately 163-acre reduction in avian foraging habitat as a result of the development of the proposed structures and infrastructure. This would further minimize the avian attractant attributes of the project site relative to existing conditions.

Overall, the proposed project would not increase the avian attractant attributes of the project site or nearby areas under the Napa County Airport flight path compared to existing conditions.

The ALUCP indicates that projects that have the potential to attract wildlife are required to prepare a Wildlife Hazards Assessment. Accordingly, Mitigation Measure LU-3 requires the preparation of such an assessment and implementation of the recommendations into the design of the open space area.

This would serve to minimize, if not eliminate, the wildlife attractant attributes in a manner that reduces impacts to a level of less than significant.

Light, Glare, Dust, Steam, and Other Aviation Hazards

The ALUCP Policy 3.3.5 states the following:

> Policy 3.3.5: Land uses which may produce hazards to aircraft in flight shall not be permitted within any airport's planning area. Specific characteristics to be avoided include: (1) glare or distracting lights which could be mistaken for airport lights; (2) sources of dust, steam, or smoke which may impair pilot visibility; (3) sources of electrical interference with aircraft communications or navigation; and (4) any use which may attract large flocks of birds, especially landfills and certain agricultural uses.

The proposed project's end uses include high-cube warehouse and ancillary office, which are considered normally acceptable by the ALUCP as long as they do not create hazards. In this case, MM AES-3 requires all exterior lighting to use full cut-off fixtures and be directed downward to prevent interference with Napa County Airport operations. Moreover, the proposed project would reduce the amount of natural vegetation on the project site by 163 acres. The proposed project also would include landscaping and on-site drainage facilities that would be designed and managed to discourage wildlife use of the site. MM LU-3 requires the applicant to retain a qualified Biologist to prepare a wildlife hazard assessment that would identify measures to reduce the bird attractant potential of the wetland area, consistent with the ALUCP's policies. Collectively, the implementation of these two mitigation measures would ensure that the proposed project would not create hazards to aviation. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement Mitigation Measure AES-3 and:

MM LU-3 Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.

Level of Significance After Mitigation

Less than significant impact.

3.10 - Noise

3.10.1 - Introduction

This section describes the existing noise setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on noise modeling performed by FirstCarbon Solutions (FCS). The noise modeling output is included in this Draft Environmental Impact Report (Draft EIR) as Appendix G.

3.10.2 - Environmental Setting

Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. Noise effects can be caused by pitch or loudness. *Pitch* is the number of complete vibrations or cycles per second of a wave that result in the range of tone from high to low; higher-pitched sounds are louder to humans than lower-pitched sounds. *Loudness* is the intensity or amplitude of sound.

Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit that expresses the ratio of the sound pressure level being measured to a standard reference level. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so sound pressure level measurements can be weighted to better represent frequency-based sensitivity of average healthy human hearing. One such specific “filtering” of sound is called “A-weighting.” A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

Noise Descriptors

There are many ways to rate noise for various intervals, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise

Equivalent Level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric conditions (wind, temperature gradients, and humidity) and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation, or sound drop-off rate, is dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone, and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions. Table 3.10-1 briefly defines these measurement descriptors and other sound terminology used in this section.

Table 3.10-1: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Term	Definition
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10 p.m. and 7 a.m. (nighttime).
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7 p.m. and 10 p.m. and 10 dB added to the A-weighted sound levels occurring between 10 p.m. and 7 a.m.
Source: Data compiled by FirstCarbon Solutions (FCS) 2021.	

Traffic Noise

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway Administration (FHWA) community noise assessment criteria, this change is “barely perceptible”; for reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at

commercial, industrial, manufacturing, or institutional facilities. Furthermore, noise generated by the use of motor vehicles over public roads is preempted from local regulation, although the use of these vehicles is considered a stationary noise source when operated on private property such as at a construction site, a truck terminal, or warehousing facility. The emitted noise from the producer can be mitigated to acceptable levels either at the source or on the adjacent property through the use of proper planning, setbacks, block walls, acoustic-rated windows, or dense landscaping or by changing the location of the noise producer.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation or with provision of intervening structures, barriers, or topography.

Construction activities are a common source of stationary noise. Construction period noise levels are higher than background ambient noise levels but cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 3.10-2 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

Table 3.10-2: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	95
Auger Drill Rig	85
Vibratory Pile Driver	95
Jackhammers	85
Pneumatic Tools	85
Pumps	77
Scrapers	85
Cranes	85
Portable Generators	82
Rollers	85
Bulldozers	85
Tractors	84
Front-End Loaders	80
Backhoe	80
Excavators	85

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Graders	85
Air Compressors	80
Dump Truck	84
Concrete Mixer Truck	85
Pickup Truck	55

Notes:
dBA = A-weighted decibel
Source: Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook, August.

Noise from Multiple Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in the usual arithmetical way. Therefore, sound pressure levels in decibels are logarithmically added on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, will not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source will dominate and the resultant noise level will be equal to the noise level of the louder source. In general, if the difference between two noise sources is 0–1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2–3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4–10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source.

Characteristics of Vibration

Groundborne vibration consists of rapidly fluctuating motion through a solid medium, specifically the ground, which has an average motion of zero and in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The effects of groundborne vibration typically only cause a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors, where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels—denoted as LV—and is based on the reference quantity of 1 microinch per second. To distinguish vibration levels from noise levels, the unit is written as "VdB."

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as rms velocity in units of decibels of 1 microinch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. Human perception to vibration starts at levels as low as 67 VdB. Annoyance due to vibration in residential settings starts at approximately 70 VdB.

Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Construction activities, such as blasting, pile driving, and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.10-3.[1]

Table 3.10-3: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	rms Velocity in Decibels (VdB) at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—Small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87
Caisson Drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90
Clam Shovel Drop	0.202	94

[1] Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.

Construction Equipment	PPV at 25 Feet (inches/second)	rms Velocity in Decibels (VdB) at 25 Feet
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112

Notes:
PPV = peak particle velocity
rms = root mean square
Source: Compilation of scientific and academic literature, generated by the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA).

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- **Vibration source:** Type of activity or equipment, such as impact or mobile, and depth of vibration source;
- **Vibration path:** Soil type, rock layers, soil layering, depth to water table, and frost depth; and
- **Vibration receiver:** Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side, and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil type, but it has been shown to be effective enough for screening purposes in order to identify potential vibration impacts that may

need to be studied through actual field tests. The vibration level (calculated below as "PPV") at a distance from a point source can generally be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{ref} = reference measurement at 25 feet from vibration source
D = distance from equipment to the receptor
n = vibration attenuation rate through ground

According to Section 7 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, an "n" value of 1.5 is recommended to calculate vibration propagation through typical soil conditions.[2]

Existing Noise Levels

The project site is located in the City of American Canyon, Napa County, California. The project site is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Park and Devlin Road (north), the Napa Branch Line railroad (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south). Napa County Airport is located approximately 1 mile north of the project site. The dominant noise sources in the project vicinity is traffic on local roadways in the project vicinity and railroad and airport activity.

Existing traffic noise levels along selected roadway segments in the project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The daily traffic volumes were obtained from the traffic analysis prepared for the proposed project by W-Trans.[3] The traffic volumes described here correspond to the existing without project conditions traffic scenario as described in the transportation analysis. The model inputs and outputs—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are provided in the Appendix G of this document. A summary of the modeling results is shown in Table 3.10-4.

The results show that traffic noise levels along Green Island Road adjacent to the project site range up to 62 dBA L_{dn}. The project's nearest façade is located over 960 feet west of the centerline of State Route (SR) 29. At this distance traffic noise levels on SR-29 would attenuate to below 52 dBA L_{dn}. Therefore, the dominant noise source on the project site would be traffic noise on Green Island Road.

Table 3.10-4: Existing Traffic Noise Levels

Roadway Segment	Approximate ADT	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Paoli Loop Road–south of Green Island Road	3,000	< 50	< 50	55	59.9

[2] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.
[3] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. July.

Roadway Segment	Approximate ADT	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Green Island Road–Paoli Loop Road to future Devlin Road	4,800	< 50	< 50	76	62.0
Green Island Road–west of future Devlin Road	4,800	< 50	< 50	76	62.0
South Kelly Road–SR-29 to Devlin Road	1,400	< 50	< 50	< 50	56.6
SR-29–South Kelly Road to Green Island Road	30,900	128	273	586	73.8

Notes:
ADT = Average Daily Traffic
L_{dn} = day/night average sound level
dBA = A-weighted decibel
[1] The ADT values are calculated based on the PM peak-hour traffic volumes multiplied by a factor of 10.
[2] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, they assume a worst-case scenario of having a direct line of site on flat terrain.
Source: FirstCarbon Solutions (FCS) 2021.

3.10.3 - Regulatory Framework

Federal

Noise Control Act

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees.

Among the agencies now regulating noise are the Occupational Safety and Health Administration (OSHA), which limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour; the United States Department of Transportation (USDOT), which assumed a significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the FHWA. Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise-sensitive" uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and

constructed in such a manner that minimize potential noise impacts.Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise- sensitive" uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

Federal Transit Administration Standards and Guidelines

FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment Manual.[4] The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 3.10-5.

Table 3.10-5: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced-Concrete, Steel, or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non-engineered Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Notes:
VdB = vibration measured as root mean square (rms) velocity in decibels of 1 microinch-inch per second
PPV = peak particle velocity
Source: Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

State

California General Plan Guidelines

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The Governor's Office of Planning and Research (OPR) has issued and periodically updated advisory General Plan Guidelines that provide suggestions regarding how agencies may want to comply with this statutory requirement. The latest version of the General Plan Guidelines was issued in 2020. It contains an Appendix (D) entitled, Noise Element Guidelines, which were developed in 1976 by the former Department of Health Services Office of Noise Control pursuant to former Health and Safety Code section 46050.1. These Guidelines represent "an additional resource that local governments may consult in addition to this chapter to develop noise elements" (OPR, *General Plan Guidelines*, p. 130 [2020]). One significant model is the "Land Use Category and Community Noise Exposure Matrix,"

[4] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

which allows the local jurisdiction to delineate compatibility of sensitive uses with various incremental levels of noise.[5]

The Noise Element Guidelines rank noise/land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable (Noise Element Guidelines, Figure 2, p. 374). The project is also subject to review under the State of California Environmental Quality Act (CEQA). Appendix G of the CEQA Guidelines provides questions relating to potential noise impacts that can be used in the formulation of impact thresholds for potential noise and vibration impacts. The City of American Canyon has developed its own CEQA thresholds, which are described in the local regulatory section below.

California Building Standards Code

The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the "State Noise Insulation Standard," it requires buildings to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the receptor. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

Since the state and federal government have preempted the setting of standards for noise levels that can be emitted by transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning. The applicable sections of the General Plan[6] and Municipal Code[7] are stated below.

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following goal of ensuring that American Canyon's existing and future residents, employees and employers, as well as visitors to the City, are protected from the adverse human health and environmental impacts of excessive noise levels

[5] Governor's Office of Planning and Research. Noise Element Guidelines, Appendix D, Figure 2. 2020. Website: https://opr.ca.gov/planning/general-plan/guidelines.html. Accessed June 29, 2021.

[6] City of American Canyon. Noise Element. Accessed June 29th, 2020. Website: https://www.cityofamericancanyon.org/government/community-development/planning-zoning/general-plan-update.

[7] American Canyon Municipal Code. Community Noise. Accessed June 29, 2021. Website: https://qcode.us/codes/americancanyon/.

created by stationary and ambient (intrusive) noise sources and conditions. The City takes all necessary and appropriate action to avoid or mitigate the detrimental effects of such excessive noise on the community. Exhibit 3.10-1 illustrates the acceptable noise-compatible land use relationships by implementing the noise standards identified in Figure 11-2 of the General Plan. The objectives and policies relevant to noise that are applicable to the proposed project are:

Objective 11.1 Control both ambient and stationary (intrusive) noise conditions and impacts that may occur in American Canyon. Maintain base line information regarding ambient and stationary noise sources within the community.

Policies

Policy 11.1.1 Promote noise-compatible land use relationships by implementing the noise standards identified in Figure 11-2 [of the General Plan], to be utilized for design purposes in new development and for establishing a program to attenuate existing noise problems.

Policy 11.1.2 Monitor and update available data regarding the community's ambient and stationary noise levels.

Objective 11.2 Protect residents, employees, and visitors to the community from excessive noise exposure. If possible, mitigate the adverse impacts of existing or unavoidable excessive noise on these same groups.

Policies

Policy 11.2.1 Require that new development for locations in which the exterior or interior noise levels indicated in Figure 11-2 [of the General Plan] are likely to be exceeded, submit a noise attenuation study prepared by a qualified acoustical engineer in order to determine appropriate mitigation measures.

Policy 11.2.4 Require that new industrial, commercial, and related land uses, or the expansion of these existing land uses, demonstrate that they would not directly cause ambient noise levels to exceed an exterior L_{dn} of 65 dB(A) in areas containing housing, schools, health care facilities, or other "noise-sensitive" land uses. Additionally, require that potentially significant noise generators, including uses such as night clubs that cause sporadic noise intensities, submit noise analyses prepared by an acoustical expert that include specific recommendations for mitigation when: a) the project is located in close proximity to noise-sensitive land uses or land that is planned for noise-sensitive land uses, or b) the proposed noise source could violate the noise provisions of the General Plan or City Noise Ordinance.

Objective 11.3 Minimize the adverse impacts of traffic-generated noise on residential and other "noise-sensitive" uses as depicted on Figure 11-5 [of the General Plan].

Policies

Policy 11.3.1 Minimize motor vehicle noise impacts from streets and highways through proper route location and sensitive roadway design by employing the following strategies:

a. Consider the impacts of truck routes, the effects of a variety of truck traffic, and future motor vehicle volumes on noise levels adjacent to master planned roadways when improvements to the circulation system are planned.
b. Mitigate traffic volumes and vehicle speed through residential neighborhoods.
c. Work closely with the State of California Department of Transportation (Caltrans) in the early stages of highway improvements and design modifications to ensure that proper consideration is given to potential noise impacts on the City.

Policy 11.3.2 Require that all new nonresidential development design and configure on-site ingress and egress points to divert traffic (and its resultant noise) away from "noise-sensitive" land uses to the greatest degree practicable.

Policy 11.4.1 Restrict the development of uses located within the 65 CNEL contour of Napa Airport to industrial, agricultural, or other open space uses (see Figure 11-5 [of the General Plan]).

Policy 11.4.1 Require that development in the vicinity of Napa Airport comply with the noise standards contained in the Airport Land Use Compatibility Plan (ALUP).

Objective 11.5 Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or "noise-sensitive" uses.

Objective 11.7 Minimize the impacts of construction noise on adjacent uses.

Municipal Code

The City of American Canyon General Plan establishes an exterior noise level criterion of 50 dBA in residential single or double and 55 in residential multiple land uses from 10:00 p.m. to 7:00 a.m. and 60 dBA for all residential land uses from 7:00 a.m. to 10:00 p.m. within outdoor activity areas of residential land uses. Additionally, the City requires that cumulative noise exposure from exterior noise sources within noise-sensitive dwellings not exceed 55 dBA from 10:00 p.m. to 7:00 a.m. and 60 dBA from 7:00 a.m. to 10:00 p.m. The City establishes different exterior noise limits for construction noise impacts for residential land uses to be 75 dBA from 7:00 a.m. to 7:00 p.m. and 60 dBA from 7:00 p.m. to 7:00 a.m.

3.10.4 - Methodology

Noise Assessment

Construction Noise Analysis Methodology

A worst-case scenario was analyzed assuming each piece of modeled equipment would operate simultaneously at the nearest reasonable locations to the closest noise-sensitive receptor for the loudest phase of construction. Noise emission levels recommended by FHWA's Highway Construction Noise Handbook were used to ascertain the noise generated by specific types of construction

equipment. The construction noise impact was evaluated in terms of maximum levels (L_{max}). Analysis requirements were based on the sensitivity of nearby receptors and the Noise Ordinance specifications.

Traffic Noise Modeling Methodology

The FHWA highway traffic noise prediction model (FHWA-RD-77-108) was used to evaluate traffic-related noise conditions in the vicinity of the project site. Traffic data used in the model was obtained from the traffic impact analysis prepared for this EIR by W-Trans. The resultant noise levels were weighted and summed over a 24-hour period in order to determine the L_{dn} values. The FHWA-RD-77-108 Model arrives at a predicted noise level through a series of adjustments to the reference energy mean emission level. Adjustments are then made to the reference energy mean emission level to account for the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway); the total Average Daily Traffic (ADT); the percentage of ADT that flows during the day, evening, and night; the travel speed; the vehicle mix on the roadway; a percentage of the volume of automobiles, medium trucks, and heavy trucks; the roadway grade; the angle of view of the observer exposed to the roadway; and the site conditions ("hard" or "soft") as they relate to the absorption of the ground, pavement, or landscaping.

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is considered "barely perceptible."

The model analyzed the noise impacts from the nearby roadways onto the project vicinity, which consists of the area that has the potential of being impacted from the on-site noise sources as well as the project-generated traffic on the nearby roadways**.** The roadways were analyzed based on a single-lane-equivalent noise source combining both directions of travel. A single-lane-equivalent noise source is when the vehicular traffic from all lanes is combined into a theoretical single-lane that has a width equal to the distance between the two outside lanes of a roadway, which provides almost identical results to analyzing each lane separately where elevation changes are minimal. The modeling assumes a direct line of sight to the roadway and flat terrain conditions.

Stationary Noise Source Analysis Methodology

The proposed project would generate noise from parking lot activities, new exterior mechanical equipment sources, such as rooftop ventilation systems on proposed industrial uses, and from truck loading and unloading activities. To provide a conservative analysis, the highest end of the range of reference noise levels for these stationary noise sources was used to calculate the reasonable worst-case hourly average noise levels from each noise source. These hourly averages were then assumed to occur for every hour for a 24-hour period to calculate the reasonable worst-case 24-hour average L_{dn} noise levels as measured at the nearest sensitive receptor land use. These individual source noise levels were then combined to calculate the reasonable worst-case combined stationary source 24-

hour L_{dn} noise level as measured at the nearest sensitive receptor land use. These noise levels were then compared to the City's applicable noise performance threshold to determine whether these noise sources would result in a substantial increase in excess of this standard.

Vibration Impact Analysis Methodology

The City of American Canyon does not have adopted criteria for construction or operational groundborne vibration impacts. Therefore, the FTA's vibration impact criteria and modeling and analysis methodology were utilized to evaluate potential vibration impacts. The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document,[8] and are summarized in Table 3.10-5. in the regulatory discussion above.

3.10.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether noise impacts are significant. These questions input of planning and environmental professionals at the OPR and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so here, but has also included language consistent with CEQA case law. Thus, noise impacts resulting from the implementation of the proposed project would be considered significant if the project would cause:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Generation of excessive groundborne vibration or groundborne noise levels;

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

3.10.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Substantial Noise Increase in Excess of Standards

Impact NOI-1:	**The proposed project could generate a substantial temporary or permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

[8] Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May.

Impact Analysis

Construction

For purposes of this analysis, a significant impact would occur if construction noise impacts were greater than 75 dBA between the hours of 7:00 a.m. and 7:00 p.m. or greater than 60 dBA from 7:00 p.m. to 7:00 a.m., per the City's policies, and would result in a substantial temporary increase in ambient noise levels that could result in annoyance or sleep disturbance of nearby sensitive receptors.

Construction-related Traffic Noise

Noise impacts from construction activities associated with the project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. One type of short-term noise impact that could occur during project construction would result from the increase in traffic flow on local streets associated with the transport of workers, equipment, and materials to and from the project site. The transport of workers and construction equipment and materials to the project site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the ADT hourly volumes on a roadway segment is required in order to result in an increase of 3 dBA in traffic noise levels, which, as discussed in the characteristics of nose discussion above, is the lowest change that can be perceptible to the human ear in outdoor environments. Project-related construction trips would not be expected to double the hourly or daily traffic volumes along any roadway segment in the project vicinity. For this reason, short-term intermittent noise from construction trips would not be expected to result in a perceptible increase in hourly or daily average traffic noise levels in the project vicinity. Therefore, short-term construction-related noise impacts associated with the transportation of workers and equipment to the project site would be less than significant.

Construction Equipment Operational Noise

The second type of short-term noise impact is related to noise generated during construction on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 3.10-2 lists typical construction equipment noise levels, based on a distance of 50 feet between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Impact equipment such as pile drivers are not expected to be used during construction of this project.

The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical

operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. Based on the information provided in Table 3.10-2, the maximum noise level generated by each scraper is assumed to be 85 dBA L_{max} at 50 feet from this equipment. Each bulldozer would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by graders is approximately 85 dBA L_{max} at 50 feet. A characteristic of sound is that each doubling of sound sources with equal strength increases a sound level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. This would result in a reasonable worst-case hourly average of 86 dBA L_{eq}. The acoustic center reference is used because construction equipment must operate at some distance from one another on a project site and the combined noise level as measured at a point equidistant from the sources (acoustic center) would be the worst-case maximum noise level. The effect on sensitive receptors is evaluated below.

The closest noise-sensitive receptor to the project site construction footprint is the single-family residence located southwest of the project site, on Green Island Road. The closest façade of the residence would be located 1,240 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would operate simultaneously during construction of the proposed parking areas near the project's northeastern boundary. At this distance, construction noise levels could range up to approximately 62 dBA L_{max}, with a relative worst-case hourly average of 57 dBA L_{eq} at this receptor. These noise levels could occur temporarily under the reasonable worst-case scenario of multiple pieces of heavy construction equipment operating simultaneously in relatively the same locations at the nearest project boundary for an hour period.

These construction noise levels are within the construction noise limits established by the City of no greater than 75 dBA during the hours of 7:00 a.m. to 7:00 p.m.; but these levels could exceed the City's nighttime threshold for construction noise of 60 dBA. Therefore, construction activities shall be restricted to daytime hours and best management noise reduction techniques and practices shall be implemented as outlined in Mitigation Measure (MM) NOI-1, to ensure that construction noise would not result in a substantial temporary increase in ambient noise levels that would result in annoyance or sleep disturbance of nearby sensitive receptors. MM NOI-1 would reduce impacts from construction noise by requiring mufflers on construction equipment powered by internal engines, which are the primary source of construction noise. Additionally, MM NOI-1 would require contractors to limit idling times of vehicles with internal combustion engines to 5 minutes or less and utilize quiet mode on air compressors and other stationary noise sources. Furthermore, MM NOI-1 would require contractors to locate stationary noise-generating equipment be located as far away as the equipment allows and also placed such that noise is directed away from adjacent residential homes. Finally, MM NOI-1 would require construction staging areas be located as far away as possible from noise-sensitive receptors nearest the project site and would limit construction activities to the permitted hours Monday through Saturday. The measures outlined in MM NOI-1 would collectively reduce temporary construction noise impacts to a less than significant level.

Operation

Implementation of the project would result in mobile and stationary operational noise sources. Potential noise impacts with these project-related sources are analyzed below.

Mobile Source Operational Noise Impacts

A significant impact would occur if implementation of the proposed project would result in a substantial increase in traffic noise levels compared with traffic noise levels existing without the project. The County does not define what is a substantial increase in traffic noise levels. As noted in the characteristics of noise discussion, audible increases in noise levels generally refer to a change of 3 dBA or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. A change of 5 dBA is considered the minimum readily perceptible change to the human ear in outdoor environments. Therefore, for purposes of this analysis, a 3 dBA or greater increase above traffic noise levels that would existing without the project would be considered a substantial permanent increase in traffic noise levels.

Table 3.10-6 shows a summary of the traffic noise levels for Existing, Existing Plus Project, Future without the Project, and Future Plus Project traffic conditions, as defined in the traffic study prepared by W-Trans.[9] These modeling results represent the projected traffic noise levels as measured at 50-feet from the centerline of the outermost travel lane of the modeled roadway segment.

Table 3.10-6: Traffic Noise Increase Summary

Roadway Segment	Existing No Project (dBA) L_{dn}	Existing Plus Project (dBA) L_{dn}	Increase from Existing No Project Conditions (dBA)	Future No Project (dBA) L_{dn}	Future Plus Project (dBA) L_{dn}	Increase from Future No Project Conditions (dBA)
Paoli Loop Road–south of Green Island Road	59.9	60.8	0.9	60.8	61.5	0.7
Green Island Road–Paoli Loop Road to future Devlin Road	62.0	63.2	1.2	62.9	63.8	0.9
Green Island Road–west of future Devlin Road	62.0	62.0	0.0	62.9	62.9	0.0
South Kelly Road–SR-29 to Devlin Road	56.6	59.1	2.5	59.0	60.6	1.6
SR-29–South Kelly Road to Green Island Road	73.8	73.9	0.1	76.1	76.2	0.1

Notes:
dBA = A-weighted decibel
L_{dn} = day/night average sound level
Source: FirstCarbon Solutions (FCS) 2021.

[9] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. July.

As shown in Table 3.10-6, the highest traffic noise level increase with implementation of the proposed project would occur along South Kelly Road under Existing Plus Project conditions. Along this roadway segment, the proposed project would result in traffic noise levels ranging up to 59.1 dBA L_{dn} as measured at 50 feet from the centerline of the nearest travel lane, representing an increase of 2.5 dBA over existing conditions for this roadway segment.

This increase is less than a 3 dBA or greater increase that would be considered a substantial increase. Therefore, project-related traffic noise levels would not result in a substantial permanent increase in traffic noise levels in excess of applicable standards and would represent a less than significant impact.

Stationary Source Operational Noise Impacts

A significant impact would occur if operational noise levels generated by stationary noise sources at the proposed project site would result in a substantial permanent increase in ambient noise levels in excess of the City's noise performance standards. The City requires that new industrial, commercial, and related land uses demonstrate that they would not directly cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA in areas containing housing, schools, health care facilities, or other "noise-sensitive" land uses.

The proposed project would generate noise from parking lot activities, new exterior mechanical equipment sources, such as rooftop ventilation systems on proposed industrial uses, and truck loading and unloading activities. Potential impacts from these noise sources are discussed below.

Parking Lot Activities

Typical parking lot activities include people conversing, doors shutting, and vehicles idling which generate noise levels ranging from approximately 60 dBA to 70 dBA L_{max} at 50 feet. These activities are expected to occur sporadically throughout the day as visitors and staff arrive and leave parking lot areas at the project site.

The nearest noise-sensitive receptor is single-family residence located southwest of the project site on Green Island Road. The nearest façade of the residence is located approximately 1,360 feet southwest of the nearest proposed parking areas. With the distance attenuation, noise levels associated with daily parking lot activities would attenuate to approximately 41 dBA L_{max} at this façade. Assuming a reasonable worst-case scenario of one parking movement for every parking stall within a single hour would result in an hourly average noise level of 24 dBA L_{eq} as measured at this nearest façade. If these noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 30 dBA L_{dn} as measured at this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix G.

Therefore, the proposed project's reasonable worst-case parking lot noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. Existing traffic noise levels along Green Island Road are shown in Table3.10-6 to be 62 dBA L_{dn}. Therefore, project parking lot activities would not result in a substantial permanent increase in ambient noise levels in the project vicinity. Because the proposed project would not generate a substantial permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of

the project, and would also not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, the impact of noise produced by project-related parking lot activities to off-site sensitive receptors would be less than significant.

Mechanical Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to the proposed rooftop mechanical ventilation systems for the project; therefore, a reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from commercially available rooftop mechanical ventilation equipment range from 50 dBA to 60 dBA L_{eq} at a distance of 25 feet.

The nearest noise-sensitive receptor is a single-family residence located southwest of the project site on Green Island Road. The nearest façade of the residence is located approximately 1,470 feet southwest of the nearest potential location for proposed rooftop mechanical ventilation equipment. At this distance, noise generated by typical rooftop mechanical ventilation equipment would attenuate to below 22 dBA L_{eq} at the nearest façade. If these noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 29 dBA L_{dn} as measured at this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix G.

Therefore, the proposed project's reasonable worst-case mechanical ventilation equipment operations noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. Existing traffic noise levels along Green Island Road are shown in Table 3.10-6 to be 62 dBA L_{dn}. Therefore, noise levels from proposed mechanical ventilation equipment operations would not result in a substantial permanent increase in ambient noise levels in the project vicinity. Because the project would not generate a substantial permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project, and would also not generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, the impact of noise produced by proposed mechanical ventilation equipment operations to off-site sensitive receptors would be less than significant.

Truck Loading Activities

Noise would be also generated by truck loading and unloading activities at the loading docks along the western side of the proposed building and at the proposed surface level loading areas on the north and south sides of the building. Typical maximum noise levels from truck loading and unloading activity are 70 dBA L_{max} as measured at 50 feet. These maximum noise levels include noise from associated truck loading/unloading activity, including trucks maneuvering, truck trailer loading, truck trailer unloading, backup alarms or beepers, and truck docking noise.

The nearest noise-sensitive receptor is a single-family residence located south of the project site on Green Island Road. The nearest façade of the residence is located approximately 1,600 feet from the nearest loading docks. Assuming a reasonable worst-case scenario of one truck loading operation for every loading stall and every loading dock within a single hour would result in an hourly average noise level of 40 dBA L_{max} and 29 dBA L_{eq} as measured at the nearest façade of the residence. If these

noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 35 dBA L_{dn} as measured at this nearest receptor. The calculation spreadsheet with the detailed modeling assumptions is included in Appendix G.

Therefore, the proposed project's reasonable worst-case truck loading/unloading activity noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. Existing traffic noise levels along Green Island Road are shown in Table3.10-6 to be 62 dBA L_{dn}. Therefore, project truck loading/unloading activities would not result in a substantial permanent increase in ambient noise levels in the project vicinity. Because the proposed project would not generate a substantial permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project, and would also not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, the impact of noise produced by project-related parking lot activities to off-site sensitive receptors would be less than significant.

Stationary Source Operational Noise Impact Conclusion

As shown in the analysis above, none of the project stationary operational noise sources would result in an increase of 3 dBA or greater above the City's performance threshold of 65 dBA L_{dn} for stationary noise sources as measured at the nearest sensitive receptor. Therefore, noise impacts from stationary operational noise sources would be less than significant.

Table 3.10-7 provides a summary of the stationary source operation noise impacts. The combined stationary source operational noise levels would not exceed the City's exterior L_{dn} threshold of 65 dBA as measured at the nearest receptor. Therefore, project stationary source operational noise levels would be less than significant.

Table 3.10-7: Stationary Operational Noise Impact Summary

Source (Reference Noise Levels)	Approximate Distance from Source to Nearest Sensitive Receptor (feet)	Operational Noise Level as Measured at the Project Boundary	City's Noise Performance Threshold	Exceed Threshold by 3 dBA or greater? (Yes/No)
Parking Lot Activities (70 dBA L_{max} at 50 feet)	1,360	30 dBA L_{dn}	65 dBA L_{dn}	No
Mechanical Ventilation Equipment (60 dBA L_{eq} at a distance of 25 feet)	1,470	29 dBA L_{dn}	65 dBA L_{dn}	No
Truck Loading and Unloading Activities (80 dBA L_{max} as measured at 50 feet)	1,600	35 dBA L_{dn}	65 dBA L_{dn}	No
Combined Noise Levels	NA	36.9 dBA L_{dn}	65 dBA L_{dn}	No

Notes:
dBA = A-weighted decibel
L_{max} = maximum noise/sound level
L_{dn} = day/night average sound level
Source: FirstCarbon Solutions (FCS) 2021.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Based on the above analysis, impacts from noise generated from stationary operational noise sources would be less than significant. However, project construction activity noise impacts, which could result in a temporary increase in ambient noise levels in the project vicinity that could result in annoyance or sleep disturbance of nearby sensitive receptors, would be reduced to less than significant levels with implementation of the following multi-part mitigation measure.

MM NOI-1 Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts:

- The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment.
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.
- The construction contractor shall ensure that all on-site construction activities, including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.

Level of Significance After Mitigation

Less than significant impact.

Groundborne Vibration/Noise Levels

Impact NOI-2: The proposed project would not result in generation of excessive groundborne vibration or groundborne noise levels.

Impact Analysis

This section analyzes both construction and operational groundborne vibration and noise impacts. Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. Groundborne noise is generated when

vibrating building components radiate sound, or noise generated by groundborne vibration. In general, if groundborne vibration levels do not exceed levels considered perceptible, then groundborne noise levels would not be perceptible in most interior environments. Therefore, this analysis focuses on determining exceedances of groundborne vibration levels.

The City of American Canyon has not established quantitative groundborne vibration thresholds for construction or operation. Therefore, for purposes of this analysis, the FTA's vibration impact criteria are utilized to analyze vibration impacts. The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment Manual.[10] The construction vibration impact criteria are summarized in Table 3.10-5.

Construction

A significant impact would occur if existing structures at the project site or in the project vicinity would be exposed to groundborne vibration levels in excess of levels established by the FTA's Construction Vibration Impact Criteria for the listed type of structure, as shown in Table 3.10-5.

Of the variety of equipment used during construction, the large vibratory rollers that could be used in the site preparation phase of construction would produce the greatest groundborne vibration levels. Large vibratory rollers produce groundborne vibration levels ranging up to 0.201 inch per second (in/sec) PPV at 25 feet from the operating equipment.

The nearest off-site receptors to the project construction footprint where the heaviest construction equipment would operate is the commercial building located south of the project site on Green Island Road. The façade of this structure would be located approximately 120 feet from the nearest point on the project site where the heaviest construction equipment would potentially operate. At this distance, groundborne vibration levels would range up to 0.008 PPV from operation of the types of equipment that would produce the highest vibration levels, which is well below the FTA's Construction Vibration Impact Criteria of 0.2 PPV for this type of structure, which is a building of non-engineered timber and masonry construction. Therefore, the impact of short-term groundborne vibration associated with construction to off-site receptors would be less than significant.

Operation

Implementation of the project would not include any permanent sources that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the project vicinity.

The Napa Branch Line railroad is located approximately 130 feet east of the nearest proposed façade of the project. At this distance potential groundborne vibration impacts would be less than significant for the proposed type of structure, based on FTA vibration screening criteria. There are no other existing significant permanent sources of groundborne vibration in the project vicinity to which the proposed project would be exposed. Therefore, project operational groundborne vibration level impacts would be considered less than significant.

[10] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September.

Level of Significance Before Mitigation

Less than significant impact.

Excessive Noise Levels from Airport Activity

Impact NOI-3: The proposed project would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

Impact Analysis

A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport. The City's Policy 11.4.1 restricts the development of uses located within the 65 CNEL contour of Napa Airport to industrial, agricultural, or other open space uses; and Policy 11.4.1 requires that development in the vicinity of Napa Airport comply with the noise standards contained in the ALUP.

The project site is not located within the vicinity of a private airstrip. However, the project is located within 2 miles of a public airport; the Napa County Airport is located approximately 1 mile north of the project site. According to the airport's noise exposure map and shown in Exhibit 3.10-2, the project site is located outside of the 55 dBA CNEL airport noise contours.[11] Therefore, while aircraft noise is occasionally audible on the project site from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working near the project site to excessive noise levels. These noise levels are considered normally acceptable for new industrial land use development within the City as shown in Exhibit 3.10-1. On this basis, implementation of the project would not expose persons residing or working in the project vicinity to noise levels from airport activity that would be in excess of normally acceptable standards for the proposed land use development, and no impact would occur.

Level of Significance Before Mitigation

Less than significant impact.

[11] Napa County Airport Master Plan. 2008. Noise Contours 2022. Website: https://www.countyofnapa.org/DocumentCenter/View/1981/Airport-Master-Plan-Environmental-Assessment-NEPA-PDF. Accessed June 30, 2021.

ZONE	LOCATION	IMPACT ELEMENTS	MAXIMUM DENSITIES (8)		
			Residential (1)	Other Structures (people/acre) (2)	
				In Structures	Total in and out of Structures
A (9)	Runway Protection Zone and Primary Surface	•High risk •High Noise Levels •Low overflights below 50' AGL	0	0	10
B	Inner Approach / Departure Zone	•Substantial risk •High Noise Levels •Low overflights below 100' AGL	0	10	25
C	Approach / Departure Zone	•Moderate risk •Substantial Noise •Low overflights below 300' AGL	0	50	75
D	Common Traffic Pattern	•Moderatel risk •Frequent Noise Intrusion •Low overflights below 1,000' AGL	0	100	150
E	Other Airport Environs	•Low risk •Overflight annoyance	See Note 7		

Zone	Prohibited Uses	Other Development Conditions[3]	Examples of Normally Acceptable ses[4]	Examples of Uses not Normally Acceptable[5]
A	• All residential uses • Any assemblage of people • Any new structure which exceeds height limits • Noise-sensitive uses • Uses hazardous to flight[10]	• Avigation easement required	• Pasture, open space • Aircraft tiedowns • Auto parking • Most agricultural uses	• Heavy poles, signs, large trees, etc. • Ponds
B	• All residential uses • Any noise-sensitive uses •Schools, libraries, hospitals, nursing homes, daycare centers • Uses hazardous to flight[10]	• Avigation easement required • Structures to be as far as possible from extended runway centerline • Clustering is encouraged to maximize open land areas • Minimum NLR of 25 dBA in office buildings[6] • Building envelopes and approach surfaces required on all subdivision maps and development plans	• All uses from Zone A • Parks with low-intensity uses, golf courses • Nurseries • Mini-storage	• Retail uses • Office uses (except as accessory uses) • Hotels, motels, resorts • Theaters, assembly halls, and conference centers • Ponds
C	• All residential uses • Schools, libraries, hospitals, nursing homes, daycare centers • Uses hazardous to flight[10] • Landfills	• Avigation easement required • Structures to be set back as far as possible from extended centerline • Clustering is encouraged to maximize open land areas • Building envelopes and approach surfaces required on all subdivision maps • NLR measures may be required for noise-sensitive uses (offices)[6]	• All uses from Zone B • Warehousing and low-intensity light industrial • Small retail uses • Outdoor recreation uses; marina, ballpark • Office uses	• Large retail buildings • Hotels, motels, resorts, health clubs • Restaurants, bars • Multi-story buildings • Theaters, assembly halls, and conference centers • Ponds
D	• All residential uses • Uses hazardous to flight[10]	• Overflight easement or deed notice required[11] • Building envelopes and approach surfaces required on all development plans within 100 feet of approach zones • Clustering is encouraged to maximize open land areas • NLR measures may be required for noise-sensitive uses[6]	• All uses from Zone C • Most nonresidential uses • Accessory daycare centers	• Schools, libraries, hospitals, nursing homes • Large shopping malls • Amphitheaters • Ponds
E	• Noise-sensitive outdoor uses	• Overflight easement or deed notice required[11]	• Any permitted use	• Amphitheaters • Landfills • Ponds

Source: The City of American Canyon General Plan.

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Exhibit 3.10-1
General Plan Noise Element

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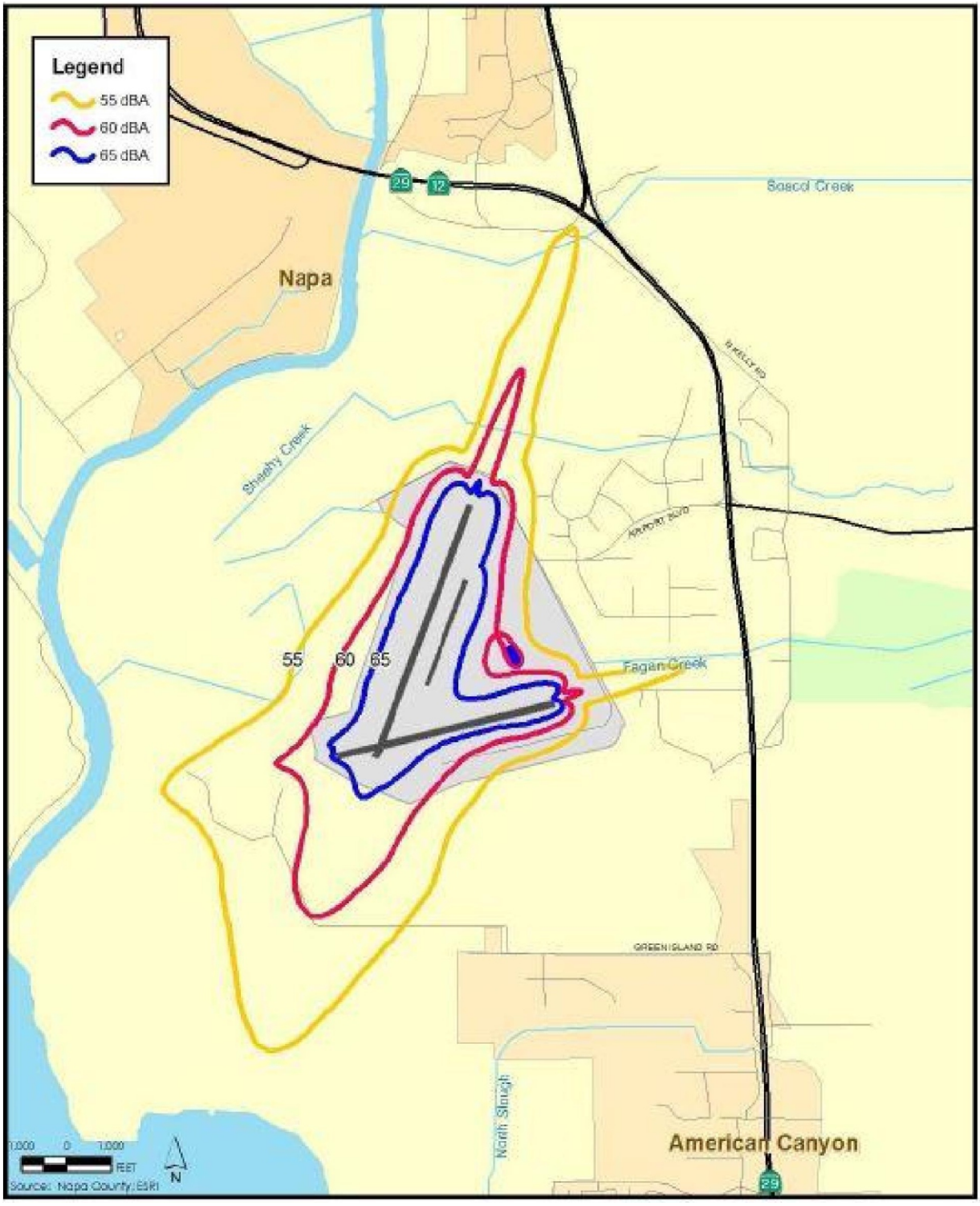

Source: Napa County, 2004. The City of American Canyon General Plan.

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Exhibit 3.10-2
Napa County Airport Noise Levels

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3.11 - Public Services

3.11.1 - Introductions

This section describes the existing public services and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information provided by the City of American Canyon General Plan and the South County Region Municipal Service Review and Sphere of Influence Updates.

3.11.2 - Environmental Setting

Fire Protection and Emergency Medical Services

The American Canyon Fire Protection District (Fire District) provides fire protection and emergency medical services to the City of American Canyon as well as nearby unincorporated areas of Napa County. The Fire District's service area encompasses approximately 8 square miles. The Fire District is headquartered at 911 Donaldson Way East (Station 11). The American Canyon City Council serves as the Fire District's Board of Directors.

Stations

The Fire District operates two fire stations: Station 11 (911 Donaldson Way) and Station 2 (225 James Road). Station 2 was reopened in June 2020 after being closed for several years.

Organization

The Fire District is organized into three divisions: Operations, Prevention, and Administration. Operations is the largest division and is responsible for responding to calls for service. Prevention oversees code compliance and conducts inspections through a private contractor. Administration is the principal responsibility of the Fire Chief, and this division oversees field operations, policy reviews, and budgeting.

Services Provided

The Fire District provides emergency operations, fire suppression, advanced life support emergency medical care, and rescue in a public-private partnership with American Medical Response. Other services and functions include fire prevention, public education, business fire safety inspections, plan review, construction site inspection, code enforcement, fire investigation, public education outreach programs, disaster preparedness, emergency operations plan development, emergency operations center operations, and coordination of disaster preparedness training. The Fire District is also recognized by California Emergency Management Agency as a Type 1 (heavy) rescue single resource.

Apparatus

The Fire District has four front line apparatus: three 1,500-gallon-per-minute (gpm) pumper engines and one 1,500-gpm, 75-foot aerial ladder truck (Quint). The Fire District also has air/light/rescue apparatus; command/utility vehicles, inflatable rescue boats, an ambulance, and towable technical rescue equipment trailers.

Staffing

The Fire District has 24 full-time employees including 22 sworn fire fighters and two executive assistants. Twenty fire personnel are assigned to Operations and staff three shifts: A, B, and C. The Fire Chief and Assistant Fire Chief are assigned to Administration along with the executive assistants. The Fire District can supplement its full-time personnel with reserves and volunteers when needed.

Incidents

The Fire District responded to 1,868 incidents in 2021. Rescues and emergency services accounted for 63 percent of the incidents. The Fire District responded to 62 incidents in the industrial area near the Napa County Airport in 2020, with rescue and emergency services accounting for 48 percent of the calls.

Response Times

The Fire District has an established response time standard of first unit arrival within 5 minutes (total travel time) for 90 percent of all incidents. The Fire District responded to 13 percent of calls within 5 minutes in the industrial area near the Napa County Airport in 2021.

Insurance Services Office Rating

The Fire District has an Insurance Services Office (ISO) rating of Class 2 on a scale of 1 to 10, with 1 being the best. An ISO rating accounts for factors such as emergency communication systems, personnel, training, equipment, and water supply.

Police Protection

The American Canyon Police Department (Police Department) provides police protection to the City of American Canyon. The Police Department is staffed by the Napa County Sheriff's Office, which provides law enforcement services on a contract basis to the City of American Canyon. The Police Department is headquartered at 911 Donaldson Way East.

Organization

The Sheriff's Office consists of the following divisions: Administration, Operations, and Services. Administration is responsible for policy development and implementation, and overall management of personnel and fiscal resources. Operations is made up of four bureaus: Patrol, Investigations, Special Operations, and Animal Services. The Services Division comprises five bureaus: Technical Services (Records), Property and Evidence, Coroner, Court Services and Transportation.

Staffing

The Police Department is staffed by 24 full-time sworn police officers and 2.7 (full-time-equivalent) civilian personnel. The Police Department consists of one chief (Sheriff's Office Captain), four sergeants, and 19 officers. Two of the officers are assigned to traffic, one is a School Resource Officer, and one is a Community Resource Officer.

Calls for Service

Between 2013 and 2018, the Police Department responded to between 17,057 and 19,703 calls for service annually.

3.11.3 - Regulatory Framework

State

California Building Standards Code

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national and international model codes.
- Building standards that have been adopted and adapted from national and international model code standards to meet California conditions.
- Building standards, authorized by the California legislature, which constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

The California Fire Code is a component of the California Building Standards Code and contains fire-safety-related building standards.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following goals relevant to public services:

Goal 6A Maintain a high level of fire protection and emergency services to City/District businesses and residents.

Goal 6B Ensure a high level of police protection for the City's residents, businesses, and visitors.

Policies

Policy 6.7.1 Work with the Sheriff's Department to ensure that enough personnel are added to the Department to serve the needs of a growing population and a developing City.

3.11.4 - Methodology

FCS reviewed the City of American Canyon General Plan, the South County Region Municipal Service Review and Sphere of Influence Updates, and the City's website for information about public service providers.

3.11.5 - Thresholds of Significance

Appendix G to the California Environmental Quality Act (CEQA) Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to public services are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based

on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

> Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
>
> a) Fire protection.
> b) Police protection.
> c) Schools (Refer to Section 7, Effects Found not to be Significant).
> d) Parks (Refer to Section 7, Effects Found not to be Significant).
> e) Other public facilities (Refer to Section 7, Effects Found not to be Significant).

3.11.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Fire Protection

Impact PS-1:	**The proposed project would not result in a need for new or expanded fire protection facilities that may have physical impacts on the environment.**

Impact Analysis

Phases 1 and 2

The proposed project would be served with fire protection and emergency medical services provided by the American Canyon Fire Protection District.

The Fire Protection District indicates that the proposed project would increase the number of calls for service, with most being rescue and emergency medical service related. The proposed project would take vehicular access from Green Island Road and the Devlin Road extension, which is currently under construction. All access points would be accessible to large emergency vehicles such as fire engines. This would comply with California Fire Code requirements for emergency vehicle accessibility.

The project site is located 3.1 miles from Station 11, via Paoli Loop Road and Green Island Road. However, emergency responders have the ability to avoid Paoli Loop Road and make a left turn directly onto Green Island Road from State Route (SR) 29. This route reduces the travel distance to 2.2 miles. Using an average travel speed of 35 miles per hour, it would take a fire engine 3 minutes and 46 seconds to reach the project site when responding from Station 11. This would be within the Fire District's 5-minute response time objective. However, congestion on SR-29 may increase travel time such that it exceeds the 5-minute response time objective.

The proposed project would be required to pay two separate special assessments to fund fire protection and emergency medical services. The first is the "Fire Mitigation Fee," a one-time assessment to all new development. The second is the "Fire Service Fee" and an annual assessment for each parcel based on a formula that includes structure construction type, the fire flow area (square feet), proximity of other structures, the type of occupancy, and the presence of fire protection devices.

Because the Fire District's existing facilities are adequate to serve the proposed project, there is no need to develop new or expanded fire protection facilities to serve the project. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Police Protection

Impact PS-2:	**The proposed project would not result in a need for new or expanded police protection facilities that may have physical impacts on the environment.**

Impact Analysis

Phases 1 and 2

The proposed project would be served with police protection provided by the American Canyon Police Department. The Police Department is staffed by the Napa County Sheriff's Office, which provides law enforcement services on a contract basis to the City of American Canyon.

The proposed project would be surrounded with a secure perimeter and would only be accessible to authorized users. Depending on the ultimate end user, the site would be accessible via either a mechanical gate with key card access, or a manned security booth. The proposed project would be expected to be staffed 24 hours a day, 7 days a week. Security measures including exterior lighting, alarm systems, and video surveillance would be employed to deter and prevent criminal activity. The Police Department will have the opportunity to review and comment on security measures during the plan check review process. For these reasons, the proposed project would be expected to generate minimal calls for service and, therefore, would not create a need for new or expanded police facilities. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

3.12 - Transportation

3.12.1 - Introduction

This section describes the existing transportation setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on a Traffic Impact Study prepared by W-Trans. The study is provided in Appendix H.

3.12.2 - Environmental Setting

Study Area

The study area consists of the following intersections selected through consultation from City staff:

1. State Route (SR) 29/South Kelly Road
2. Devlin Road/South Kelly Road
3. Devlin Road/Green Island Road (Future Intersection)
4. Paoli Loop Road/Green Island Road

Operating conditions during the weekday AM and PM peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak-hour occurs between 7:00 a.m. and 9:00 a.m. and reflects conditions during the home to work or school commute, while the PM peak-hour occurs between 4:00 p.m. and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersections

SR-29/South Kelly Road is a signalized four-legged intersection with protected left turns on all approaches. There are crosswalks on the west, north, and east legs.

Devlin Road/South Kelly Road is an all-way stop-controlled intersection with crosswalks on the east and south legs.

Devlin Road/Green Island Road (Future) is a future tee intersection with stop control on the southbound Devlin Road approach. Crosswalks are planned at the north leg.

Paoli Loop Road/Green Island Road is a tee intersection with stop control on the northbound Paoli Loop Road approach. There are no crosswalks.

Exhibit 3.12-1 depicts the study facilities and land configurations.

Intersection Level of Service

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

As explained in detail later in subsection (3.12.3) below, transportation analyses under the California Environmental Quality Act (CEQA) formerly focused on reductions in LOS (dropping from one category [e.g., D] to another [e.g., E or F]), but no longer do. As of early 2019, CEQA expressly forbids lead agencies from measuring adverse transportation effects in terms of "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion" (with an exception not relevant here) (Public Resources Code [PRC], § 21099(b)(2)). Even so, many public agencies still require analyses of proposed projects' potential effects on LOS, but do so under their general police power or General Plan policies, wholly independent of, and separate from, CEQA.

This section addresses LOS issues independent of CEQA, for use by the City of American Canyon for assessing whether and how to impose conditions of approval needed to maintain the reasonable free flow of traffic. In particular, this section addresses LOS in order to ensure that the proposed project complies with Guiding Policy 1.6 of the Circulation Element of the City's General Plan (quoted in full in section 3.12.3 below).

The study intersections were analyzed using methodologies published in the Highway Capacity Manual (HCM), 6th Edition, Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The LOS for the intersections with side street stop controls, or those that are unsignalized and have one or two stop-controlled approaches, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a LOS for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing, and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and then related to an LOS.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the California Department of Transportation (Caltrans).

The ranges of delay associated with the various LOS are indicated in Table 3.12-1.

Table 3.12-1: Intersection Level of Service Criteria

LOS	Two-Way Stop-Controlled	All-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queueing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop, and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.
Source: Highway Capacity Manual (HCM). 2018.			

Existing Traffic Operations

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the AM and PM peak-hours. This condition does not include project-generated traffic volumes. Volume data was collected on various dates in February, May, and November 2019 while local schools were in session and prior to the outbreak of COVID-19 and the resulting change in travel patterns. It is noted that travel patterns within American Canyon vary between the AM and PM peak-hours and individual drivers may use different routes for their morning and evening commutes.

As shown in Table 3.12-2, all study intersections are operating acceptably during both peak-hours evaluated under existing conditions. Exhibit 3.12-2 depicts the existing traffic volumes.

Table 3.12-2: Existing Peak-hour Intersection Levels of Service

Study Intersection	AM Peak-hour		PM Peak-hour	
	Delay	LOS	Delay	LOS
1. SR-29/South Kelly Road	34.6	C	15.9	B
2. Devlin Road/South Kelly Road	7.8	A	8.0	A
3. Devlin Road/Green Island Road	–	–	–	–
4. Paoli Loop Road/Green Island Road Northbound Approach	4.9 13.3	A B	3.1 13.5	A B

Notes:
LOS = Level of Service
Study intersection No. 3 Devlin Road/Green Island Road did not exist in 2015-2020.
Source: W-Trans 2021.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current 5-year period available is October 1, 2015, through September 30, 2020.

As presented in Table 3.12-3, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities Statewide, as reported in the publication 2016 Collision Data on California State Highways, California Department of Transportation (Caltrans). These average rates Statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). A more detailed evaluation is provided for study intersections where the collision rates were higher than the Statewide average.

Table 3.12-3: Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2015-2020)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. SR-29/South Kelly Road	48	**0.82**	0.58
2. Devlin Road/South Kelly Road	2	0.32	0.55
3. Paoli Loop Road/Green Island Road	2	**0.20**	0.16

Notes:
c/mve = collisions per million vehicles entering
Study intersection No. 3 Devlin Road/Green Island Road did not exist in 2015-2020.
Source: W-Trans 2021.

Of the 48 reported collisions that occurred at the intersection of SR-29/South Kelly Road, 30 were rear-end collisions with the primary cause being unsafe speeds. This type of crash is common at signalized intersections where there is congestion, especially during peak periods. Because of the regional nature of the traffic that causes the congestion, and as this location is under the jurisdiction of Caltrans, there is little that the City can do to address this condition though increased enforcement and analysis of the potential to improve signal timing to reduce congestion could be requested of the Highway Patrol and Caltrans, respectively.

The collision rate at Paoli Loop Road/Green Island Road is higher than the Statewide average, with one of the two reported collisions being a head-on collision and the other being a broadside collision. The broadside collision resulted from "traffic signal and sign" violations, and the head-on collision was attributed to unsafe speed. With no clear pattern and given the very low number of crashes, no remedial actions are apparent.

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, sidewalk coverage is limited in the area surrounding the project site. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points. Within the study area, new sidewalks are planned along the future extension of Devlin Road.

Bicycle Facilities

The *Highway Design Manual* published by Caltrans classifies bikeways into four categories:

- Class I Multiuse Path–a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- Class II Bike Lane–a striped and signed lane for one-way bike travel on a street or highway.
- Class III Bike Route–signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- Class IV Bikeway–also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Devlin Road between Middleton Way and South Kelly Road. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 3.12-4 summarizes the existing and planned bicycle facilities in the project vicinity as contained in the Napa Countywide Bicycle Plan.

Table 3.12-4: Bicycle Facility Summary

Status	Facility	Class	Length (miles)	Beginning Point	Ending Point
Existing	Devlin Road	II	0.09	Middleton Way	South Kelly Road
Planned	South Kelly Road	I	0.20	SR-29	Devlin Road
	Vine Trail	I	1.62	Middleton Way	Watson Lane
	Green Island Road	I	0.33	Vine Trail	Commerce Boulevard
	Green Island Road	II	0.25	Mezzetta Court	Vine Trail
Source: W-Trans 2021.					

Transit Facilities

Valley Intercity Neighborhood Express (VINE) Transit provides fixed route bus service throughout Napa County. American Canyon Transit (ACT) is an on-demand, door-to-door, transit service for persons with disabilities who cannot independently use regular fixed route transit services. Neither VINE nor ACT maintains stops near the project site.

On-demand private taxi services are available in the study area 24 hours a day. Taxis can be used for trips within the local Planning Area and farther destinations, including nearby airports. Other ride-hailing applications are also available in study area and provide transportation throughout the Bay Area.

3.12.3 - Regulatory Framework

State

California Environmental Quality Act

As mentioned in subsection 3.12.2 above, CEQA transportation analyses traditionally used LOS to rank traffic operations on various types of facilities based on traffic volumes and roadway capacity, using a series of letter designations ranging from A to F. In 2013, however, the Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of Senate Bill 743 (2013), Public Resources Code Section 21099, subdivision (b)(1), directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption, proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

Subdivision (b)(2) of Section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to [CEQA], except in locations specifically identified in the guidelines, if any."

Pursuant to Senate Bill 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled [VMT] is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact." [1]

California Department of Transportation

The study intersection of SR-29/South Kelly Road is located on the State Transportation Network (STN) and is therefore under jurisdiction of Caltrans. It is noted that Caltrans does not currently have a standard of significance relative to intersection operation as this is no longer a CEQA issue. The new Vehicle Miles Traveled-focused *Transportation Impact Study Guide* (TISG), published in May 2020, replaced the *Guide for the Preparation of Traffic Impact Studies*, 2002. As indicated in the TISG, Caltrans is transitioning away from requesting LOS or other vehicle operations analyses of land use projects and will instead focus on Vehicle Miles Traveled (VMT).

California Public Utilities Commission

The California Public Utilities Commission (CPUC) is the State agency responsible for rail safety. The CPUC's jurisdiction includes railroad interlocking plants and public highway grade crossings. CPUC approval is required to modify a railroad interlocking plant (including construction of a new spur track) or modification to an existing public railroad grade crossing. Completion and submittal of a General Order 33-B is required for any proposed work to a railroad interlocking plant (e.g., spur track), and a General Order 88-B is required for any proposed work to a public highway grade crossing.

Regional

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) serves as the transportation planning, coordinating, and financing agency for the nine county San Francisco Bay Area. The MTC created and maintains the Metropolitan Transportation System (MTS), a multimodal system of highways, major arterials, transit services, rail lines, seaports, airports, and transfer hubs that are critical to regional

[1] Subdivision (b)(2) of CEQA Guidelines Section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in [CEQA Guidelines] Section 15152."

transportation between the nine Bay Area counties. MTS facilities within the study area include SR-12, SR-29, and Airport Boulevard. The MTS is incorporated into MTC's 2001 Regional Transportation Plan (RTP) and is used as a guideline in prioritizing for planning and funding of facilities in the Bay Area. Facilities included in the MTS provide access to major Bay Area activity centers, supply convenient and efficient connections, and/or provide alternative routes or modes for congested areas or regions with limited facilities.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan (General Plan) sets forth the following guiding and implementing policies relevant to transportation:

Guiding Policy 1.1 Community Priorities. Safe and convenient access to activities in the community is provided by a well-designed local roadway system. That system serves the community's primary need for mobility and includes a planned hierarchy of roadways to meet that need. The following Community Priorities relate most directly to this Element:

- Encourage and foster a strong sense of community and safety, as well as the "hometown" feeling by creation of a town center through land use and circulation planning.
- Improve a hierarchy of roadway networks to achieve and maintain acceptable traffic LOS and provide a citywide system of bicycle lanes and recreational trails that improve accessibility without the use of an automobile.
- Improve SR-29 so that it serves as a visually attractive gateway into the City while providing access to commercial businesses and serving intra and inter-regional traffic and goods movement.

Guiding Policy 1.2 Implement planned roadway improvements. Use Figure 3: General Plan Circulation System, and Table 3: Major Circulation Improvements, to identify, schedule, and implement roadway and complimentary intersection improvements to support General Plan buildout conditions. Planned improvements may be phased as development occurs and need for increased capacity is identified.

Guiding Policy 1.3 Design circulation system to focus regional travel on SR-29. SR-29 is important for both Citywide and north–south regional travel. As both City and regional travel grow, design the City circulation system to discourage regional traffic from bypassing SR-29 and impacting City streets. Also, cooperatively work with regional partners, including Caltrans, NCTPA and others explore a complete streets approach that will expand the travel capacity of SR-29.

Guiding Policy 1.6 Achieve and maintain a Multimodal LOS D or better for roadways and intersections during peak-hours where possible and as long as possible.

However, recognizing that LOS D may not be achievable or cannot be maintained upon full buildout of the General Plan, due to traffic generated from sources beyond the control of the City, the City Council shall have the discretion to only require feasible mitigation measures that may not achieve LOS D, but will reduce the impact of any development use or density planned for in the Land Use Element of the General Plan.

The following locations that may not achieve or maintain LOS D are as follows and therefore will be exempt from the LOS D policy:

- State Route 29 through the City
- American Canyon Road from SR-29 to Flosden Road–Newell Drive
- Flosden Road south of American Canyon Road

Guiding Policy 1.9 Use of existing facilities. Make efficient use of existing transportation facilities, and improve these facilities as necessary in accordance with the Circulation Map.

Guiding Policy 1.11 Reduce Vehicle Miles Traveled. Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce the total vehicle miles traveled by City residents.

Guiding Policy 1.12 Circulation System Enhancements. Achieve, maintain and/or improve mobility in the City by considering circulation system enhancements beyond improvements identified on the Circulation Map, where feasible and appropriate. Improve the circulation system, in accordance with the Circulation Map, at minimum, to support multimodal travel of all users and goods and where feasible, apply creative circulation system enhancements that increase system capacity and that are acceptable to the City and its residents and where applicable, Caltrans.

Implementing Policy 1.14

Work with Caltrans on highway improvements. Continue to work with the Caltrans to achieve timely context sensitive design solutions, funding, and construction of programmed highway improvements.

Implementing Policy 1.17

Regional fair-share fee program. Work with Caltrans, NCTPA, Napa County, and other jurisdictions to establish a fair-share fee program for improvements to routes of regional significance and State highways. This fee should reflect traffic generated by individual municipalities/unincorporated communities as well as pass-through traffic.

Implementing Policy 1.24
Impacts of new development. Based upon the findings of a transportation impact analysis, consistent with Guiding Policy 1.26, new development will be responsible for mitigation of transportation-related impacts.

Implementing Policy 1.35
General transit and pedestrian access. In reviewing designs of proposed developments, ensure that provision is made for access to current and future public transit services. In particular, pedestrian access to arterial and collector streets from subdivisions should not be impeded by continuous segments of sound walls.

Guiding Policy 2.1 Promote walking and bicycling. Promote walking and bike riding for transportation, recreation, and improvement of public and environmental health.

Guiding Policy 2.3 Develop a safe and efficient non-motorized circulation system. Provide safe and direct pedestrian routes and bikeways between places.

Implementing Policy 2.7
Universal design. Provide pedestrian facilities that are accessible to persons with disabilities and ensure that roadway improvement projects address accessibility by using universal design concepts.

Implementing Policy 2.18
Pedestrian connections to employment destinations. Encourage the development of a network of continuous walkways within new commercial, town center, public, and industrial uses to improve workers' ability to walk safely around, to, and from their workplaces. Where possible, route pedestrians to grade separated crossings over State Route 29.

Guiding Policy 3.1 Promote safe, efficient, and convenient public transportation. Promote the use of public transportation for daily trips, including to schools and workplaces, as well as other purposes.

Guiding Policy 4.1 Promote safe and efficient goods movement. Promote the safe and efficient movement of goods via truck and rail with minimum disruptions to residential areas.

Guiding Policy 4.2 Promote railroad safety. Minimize the safety problems associated with the railroad, including the construction and maintenance of at-grade crossings and the physical barrier effect of the track alignment on the City.

Guiding Policy 4.4 New truck route designation. All highways, arterials, and industrial streets shall be designated truck routes.

Guiding Policy 4.6 Location of industrial development. Continue industrial expansion in the north industrial area to minimize the neighborhood impacts of truck movements.

Guiding Policy 4.7 Secure truck parking. Encourage high-security off-street parking for tractor-trailer rigs in industrial designated areas.

Performance Standards

The General Plan Circulation Element specifies minimum LOS standards for all streets and intersections in the City's jurisdiction. In Section 4.1.6, the City establishes the following performance standards for acceptable LOS for purposes of compliance with its General Plan:

> Achieve and maintain a Multimodal LOS D or better for roadways and intersections during peak-hours where possible for as long as possible. However, recognizing that LOS D may not be achievable or cannot be maintained upon full buildout of the General Plan, due to traffic generated from sources beyond control of the City, the City Council shall have the discretion to only require feasible mitigation measures that may not achieve LOS D, but will reduce the impact of any development use or VMT planned for in the Land Use Element of the General Plan.

The locations that may not achieve or maintain LOS D are as follows and will be exempt from the LOS D policy:

- SR-29 through the City
- American Canyon Road from SR-29 to Flosden Road–Newell Drive
- Flosden Road south of American Canyon Road

3.12.4 - Methodology

W-Trans prepared a Traffic Impact Study for the proposed project, which is provided in its entirety in Appendix H. The methodology is summarized as follows:

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual, 10th Edition, 2017 for a "High-Cube Transload and Short-Term Storage Warehouse" (Land Use No. 154). The project would be comprised of multiple warehouse buildings with a combined size of between 2.2 and 2.4 million square feet. To be conservative, the maximum size of 2.4 million square feet was used to estimate the trip generation. The project is not anticipated to generate any internal capture trips, pass-by trip credits or any other trip reductions. The number of truck trips associated with a high-cube warehouse was estimated using rates published in the Trip Generation Manual and validated using local vehicle classification counts conducted in June 2021.

As shown in Table 3.12-5, the proposed project is expected to generate an average of 3,888 net-new Passenger Car Equivalent (PCE) trips per day, including 240 trips during the AM peak-hour and 264 during the PM peak-hour. These new trips represent the increase in traffic associated with the

project compared to existing volumes. To account for the effect of heavy vehicles (such as tractor trucks), a heavy vehicle adjustment factor was applied to convert truck trips to an equivalent passenger car trip total. The (PCE) factor for heavy vehicles is assumed to be 2.0 (i.e., each tractor truck has the effect of two passenger cars due to longer start up times at intersections and when making turns). Thus, the number of truck trips per hour was multiplied by 2.0 to determine the equivalent passenger car trips per hour.

Table 3.12-5: Trip Generation Summary

Land Use	Category	Units	Daily		AM Peak-hour				PM Peak-hour			
			Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
High-cube Warehouse	Vehicles (Trucks + Passenger Cars)	2,400 ksf	1.40	3,360	0.08	192	148	44	0.10	240	67	173
	Trucks		0.22	528	0.02	48	37	11	0.01	24	7	17
	Passenger Cars		–	2,832	–	144	111	33	–	216	60	156
	Trucks (Passenger Car Equivalents)		–	1,056	–	96	74	22	–	48	14	34
	Total		**–**	**3,888**	**–**	**240**	**185**	**55**	**–**	**264**	**74**	**190**

Notes:
ksf = 1,000 square feet
Source: W-Trans 2021.

Trip Distribution

The pattern used to allocate new project trips to the street network was determined by reviewing likely routes for employees, visitors, and deliveries. The directionality experienced on SR-29 during the morning and evening commute periods was considered in developing the proposed assumptions. Based on the assumptions shown in Table 3.12-6, the following distribution was applied. Exhibit 3.12-3 depicts project traffic volumes.

Table 3.12-6: Trip Distribution Assumptions

Route	AM		PM	
	Percent	Trips	Percent	Trips
To/From North on SR-29	50%	120	55%	145
To/From South on SR-29	50%	120	45%	119
Total	**100%**	**240**	**100%**	**264**

Source: W-Trans 2021.

3.12.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to transportation are significant. These questions reflect the input of planning and environmental professionals at the OPR and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect related to transportation if the proposed project would:

a) Conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

d) Result in inadequate emergency access.

3.12.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

Circulation System

Impact TRANS-1:	**The proposed project would not conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities.**

As explained above, CEQA no longer permits lead agencies to assess the significance of transportation-related effects in terms of the potential worsening of LOS. Yet many agencies, including the City of American Canyon, continue to be concerned about LOS, and have General Plan policies, such as Guiding Policy 1.6. The analysis of LOS-related impacts set forth below has been prepared for purposes of addressing General Plan consistency. The analysis was not undertaken pursuant to CEQA and is not a CEQA analysis. In contrast, the analyses dealing with transit, bicycle, and pedestrian facilities and policies are CEQA analyses.

Impact Analysis

Phases 1 and 2

Existing Plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, all study intersections are expected to continue operating at LOS C or better. These results are summarized in Table 3.12-7. Exhibit 3.12-4 depicts Existing Plus Project traffic volumes

Table 3.12-7: Existing Plus Project Peak-hour Intersection Levels of Service

Study Intersection	AM Peak-hour		PM Peak-hour		AM Peak-hour		PM Peak-hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR-29/South Kelly Road	34.6	C	15.9	B	34.7	C	16.7	B
2. Devlin Road/South Kelly Road	7.8	A	8.0	A	8.4	A	7.9	A
3. Devlin Road/Green Island Road Southbound Approach	–	–	–	–	0.5 12.1	A B	1.4 12.7	A B
4. Paoli Loop Road/Green Island Road Northbound Approach	4.9 13.3	A B	3.1 13.5	A B	7.5 17.9	A C	4.0 18.1	A C

Notes:
LOS = Level of Service
Study intersection No. 3 Devlin Road/Green Island Road did not exist in 2015-2020.
Source: W-Trans 2021.

Future Conditions

Future (2040) AM and PM peak-hour volume projections for SR-29/South Kelly Road were derived from a buildout analysis which is contained in the Napa Junction III Transportation Impact Analysis Report, Omni-Means, LTD, 2011; this scenario represents cumulative traffic conditions that would be expected upon build out of the land uses identified in the General Plan. Although some of the anticipated development included in this previous effort may already be complete and occupied, to provide a conservative estimate of future operation the incremental increase in trips associated with build out of the City of American Canyon under its current General Plan was added to current volumes to determine Future (year 2040) operating conditions without the project. A growth rate was then created for the intersection of SR-29/South Kelly Road based on the volumes for this location in the Napa Junction III Transportation Impact Analysis Report.

Because the west side of SR-29 is already nearly built out other than the project site, and so would be expected to experience considerably less of an increase in traffic compared to SR-29, a growth rate of 1 percent per year was used to develop future AM and PM peak-hour volumes for the study intersections located west of SR-29.

Under the anticipated Future volumes, the study intersections are expected to operate acceptably during the AM and PM peak-hours except for SR-29/South Kelly Road, which is expected to operate at LOS F during both peak-hours. Future volumes are shown in Exhibit 3.12-5 and operating conditions are summarized in Table 3.12-8.

While the intersection of SR-29/South Kelly Road is projected to operate at LOS F during each peak-hour, this operation was considered acceptable since SR-29 is exempt from the City's LOS standard and Caltrans no longer applies an LOS standard. The City of American Canyon–Broadway District Specific Plan Draft Environmental Impact Report (EIR), FirstCarbon Solutions, 2017, states that there are future plans for SR-29 to have three through lanes in each direction through American Canyon. Because funding has not been identified for this capacity enhancement, it was conservatively

assumed that the current configuration with only two through lanes in each direction would remain, and this configuration was used for the analysis.

Furthermore, the future year analysis results for facilities along SR-29 (specifically, the intersection of SR-29/South Kelly Road) is deemed to be more conservative than what was presented for this intersection in the Watson Ranch Specific Plan EIR (September 2018) which indicated LOS C and D operation for the AM and PM peak-hours, respectively.

Future Plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, all unsignalized study intersections are expected to operate acceptably. SR-29/South Kelly Road would continue to operate at LOS F during both peak-hours. Future Plus Project traffic volumes are shown in Exhibit 3.12-6 and operating conditions are summarized in Table 3.12-8.

Table 3.12-8: Future Plus Project Peak-hour Intersection Levels of Service

Study Intersection	AM Peak-hour		PM Peak-hour		AM Peak-hour		PM Peak-hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR-29/South Kelly Road	107.4	F	84.3	F	107.0	F	88.7	F
2. Devlin Road/South Kelly Road	8.0	A	8.0	A	8.5	A	7.6	A
3. Devlin Road/Green Island Road Southbound Approach	–	–	–	–	0.4 13.1	A B	1.4 13.9	A B
4. Paoli Loop Road/Green Island Road Northbound Approach	5.2 14.3	A B	3.1 13.4	A B	7.8 19.3	A C	3.7 16.7	A C

Notes:
LOS = Level of Service
Study intersection No. 3 Devlin Road/Green Island Road did not exist in 2015-2020.
Source: W-Trans 2021.

As mentioned previously, there are future plans for SR-29 to have three travel lanes in each direction through American Canyon. As required by the City in their Traffic Impact Fee Program, the proposed project would pay a proportional share fee toward the cost of this planned future infrastructure improvement. As specific building projects move forward, each would be required to contribute to the funds needed for the planned improvements to SR-29 based on the City's fee schedule. Impacts would be less than significant.

Transit

Existing stops are not within an acceptable walking distance of the site, which is generally considered to be 0.5 mile. Should an employee need to use transit, they could ride a bicycle along Devlin Road to the nearest transit stop at the intersection of Airport Boulevard/Devlin Road. This is consistent with the various City of American Canyon General Plan policies that promote transit accessibility. Impacts would be less than significant.

Bicycles

Existing bicycle facilities, including Class II bike lanes on Devlin Road between Middleton Way and South Kelly Road together with shared use of minor streets provide adequate access for bicyclists. The proposed project would include bicycle lanes along the Devlin Road extension and a multimodal path along the north side of Green Island Road. The planned Class I and II bicycle facilities on South Kelly Road and Green Island Road, as well as the Napa Valley Vine Trail along Devlin Road, would improve bicycle connectivity near the project site. This is consistent with the various City of American Canyon General Plan policies that promote bicycle mobility. Impacts would be less than significant.

Pedestrian

Given the nature of the study area and the surrounding industrial land use, it is reasonable to assume that very few project patrons and employees will desire to walk to reach the project site. There may, however, be a desire by employees to walk in the area for recreational purposes during break times or to reach nearby buildings. Upon completion of the project, sidewalks will be provided along Devlin Road between Green Island Road to South Kelly Road. The proposed project also includes the construction of a multimodal path along Green Island Road, which would be available for use by pedestrians. This is consistent with the various City of American Canyon General Plan policies that promote pedestrian mobility. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Vehicle Miles Traveled

Impact TRANS-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Impact Analysis

Phases 1 and 2

As discussed earlier, Senate Bill (SB) 743 (2013) directed OPR and the California Natural Resources Agency to establish a change in the metric to be applied for determining traffic impacts associated with development projects. Rather than the delay-based criteria associated with an LOS analysis, the increase in VMT because of a project would be the basis for determining impacts. The City of American Canyon has not yet established thresholds of significance related to VMT. The Napa County travel demand model is not currently available for use as a source for VMT analysis. In lieu of an established local methodology, the project-related VMT impacts were quantitatively assessed based on guidance provided by the OPR in the publication Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018.

Based on a review of established policies currently used by the OPR, Sacramento County, and the City of San José, a VMT impact would be identified at an industrial project if the project VMT per employee is higher than the regional average VMT per employee. This focus on employee trips, as opposed to truck traffic associated with the proposed land uses, reflects the focus in CEQA Guidelines Section 15064.3 on VMT associated with automobiles and light trucks. That section states that "[g]enerally, vehicle miles traveled [VMT] is the most appropriate measure of transportation impacts." It further states that VMT "refers to the amount of *automobile travel* and distance of automobile travel attributable to a project." (Italics added.) As of the effective date of section 15064.3, "*automobile delay*, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to [CEQA]," with exceptions not relevant here (PRC § 21099(b)(2)).

At roughly the same time that section 15064.3 came into effect, OPR also published its "Technical Advisory on Evaluating Transportation Impacts in CEQA." Going beyond the very limited guidance found in section 15064.3, this Technical Advisory provides specific recommendations on how to evaluate transportation impacts under CEQA. The OPR guidance provides detailed suggestions about how public agencies should meet their obligations to address VMT issues in transportation analyses for CEQA documents. The document is currently the best and most authoritative source of information about how to comply with section 15064.3. Notably, the Technical Advisory defines "automobile," as the term is used in section 15064.3, as referring to "on-road passenger vehicles, specifically cars and light trucks." (Technical Advisory, p. 4 [italics added].) Thus, OPR understands the requirement to address VMT as not reaching heavy-duty trucks. The focus on automobiles and not on heavy-duty trucks is consistent with the policy focus behind the elimination of automobile delay as a factor in assessing the significance of transportation-related impacts, as set forth in SB 743. Public Resources Code Section 21099(b)(1) directed the OPR and California Natural Resources Agency to develop alternative significance criteria that would "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Accounting for heavy-duty trucks engaged in interstate commerce would not contribute to these policy goals, as local and state governments have little or no control over interstate trucking.

For this study, the regional average VMT is defined as the nine county Bay Area average. As reported by the City of Vallejo in their CEQA Transportation Impact Analysis Guidelines (dated October 2020), the Nine County Bay Area Average VMT per employee is 23.00 miles per employee. According to Statewide Travel Demand Model estimates, the proposed project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles. Because this per capita VMT rate is lower than the significance threshold of 23.0 miles, the proposed project would be considered to have a less than significant VMT impact. It is noted that a more conservative methodology sometimes used by OPR for other employment-based land uses (such as office buildings) states that a project generating a VMT that is 15 percent or more below the regional average VMT, or 19.55 miles, is presumed to have a less than significant VMT impact. If this methodology were applied, the project would be considered to have a less than significant VMT impact since the VMT per employee of 16.24 miles is less than the threshold of 19.55 miles. A summary of the VMT findings is provided in Table 3.12-9.

Table 3.12-9: Vehicle Miles Traveled Summary

VMT Metric	Regional Average/Significance Threshold	Project VMT Rate	Significance
Employment VMT per Capita	23.00	16.24	Less than significant impact

Notes:
VMT = Vehicle Miles Traveled
Source: W-Trans 2021.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Roadway Safety

Impact TRANS-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact Analysis

Phase 1

W-Trans evaluated site access and sight distance for Phase 1 of the proposed project.

Site Access

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on the future extension of Devlin Road. Access to Phase 2 is anticipated to be provided via numerous full access driveways with connections to the Devlin Road extension. All driveways and internal roadways would be designed to current City standards to accommodate heavy vehicles and so can be expected to accommodate the access requirements for both emergency and passenger vehicles. Impacts would be less than significant.

Sight Distance

A substantially clear line of sight should be maintained between the driver of a vehicle waiting at a driveway and the driver of an approaching vehicle. Sight distances along Green Island Road from the project driveways were evaluated based on sight distance criteria contained in the Highway Design Manual published by Caltrans. The recommended sight distance for driveway approaches is based on stopping sight distance using the approach travel speed as the basis for determining the recommended sight distance. Based on the posted speed limit of 40 miles per hour (mph), the

minimum stopping sight distance required is 300 feet; a review in the field shows that sight distances at the project driveway locations on Green Island Road would be adequate, provided any vegetation or buildings are sited to ensure maintenance of adequate sight lines. The sight lines for driveways on the Devlin Road connection are expected to be adequate based on a review of the site plans. Impacts would be less than significant.

Phase 2

Phase 2 would take access from both Green Island Road and Devlin Road. Standard design and engineering practices would dictate that driveways would be aligned with those on the opposite side of both Green Island Road Devlin Road and spaced sufficiently from other driveways and the western Green Island Road railroad grade crossing to avoid conflicting turning movements or the creation of safety hazards. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Emergency Access

Impact TRANS-4: The proposed project would not result in inadequate emergency access.

Impact Analysis

Phase 1

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on the future extension of Devlin Road. Access to Phase 2 is anticipated to be provided via numerous full access driveways with connections to the Devlin Road extension. All driveways and internal roadways would be designed to current City standards to accommodate heavy vehicles and so can be expected to accommodate the access requirements for both emergency and passenger vehicles.

Furthermore, construction of the Devlin Road extension began in 2021 and, thus, it is expected to be completed by the time Phase 1 is completed. This would provide a parallel north–south route to SR-29, which would be beneficial from an emergency response perspective. Impacts would be less than significant.

Phase 2

Vehicular access to Phase 2 would be provided by driveways on Green Island Road and Devlin Road. Pursuant to the California Fire Code, a minimum of two points of access would need to be provided to each building. Compliance would ensure that adequate emergency response is provided. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Source: W-Trans, 4/2021.

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Exhibit 3.12-1
Study Area and Lane Configurations

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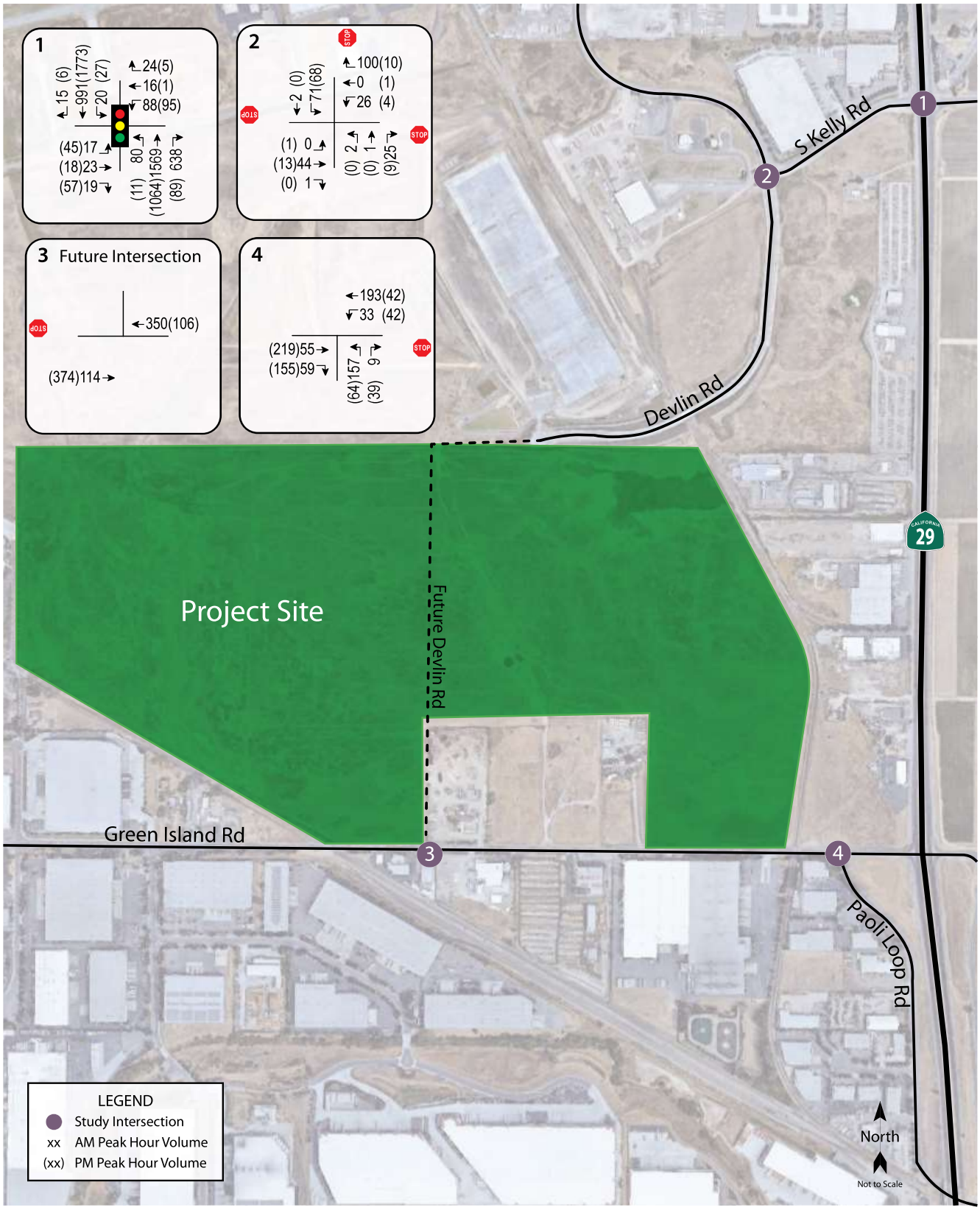

Source: W-Trans, 4/2021.

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Exhibit 3.12-2
Existing Traffic Volumes

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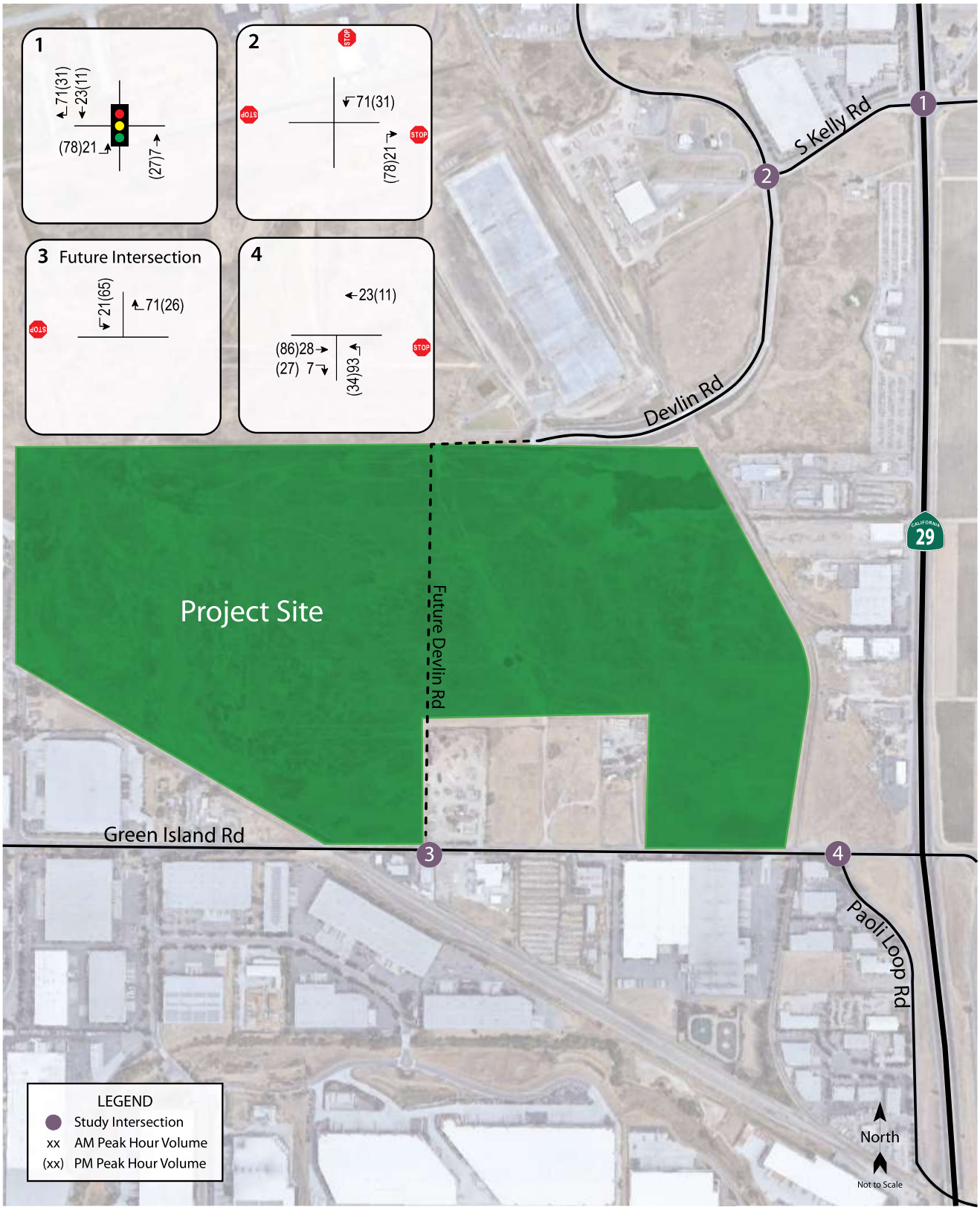

Source: W-Trans, 4/2021.

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Exhibit 3.12-3
Project Traffic Volumes

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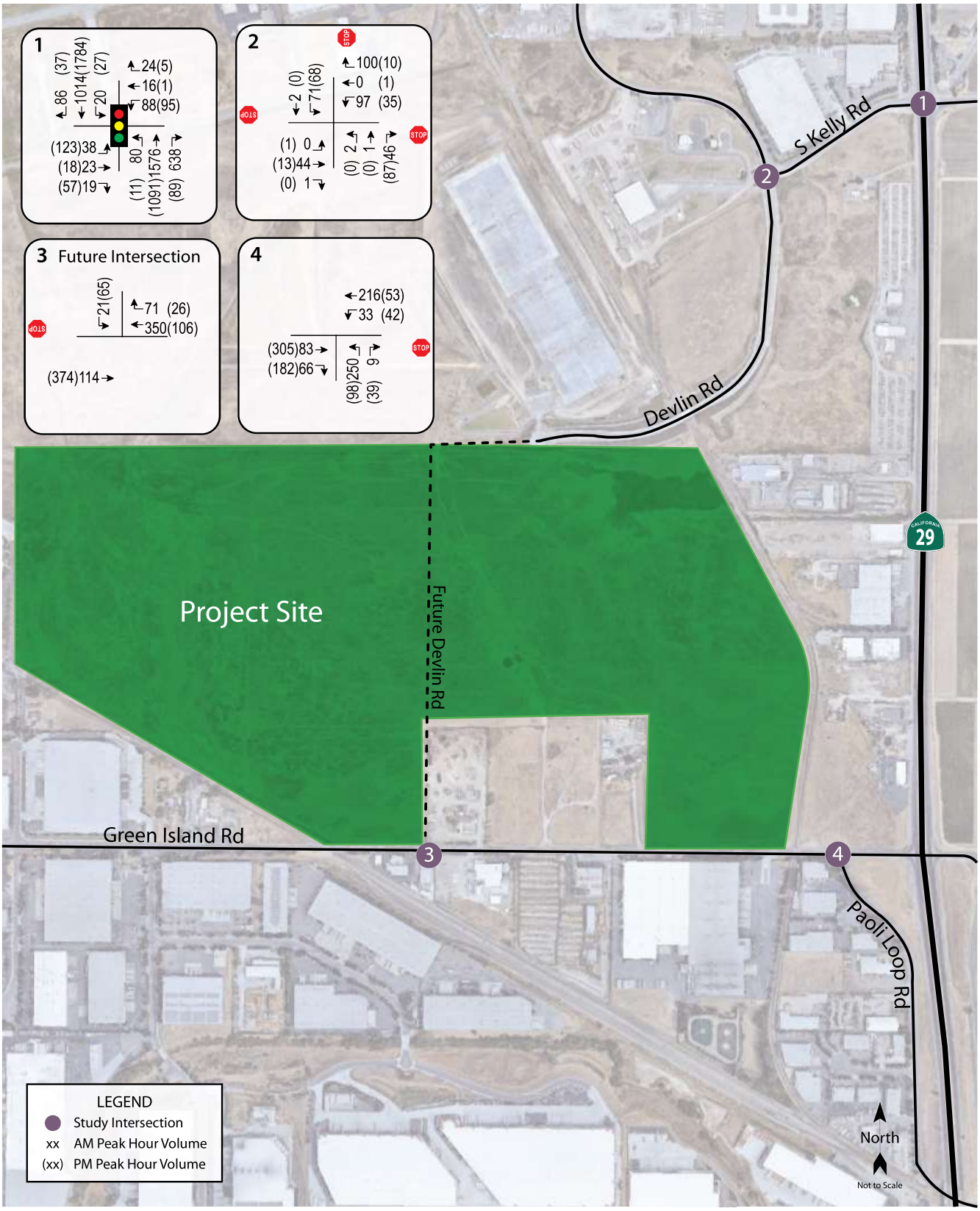

Source: W-Trans, 4/2021.

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Exhibit 3.12-4
Existing Plus Project Traffic Volumes

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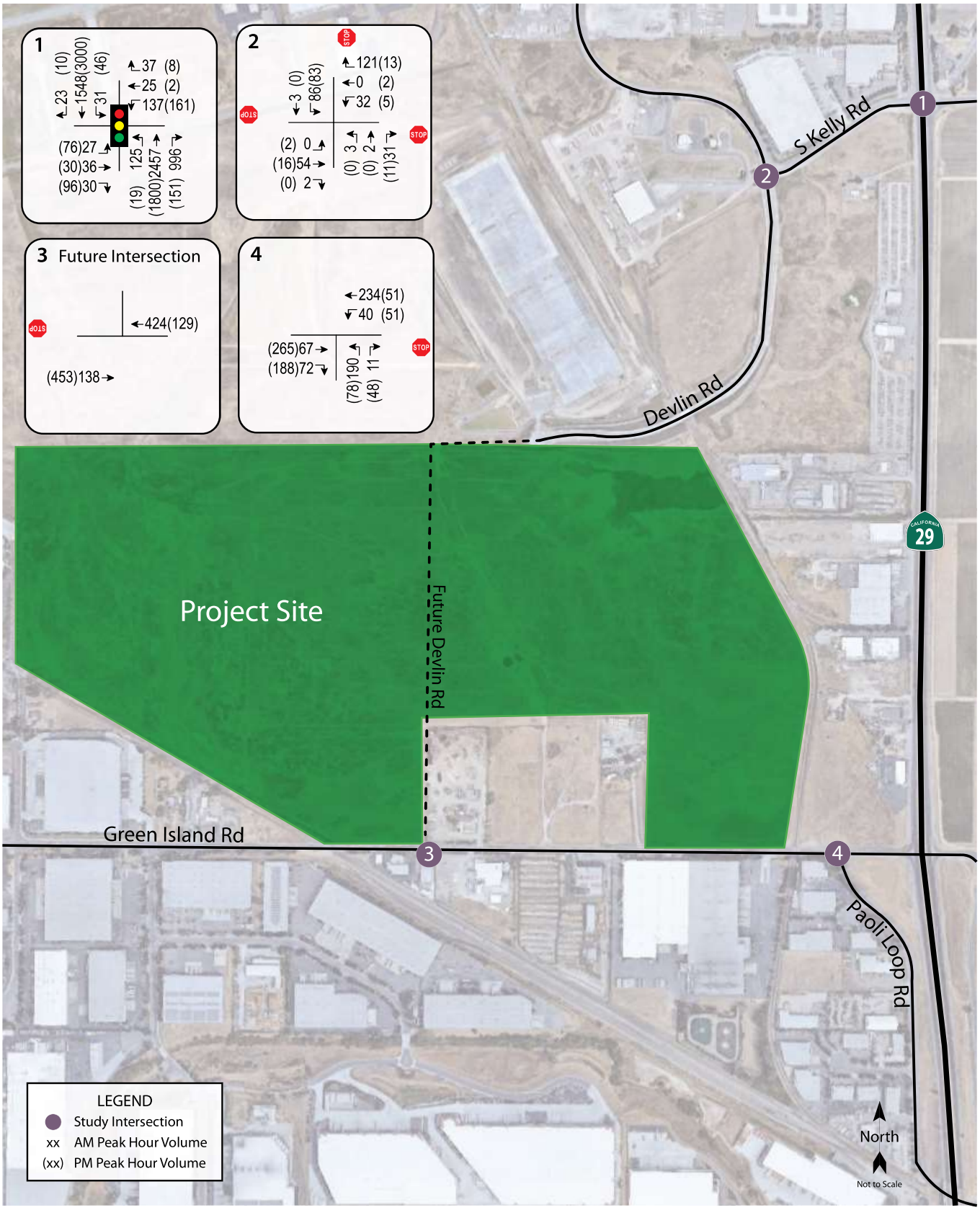

Source: W-Trans, 4/2021.

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Exhibit 3.12-5
Future Traffic Volumes

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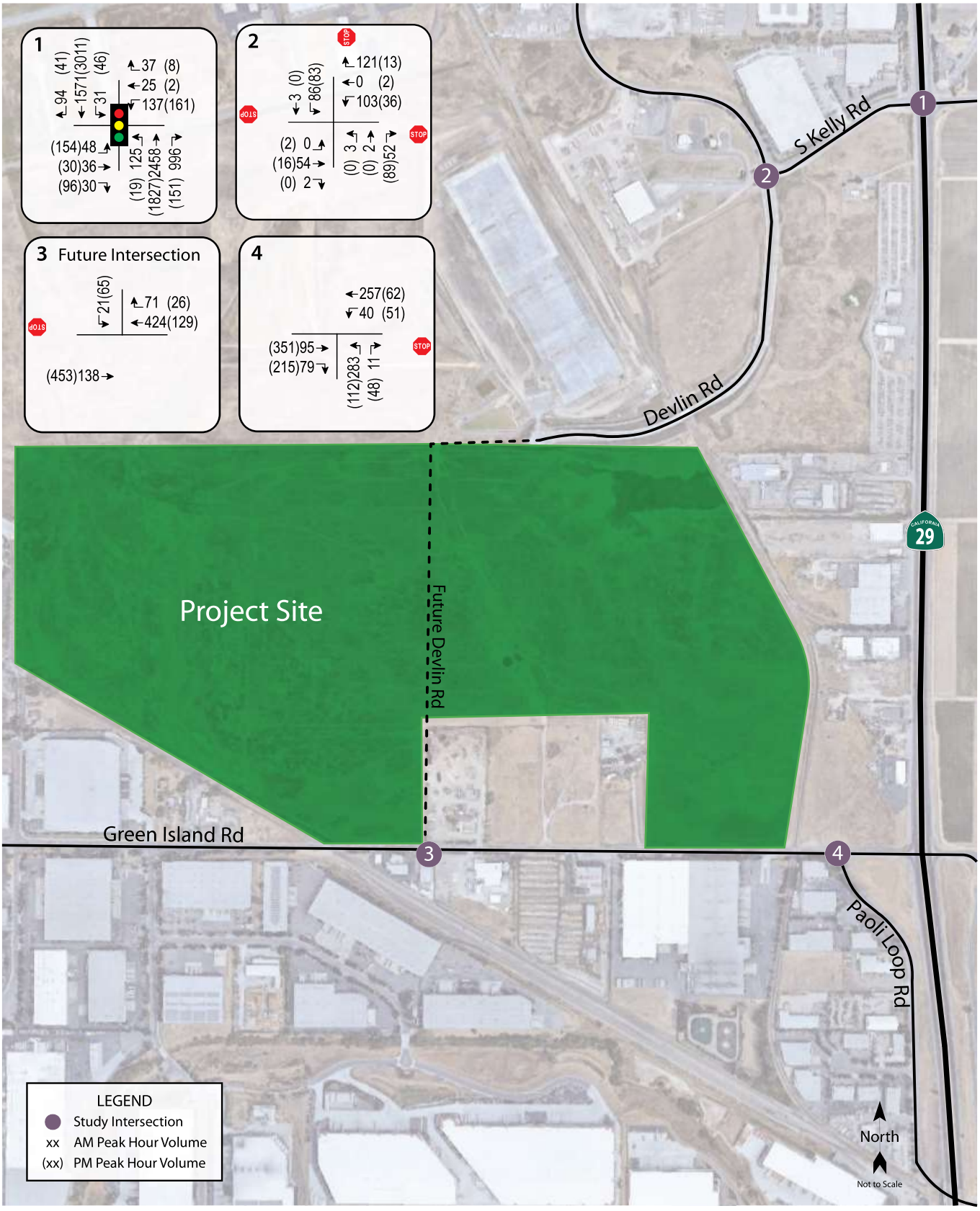

Source: W-Trans, 4/2021.

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Exhibit 3.12-6
Future Plus Project Traffic Volumes

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3.13 - Utilities and Service Systems

3.13.1 - Introduction

This section describes the existing public services and utilities and potential effects from project implementation on the site and its surrounding area. Descriptions and analyses in this section are based on information provided by the City of American Canyon General Plan, the Water Supply Assessment (WSA) prepared by Balance Hydrologics on behalf of the City of American Canyon, and the City of American Canyon Sewer Master Plan. Supporting information is provided in Appendix I.

3.13.2 - Environmental Setting

Water

The City of American Canyon Public Works Department provides potable water and non-potable water to customers within the city limits as well as more than 160 customer accounts located outside the city limits.

Water Supply

American Canyon obtains its water supply from a variety of sources, all of which (except for recycled water) are imported from outside of the City. All of the City's imported water comes through the North Bay Aqueduct system. Table 3.13-1 identifies the City's current sources of water, which are discussed in detail after the table.

Table 3.13-1: Current Sources of Water Supply

Source		Contacted Volume/Capacity (Acre-Feet/Year)
State Water Project (Table A Allotment)[1]		5,200
Vallejo Permit Water[2]		500
Vallejo Treated Water	2011-2015	2,074
	2016-2021	2,640
	2021-Onward	3,206
Vallejo Emergency Water[3]		500
Groundwater[4]		0
American Canyon Recycled Water[5]		1,271
Napa Sanitation District-Produced Recycled Water		591

Notes:
1 Includes allotment for American Canyon and additional supply from Kern County Water Agency
2 Non-Table A Water
3 Available only in dry years
4 No groundwater is used for citywide supply
5 As reported 2015 Urban Water Management Plan (UWMP). Maximum capacity of the City's recycled water treatment system by 2035.
Source: City of American Canyon 2021.

State Water Project

A significant portion of the City's supply is obtained through various indirect contracts for water from the State Water Project (SWP). The Napa Flood Control and Water Conservation District is the State Water Contractor with the California Department of Water Resources (DWR), and the City receives its water through subcontracts with the Napa Flood Control and Water Conservation District.

Table A Allocation

In January 1967, the American Canyon County Water Agency[1] entered into an agreement with the Napa Flood Control and Water Conservation District for water supply from the North Bay Aqueduct. In 2010, the agreement allowed for the delivery of up to 5,200 acre-feet of water per year.[2] This contract runs through 2035 with provisions for extension. The actual amount of SWP water available to the City under the "Table A" allocation process (the method used by the DWR to allocate water in the SWP system) varies from year-to-year due to hydrologic conditions, water demands of other contractors, SWP facility capacity, and environmental/regulatory requirements. Deliveries have varied between 5 percent (in 2014) and 100 percent (last occurring in 2006) of the contracted amount.

City of Vallejo

In 1996, the City of American Canyon entered into an agreement with the City of Vallejo to allow the purchase of additional water supply. Vallejo receives its water from a variety of sources, including SWP water and an appropriative water right. Under the Vallejo Agreement, a specific source is identified for Permit Water supply but not for Treated or Emergency Water.

Vallejo Permit Water (Raw)

The City of Vallejo holds an appropriative right for Sacramento Bay-Delta water from the California State Water Resources Control Board (State Water Board) that pre-dates the construction of the SWP. The City of American Canyon has an agreement with the City of Vallejo for delivery of up to 500 acre-feet of water under this permit. This source of water is more reliable than the City's Table A supply, but the Vallejo Agreement still allows for reductions. Addendum 2 to the 1996 Vallejo Agreement states that "In the event the State Water Resources Control Board, or any other agency, restricts Vallejo's diversion of water [under the appropriative pre-SWP contract] for any reason whatsoever, American Canyon's diversions will be reduced in the same proportion." As such, curtailment is typically less than that of the City's Table A supply under environmental or other constraints, but the City may not receive its full allotment during dry years.[3]

Vallejo Treated Water (Potable)

In 1996, the City of American Canyon entered into an agreement with the City of Vallejo to purchase up to 629 acre-feet of potable treated water supply. This agreement included the option for additional (cumulative) purchases in 5-year increments through 2021. Ultimately, this results in a total of 3,206 acre-feet of treated water available for purchase each year by the City from Vallejo for 2021-2040.

[1] A predecessor agency to the City of American Canyon, which was not incorporated until 1992.
[2] A total of 500 acre-feet of this water was obtained through a purchase of water, by the Napa Sanitation District, from Kern County Water Agency in 2000.
[3] Vallejo Permit Water delivery was curtailed in both 2014 and 2015, for example.

A specific source for Treated Water is not identified in the Vallejo Agreement; thus, the ultimate source of this water is a blend of all of Vallejo's water sources. Under certain conditions, the maximum delivery of this supply may be "reduced in the same proportions as any reduction to Vallejo customers inside the Vallejo city limits."[4]

Vallejo Emergency Water (Raw)

When the City's Table A water allotment is curtailed, the City of American Canyon has the option to purchase up to 500 acre-feet of emergency raw water supply from Vallejo under an agreement amended in 1996. The 2015 Urban Water Management Program (UWMP) assumes that this water would be available under dry year and multiple dry year scenarios but not during a normal year.

Groundwater

The City of American Canyon does not currently rely on groundwater as a source of water, though the 2015 UWMP states that the City remains open to the possibility and will consider potential supply opportunities as they present themselves.

Other Sources of Potable Supply

Dry Year Water Bank

In 2009, the City of American Canyon (along with other SWP contractors) entered into an agreement with DWR to obtain emergency supplies if rice farmers in the Sacramento Valley are willing to make their supplies available. The year-to-year availability of this supply is not known, and thus supplies are not factored into long-term planning in the 2015 UWMP.

Turn-Back Water Pool Program

DWR has a program for interested SWP contractors called the Turn-back Water Pool Program. SWP contractors may choose to sell Table A water or purchase turn-back pool water that is available through the program. Water from this pool program was not included in the reliability assessment in the 2015 UWMP because the program operates on an as-available basis and long-term availability is not reliable. The amount of pool water available to the City of American Canyon is not a significant amount. For example, during 2010 the City purchased 17 acre-feet, and in 2012 it purchased 64 acre-feet. However, between 2015-2020 the City did not purchase any water from the Turn-back Pool Program.

Napa Treated Water

The City has an agreement with the City of Napa for the purchase of treated (potable) water under emergency conditions, or when the North Bay Aqueduct system is off-line for maintenance or other reasons. This water source is not a water supply and is not included in the reliability assessment in the 2015 UWMP since it is only available during emergencies. Napa treated water, however, does provide operational flexibility (such as providing water to customers even when the City's water treatment plant is off-line for an extended period of time). During 2010, the City purchased 306 acre-feet of treated water when the plant was off-line for maintenance-related issues. Under this informal arrangement, the Napa treated water purchase counts against the City's SWP Table A allotment and is not an additional supply (and is not included in Table 3.13-1).

[4] Vallejo Water Service Agreement. May 1, 1996 (Appendix E.4 in the 2005 American Canyon UWMP).

Dry Year Transfer Program

During dry years, varying amounts of additional water may be made available to SWP contractors through DWR's Dry Year Transfer Program, which allows for transfers through a combination of crop idling, groundwater substitution, and changes in reservoir operation. For example, in 2015 the City of American Canyon purchased 92 acre-feet of additional supply (for that year) through this program. While this option is available to the City on a per year authorization, the long-term reliability of this supply is not known and included only as potential supplementary supply for the analysis in this WSA.

Yuba Accord

In 2008, the DWR adapted the Lower Yuba River Accord, an agreement to settle issues related to in-stream flows in the Yuba River and fisheries habitat. As part of that agreement, the DWR is able to purchase water from the Yuba River Water Agency to, in part, offer to participating SWP contractors as a transfer during dry years. The Napa County Flood Control and Water Conservation District has authorized the execution of Yuba Accord Dry-year Water Purchase Agreement, and the City of American Canyon has the option to purchase water through this agreement in dry years, though at a cost that is considerably higher than under normal conditions. In 2015, the City authorized the purchase of 124 acre-feet through this program to cover projected water supply shortfalls during the drought. While this option is available to the City in drought conditions, the availability and reliability of such water past 2020 is unknown,[5] and therefore has not been included as long-term reliable supply for the analysis in the WSA.

Recycled Water

American Canyon Recycled Water

In 2010, the City of American Canyon completed the first phase of its Recycled Water Distribution System Project, which included a one-million-gallon reservoir, distribution piping, and associated improvements at the City's water treatment plant. Initially, 13 users were connected to the system and 73 acre-feet of water was delivered in 2010. Ultimately, the Recycled Water Master Plan in 2016 projected over 1,200 acre-feet of water demand at buildout in 2035 for landscaping and agricultural irrigation. However, utilization of this supply is dependent on connection of additional users and completion of additional distribution pipe segments. Currently, the City produces recycled water to meet demand on an as needed basis.

The City is currently taking steps to increase capacity of their system to meet this demand in the future. The analysis in the WSA uses 1,271 acre-feet per year (AFY) as the full system capacity by 2035, as reported in the 2015 UWMP.

Napa Sanitation District Recycled Water

In addition to the City's recycled water supply, Napa Sanitation District (NapaSan) has an existing recycled water supply pipe that extends to northern portions of the Airport Industrial Area (north of Fagan Creek). In 2015, NapaSan provided 210 acre-feet of recycled water to the City's users. The 2015 UWMP projected that NapaSan will provide up to 391 acre-feet of recycled water in 2020, up to 491 acre-feet in 2025, and 591 acre-feet in 2030 and onwards.

[5] The original term of the Napa County Flood Control and Water Conservation District agreement was through the end of 2015, but an amendment in 2014 authorized an extension until the end of 2020.

Wastewater

The City of American Canyon provides wastewater collection and treatment to customers in both the city limits and nearby parts of unincorporated Napa County. The wastewater service area is 6.3 square miles and could potentially be 8.5 square miles in the future.

Collection System

The City's wastewater collection system consists of gravity pipelines (53 miles), force mains (5 miles), and five pump stations that convey wastewater to the City's Water Reclamation Facility located near the Napa River. The City's system operates its collection system to segregate domestic water from high strength industrial wastewater flows. The Kimberly Pump Station and the Sunset Meadows Pump Station collect wastewater from residential areas and deliver 75 percent of the flow to the wastewater treatment plant. The Tower Road and Green Island Sewer Pump Stations transport wastewater from industrial areas in the northern part of the City. These two stations discharge a combination of domestic and industrial wastewater to a common force main and deliver the remaining 25 percent of the flow to the Water Reclamation Facility.

Green Island Pump Station

The project site is located within the Green Island Pump Station sewershed. The pump station's sewershed is 2.3 square miles and has a capacity of 600 gallons per minute (gpm). The City's Sewer Master Plan contemplates replacing the pump station with a new facility sized for 1,455 gpm.

Existing Sewer Facilities

An existing 18-inch diameter force main that connects the Tower Road Pump Station with the Green Island Pump Station crosses the western portion of the project site.

Planned Sewer Facilities

The City's Sewer Master Plan contemplates a new 21-inch diameter gravity sewer line that would follow the planned extension of Devlin Road between Middleton Way (Napa Logistics Park) and Green Island Road. From there, the sewer line would continue west to the new Green Island Pump Station. Once operational, the existing 18-inch diameter force main that crosses the project site would be abandoned, along with the Tower Road Pump Station.

Water Reclamation Facility

The American Canyon Water Reclamation Facility is owned and operated by the City of American Canyon. The facility treats both domestic and industrial wastewater flows and is a secondary/tertiary treatment plant. It began operations in 2002 and employs a Membrane Bio Reactor and ultraviolet light disinfection. The treatment plant has an existing design capacity of 2.5 million gallons per day (mgd). The City has plans to expand the Water Reclamation Facility's treatment capacity to 4.0 mgd.

Approximately 17 percent of total influent inflow received at the Water Reclamation Facility becomes recycled water. In 2019, 282 acre-feet of recycled water were delivered to various users for non-potable use. The remaining effluent is treated and discharged to the Napa River.

Storm Drainage

The City of American Canyon Public Works Department oversees municipal storm drainage within the American Canyon city limits. The municipal storm drainage system consists of ditches, inlets, basins, and underground piping that ultimately discharge flows into the Napa River. The City maintains a Storm Drain Master Plan and engineering standards that guide the development of the municipal storm drainage system.

The City requires stormwater discharges to comply with San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) permit requirements and establishes non-point source pollution control measures as required by federal and State law. Stormwater pollution prevention measures for new development projects, such as bioswales, detention ponds, erosion, and sedimentation control, are incorporated in the planning, design, construction, and operation of projects with the potential to create pollutants in stormwater runoff.

Project Site Drainage

The project site does not contain any formal storm drainage facilities. Runoff from the project site either ponds on-site or sheet flows toward No Name Creek in the northern portion of the site.

Solid Waste

American Canyon Recology provides garbage pickup for all residents and businesses pursuant to a franchise waste hauling agreement with the City of American Canyon. Roll-off service is also available.

Devlin Road Transfer Station

American Canyon Recology transports solid waste to the Devlin Road Transfer Station within the Napa County Airport Industrial Area. The Transfer Station is owned by the Napa-Vallejo Waste Management Authority (NVWMA), a joint-powers agency consisting of the cities of American Canyon, Napa, and Vallejo, and the County of Napa. The Transfer Station accepts municipal solid waste and construction and demolition (C&D) debris. The NVWMA has plans to construct an enclosed C&D Debris Recycling Facility on a vacant parcel it owns immediately south of the Devlin Road Transfer Station.

Potrero Hills Landfill

Municipal solid waste and demolition debris from the Devlin Road Transfer Station are landfilled at the Potrero Hills Landfill in Solano County. The Potrero Hills Landfill, located approximately 1 mile south of Suisun City, is a regional facility that serves numerous jurisdictions within a 150-mile radius. In 2005, the County of Solano approved a 260-acre expansion that increased capacity to 83.1 million cubic yards. In 2010, the San Francisco Bay Conservation and Development Commission (BCDC) issued a permit allowing the expansion to proceed. Following the conclusion of litigation, the expansion was cleared to move forward in 2014. Table 3.13-2 summarizes the Potrero Hills Landfill.

Table 3.13-2: Potrero Hills Landfill Summary

Permitted Area	Permitted Daily Throughput	Permitted Disposal Capacity	Remaining Capacity	Permitted Hours of Operation	Permitted Traffic Volume	Estimated Closure Date
525.7 acres (total)	3,400 tons (7-day average)	83.1 million cubic yards	38.8 million cubic yards	Monday-Friday: 24 hours a day	500 inbound daily vehicles (7-day average)	2048
340.0 acres (disposal)	4,330 tons (single day peak)			Saturday-Sunday: 4:00 a.m. to 12:00 a.m.	1,000 inbound daily vehicles (single day peak)	

Note:
Data obtained from Solid Waste Facility Permit No. 48-AA-0075
Source: California Department of Resources Recycling and Recovery (CalRecycle) 2021.

3.13.3 - Regulatory Framework

Federal

National Pollutant Discharge Elimination System

Pursuant to Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in Suisun City are regulated under the San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit, MS4 Order No. 2013-001 (General Permit). In 1987, Congress amended the Clean Water Act to mandate controls on discharges from Municipal Separate Storm Sewer Systems (MS4s). Acting under the federal mandate and the California Water Code, RWQCBs require cities, towns, and counties to regulate activities that can result in pollutants entering their storm drains. All municipalities prohibit non-stormwater discharges to storm drains and require residents and businesses to use Best Management Practices (BMPs) to minimize the amount of pollutants in runoff. The Municipal Regional Permit is overseen by the San Francisco Bay RWQCB. On February 5, 2013, the State Water Board reissued the Phase II Stormwater NPDES Permit for small MS4s. Provision E.12, "Post-Construction Stormwater Management Program," mandates municipalities to require specified features and facilities–to control pollutant sources, to control runoff volumes, rates, and durations, and to treat runoff before discharge from the site–be included in development plans of projects that create or replace 5,000 square feet or more impervious surface as conditions of issuing approvals and permits. The new requirements continue a progression of increasingly stringent requirements since 1989.

Provision E.12 requires all municipal permittees to implement these requirements by June 30, 2015, to the extent allowed by applicable law. This includes projects requiring discretionary approvals that have not been deemed complete for processing and discretionary permit projects without vesting tentative maps that have not requested and received an extension of previously granted approvals.

In July of 2014, the Bay Area Stormwater Management Agencies Association (BASMAA), through the BASMAA Phase II Committee, created the BASMAA Manual to assist applicants for development

approvals to prepare submittals that demonstrate their project complies with the NPDES permit requirements. Applicants who seek development approvals for applicable projects should follow the manual when preparing their submittals. The manual is designed to ensure compliance with the requirements and promote integrated Low Impact Development (LID) design.

Section E.12.c of the General Permit pertains to LID and how it relates to hydromodification management. This permit provision requires that stormwater discharges not cause an increase in the erosion potential of the receiving stream over the existing condition. Increases in runoff flow and volume must be managed so that the post-project runoff does not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force.

State

California Urban Water Management Planning Act

The Urban Water Management Planning Act (California Water Code §§ 10610–10656) requires that all urban water suppliers prepare UWMPs and update them every 5 years. In preparing a UWMP, an urban water supplier must describe or identify the following, among other things (as set forth in Water Code § 10631):

- "The service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning."
- "Projected population estimates" based on "data from the State, regional, or local service agency population projections within the service area," in "five-year increments to 20 years or as far as data is available."
- "Past and current water use" and "projected water use."
- "Existing and planned sources of water" for each five-year increment of the 20-year planning period.
- Specific detailed information about groundwater where it is identified as "an existing or planned source of water available to the supplier."
- "All water supply projects and water supply programs" that may be undertaken to meet "total projected water use," including "specific projects" and the "increase in water supply" expected from each project.
- An estimate of "the implementation timeline for each project or program."
- "Plans to supplement or replace" any "water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors" with "alternative sources or water demand management measures, to the extent practicable."
- "The reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable," for (i) an "average water year," (ii) a "single dry water year," and (iii) "[m]ultiple dry water years."

- "Opportunities for exchanges or transfers of water on a short-term or long-term basis."
- "Opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply."
- "Water demand management measures."

Senate Bill 610: Water Supply Assessments

As revised by Senate Bill (SB) 610 (Stats. 2002, ch. 643), Section 10910, *et seq*. of the California Water Code set forth the circumstances in which California Environmental Quality Act (CEQA) lead agencies must seek preparation of, or prepare themselves, "water supply assessments" for defined proposed "projects." At the time a lead agency determines that a proposed project requires an Environmental Impact Report (EIR), the lead agency shall identify any "public water system" that would serve the project site and shall request that any such entity prepare a WSA for the project. In the absence of such a public water system, the city or county lead agency must prepared its own WSA. SB 610 functions together with CEQA, in that a WSA must be included in "any environmental document" for any "project" subject to SB 610 (Water Code Section 10911(b); see also State CEQA Guidelines Section 15155(e); see also *Id*. Section 15361 [defines "environmental documents" to include "Negative Declarations. . . [and] draft and final EIRs"]).

One of the fundamental tasks of a WSA is to determine whether "total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses" (Water Code Section 10910 (c)(3), (c)(4)). In making such a determination, the authors of the WSA must address several factors. Specifically, the WSA must contain information regarding existing water supplies, projected water demand, and dry year supply and demand. In *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 433 ("*Vineyard*"), the California Supreme Court briefly summarized the key content requirements as follows:

> With regard to *existing* supply entitlements and rights, a water supply assessment must include assurances such as written contracts, capital outlay programs and regulatory approvals for facilities construction . . . but as to additional *future* supplies needed to serve the project, the assessment need include only the public water system's plans for acquiring the additional supplies, including cost and time estimates and regulatory approvals the system anticipates needing (Water Code §§ 10910, subd. (d)(2), and 10911, subd. (a)). (Original italics.)

"Existing" water supplies can be based on different kinds of legal rights or arrangements, including entitlements, water rights, and water service contracts. In many cases, these supplies are likely already described in detail in the supplier's UWMP (Water Code § 10631(b)). Suppliers are expressly permitted to rely on information contained in the most recently adopted UWMPs, provided that the water needed for proposed development project was accounted for therein (Water Code § 10910(c)(2)).

In preparing a WSA, the public water system must disclose and document the quantity of water received from these various sources. Such supplies must be demonstrated by providing the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(*Id*. subd. (d)(2)).

A finding of insufficiency in a WSA does not require a city or county to deny or downsize a proposed development project. Rather, after identifying a shortfall, the public water system must provide its plans for acquiring "additional supplies" (or what the California Supreme Court called "future" supplies) (Water Code § 10911(a)). These plans should include information concerning the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, State, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city and county . . . expects to be able to acquire additional water supplies.

These particular Water Code requirements for assessments are action-forcing, in that they require the public water system to lay out a roadmap for obtaining new water supplies once it becomes aware that existing supplies are insufficient for the proposed project together with other foreseeable planned growth.

Regardless of the information provided to a city or county in a WSA, SB 610 stops short of preventing cities and counties from approving the "projects" at issue absent "sufficient" water supplies. But where "existing water supply entitlements, water rights, or water service contracts" are "insufficient" to serve proposed projects, SB 610 does require that, in approving projects in the face of insufficient supplies, cities and counties must "include" in their "findings for the project[s]" their "determination[s]" regarding water supply insufficiency. SB 610 functions together with CEQA, in that a water supply assessment must be included in "any environmental document" for any "project" subject to SB 610. (*Id*. subd. (b); Guidelines, § 15155, subd. (e); see also id. § 15361 [defines "environmental documents" to include "Negative Declarations. . . [and] draft and final EIRs"]).

Recycled Water Policy

On February 3, 2009, by Resolution No. 2009-0011, the State Water Board adopted a Recycled Water Policy in an effort to move toward a sustainable water future. The Recycled Water Policy states "we declare our independence from relying on the vagaries of annual precipitation and move toward sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater."

The following goals were included in the Recycled Water Policy:

- Increase use of recycled water over 2002 levels by at least 1 million AFY by 2020 and at least 2 million AFY by 2030.
- Increase the use of stormwater over use in 2007 by at least 500,000 AFY by 2020 and at least 1 million AFY by 2030.
- Increase the amount of water conserved in urban and industrial areas by comparison to 2007 by at least 20 percent by 2020.
- Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.

The Recycled Water Policy provides direction to the RWQCBs regarding issuing permits for recycled water projects, addresses the benefits of recycled water, addresses a mandate for use of recycled water and indicates the State Water Board will exercise its authority to the fullest extent possible to encourage the use of recycled water.

The Recycled Water Policy also indicates that some groundwater basins contain salts and nutrients that exceed or threaten to exceed water quality objectives established in basin plans and states that it is the intent of this Recycled Water Policy that all salts and nutrients be managed on a basin-wide or watershed-wide basis through development of regional or subregional management plans. Finally, the Recycled Water Policy addresses the control of incidental runoff from landscape irrigation projects, recycled water groundwater recharge projects, anti-degradation, control of emerging constituents and chemicals of emerging concern and incentives for use of recycled water.

In accordance with the provisions of the Recycled Water Policy, a Constituents of Emerging Concerns Advisory Panel was established to address questions about regulating constituents of concern (COCs) with respect to the use of recycled water. The Advisory Panel's primary charge was to provide guidance for developing monitoring programs that assess potential COC threats from various water recycling practices, including groundwater recharge/reuse and urban landscape irrigation. On June 25, 2010, the Advisory Panel provided recommendations to the State Water Board and California Department of Public Health in their Final Report "Monitoring Strategies for Chemicals of Emerging Concern in Recycled Water – Recommendations of a Scientific Advisory Panel". The State Water Board used those recommendations to amend the Recycled Water Policy in 2013 (State Water Board Resolution No. 2013-003).

The April 2013 amendment provides direction to the RWQCBs on monitoring requirements for COCs in recycled water. The monitoring requirements pertain to the production and use of recycled water

for groundwater recharge reuse by surface and subsurface application methods, and for landscape irrigation. The amendment identifies three classes of constituents to monitor:

- Human health-based COCs: COCs of toxicological relevance to human health.
- Performance indicator COCs: An individual COC used for evaluating removal through treatment of a family of COCs with similar physicochemical or biodegradable characteristics.
- Surrogates: A measurable physical or chemical property, such as chlorine residual or electrical conductivity, that provides a direct correlation with the concentration of an indicator compound. Surrogates are used to monitor the efficiency of COC treatment.

Only groundwater recharge reuse facilities would be required to monitor for COCs and surrogates. Surface application and subsurface application facilities would have different mandatory COCs and a different monitoring schedule. Monitoring is not required for recycled water used for landscape irrigation projects that qualify for streamlined permitting unless monitoring is required under the adopted salt and nutrient management plan. Streamlined permitting projects must meet the criteria specified in the Policy including compliance with Title 22, application at agronomic rates, compliance with any applicable salt and nutrient management plan, and appropriate use of fertilizers.

Water Conservation Act of 2009

Requirements regarding per capita water use targets are defined in the Water Conservation Act of 2009, which was signed into law in November 2009 as part of a comprehensive water legislation package. Known as SB X7-7, the legislation sets a goal of achieving a 20 percent reduction in urban per capita water use Statewide by 2020. SB X7-7 requires that retail water suppliers define in their 2010 UWMPs the gallons per capita per day targets for 2020, with an interim 2015 target.

Assembly Bill 1881

Assembly Bill (AB) 1881 expanded previous legislation related to landscape water use efficiency. AB 1881, the Water Conservation in Landscaping Act of 2006, enacted landscape efficiency recommendations of the California Urban Water Conservation Council for improving the efficiency of water use in new and existing urban irrigated landscapes in California. AB 1881 required the DWR to update the existing Model Local Water Efficient Landscape Ordinance and local agencies to adopt the updated model ordinance or an equivalent. The law also requires the California Energy Commission (CEC) to adopt performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Assembly Bill 2882

AB 2882 was passed in 2008 and encourages public water agencies throughout California to adopt conservation rate structures that reward consumers who conserve water. AB 2882 clarifies the allocation-based rate structures and establishes standards that protect consumers by ensuring a lower base rate for those who conserve water.

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the State Legislature passed AB 939, the California Integrated Waste Management Act of 1989, effective January 1990. The legislation required each local jurisdiction in the State to set diversion requirements of 25 percent by 1995 and 50 percent by 2000; established a comprehensive Statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities; and authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated. In 2007, SB 1016, Wiggins, Statutes of 2008, Chapter 343, introduced a new per capita disposal and goal measurement system that moves the emphasis from an estimated diversion measurement number to using an actual disposal measurement number as a per capita disposal rate factor. As such, the new disposal-based indicator (pounds per person per year) uses only two factors: (1) a jurisdiction's population (or in some cases employment) and (2) its disposal as reported by disposal facilities.

Assembly Bill 341 (75 Percent Solid Waste Diversion)

In 2011, the Legislature implemented a new approach to the management of solid waste. AB 341 (Chesbro, Chapter 476, Statutes of 2011) required that the California Department of Resources Recycling and Recovery (CalRecycle) oversee mandatory commercial recycling and established a new Statewide goal of 75 percent recycling through source reduction, recycling, and composting by 2020. This paradigm adds to the policies in AB 939 in several significant ways. First, AB 341 established a Statewide policy goal, rather than a jurisdictional mandate. This places the onus for achieving the goal on the State rather than on the cities and counties that are directly responsible for waste disposal and recycling. Under the law, individual jurisdictions are not required to meet the new policy goal.

AB 341 requires CalRecycle to issue a report to the Legislature that includes strategies and recommendations that would enable the State to divert 75 percent of the solid waste generated in the State from disposal by January 1, 2020, requires businesses that meet specified thresholds in the bill to arrange for recycling services by January 1, 2012, and also streamlines various regulatory processes.

Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings

Title 24, Part 6, of the California Code of Regulations establishes California's Energy Efficiency Standards for Residential and Nonresidential Buildings. The standards were updated in 2013. The 2013 standards set a goal of reducing growth in electricity use by 561.2 gigawatt-hours per year (GWh/y) and growth in natural gas use by 19 million therms per year. The savings attributable to new nonresidential buildings are 151.2 GWh/y of electricity savings and 3.3 million therms. For nonresidential buildings, the standards establish minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning [HVAC]; and water heating systems), indoor and outdoor lighting, and illuminated signs.

Local

City of American Canyon

General Plan

The City of American Canyon General Plan sets forth the following goals and policies relevant to public services and utilities:

Goal 5 It shall be the goal of American Canyon to establish and maintain a secure water supply and treatment, distribution and storage system to serve the land uses proposed under the general plan.

Policy 5.2.5 In the event that sufficient capacity is not available to serve a proposed project, the City shall not approve the project until additional capacity or adequate mitigation is provided.

Goal 5C Establish and maintain adequate planning, construction, maintenance, and funding for storm drain and flood control facilities to support permitted land uses and preserve the public safety; upgrading existing deficient systems and expanding, where necessary, to accommodate new permitted development and to protect existing development in the City. Pursue public funding sources (i.e., grants) to reduce fiscal impacts of implementation to the City.

Policy 5.10.3 Require that adequate storm drain and flood control facilities be constructed coincident with new development.

Policy 5.10.12 Require that new development be designed to prevent the diversion of floodwaters onto neighboring parcels.

Policy 5.10.18 Require that development projects maximize the use of pervious surface materials (grass, ground cover, and other) that minimize stormwater runoff.

Goal 5D Maintain the quality of surface and subsurface water resources within the City of American Canyon.

Policy 5.12.2 Incorporate features in new drainage detention facilities which enhance the water quality of discharges from the facility.

Policy 5.13.1 Require that development activities comply with the State General Storm Water Permit for Construction Activities with measures that protect surface water quality to the maximum extent practicable.

Goal 6A Maintain a high level of fire protection and emergency services to City/District businesses and residents.

Goal 6B Ensure a high level of police protection for the City's residents, businesses, and visitors.

Policy 6.7.1 Work with the Sheriff's Department to ensure that enough personnel are added to the Department to serve the needs of a growing population and a developing City.

3.13.4 - Methodology

This section is based on the information provided by a number of sources, which are described below.

Balance Hydrologics prepared a WSA that evaluated water supply impacts in accordance with Water Code Section 10910. The WSA is provided in its entirety in Appendix I.

Additionally, FirstCarbon Solutions (FCS) reviewed relevant City documents, including the City of American Canyon General Plan, the Napa County Airport Industrial Area Specific Plan, the American Canyon Municipal Code, the City of American Canyon Sewer Master Plan, and the City of American Canyon Recycled Water Annual Report 2019. FCS also reviewed document and websites produced by the City of American Canyon and CalRecycle.

3.13.5 - Thresholds of Significance

Appendix G to the CEQA Guidelines is a sample Initial Study Checklist that includes questions for determining whether impacts related to utilities and service systems are significant. These questions reflect the input of planning and environmental professionals at the Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency, based on input from stakeholder groups and experts in various other governmental agencies, nonprofits, and leading environmental consulting firms. As a result, many lead agencies derive their significance criteria from the questions posed in Appendix G. The City has chosen to do so for this project. Thus, the proposed project would have a significant effect if it would:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

e) Comply with federal, State, and local statutes and regulations related to solid waste.

On the subject of water supply, CEQA Guidelines Section 15155[f], which codifies the California Supreme Court's decision in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, sets forth additional analytical issues that must be addressed on the specific subject of water supply. "The analysis shall include the following:

(1) Sufficient information regarding the project's proposed water demand and proposed water supplies to permit the lead agency to evaluate the pros and cons of supplying the amount of water that the project will need.

(2) An analysis of the reasonably foreseeable environmental impacts of supplying water throughout all phases of the project.

(3) An analysis of circumstances affecting the likelihood of the water's availability, as well as the degree of uncertainty involved. Relevant factors may include but are not limited to, drought, salt- water intrusion, regulatory or contractual curtailments, and other reasonably foreseeable demands on the water supply.

(4) If the lead agency cannot determine that a particular water supply will be available, it shall conduct an analysis of alternative sources, including at least in general terms the environmental consequences of using those alternative sources, or alternatives to the project that could be served with available water."

Each of these issues is addressed in the following analysis.

3.13.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Water Supply

Impact USS-1:	**The proposed project would not require the City of American Canyon to obtain additional water supplies in order to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.**

Impact Analysis

Phases 1 and 2

Potable water demand for the project was estimated by CBG Engineers based on demand factors contained in the 2016 City of American Canyon Potable Water Master plan and is summarized in Table 3.13-3. These estimates were calculated using an average day demand of 0.015 gallons per day/square foot which is the average water use across all the industrial sector and believed to be an overly high estimate of water use for this project. Therefore, revised potable water use projections for the project were calculated using averages from other similar commercial warehouse projects with more in-depth water demand estimates and/or metered water usage.

Table 3.13-3: Estimated Project Water Demand

Project Feature	Building Floor Area (Square Feet)	Acre-Feet Year			
		Potable Water Use	Revised Potable Water	Recycled Water Use	Total Water Use
Phase 1–Building A	601,383	10.1	6.1	20.8	30.9
Phase 1–Building A	468,521	7.9	4.7	16.2	24.1

Project Feature	Building Floor Area (Square Feet)	Acre-Feet Year			
		Potable Water Use	Revised Potable Water	Recycled Water Use	Total Water Use
Phase 2	1,300,000	21.8	13.1	45.0	66.9
Total	**2,369,904**	**39.8**	**23.9**	**82.1**	**121.9**

Notes:
Revised potable water use estimates based on average day demand of 0.009 gpd/sf. This is an average generated from three commercial water demand estimates.
Source: CBG Engineers 2021.

The Napa Airport Corporate Center (NACC) is an industrial warehouse development just north of the project site in the City of American Canyon. Multiple industrial warehouse buildings are planned in this development (Buildings B, D, E, G, and H). Details of the water demand estimates are reported in the NACC WSA report, with an estimated average day demand of 0.006 gpd/square foot. Similarly, the proposed Suisun Logistics Center is a planned industrial warehouse project in Fairfield, California, which is also owned and operated by Buzz Oates. The proposed Suisun Logistic Center used water meter data from similar Buzz Oates developments in Fairfield to project anticipated potable water demand. Using actual water use from four industrial developments, Suisun Logistics Center average day demand is estimated at 0.01 gpd/square foot (Appendix B). In order to provide a more realistic estimate of potable water demand for the proposed Giovannoni Logistics Center Project, the WSA prepared for the proposed project (see Appendix I) averaged various demand rates described above (CBG, NACC, and Suisun Logistics Center), resulting in an average day demand of 0.009 gpd/square foot. This revised average day demand was used to calculate a revised potable water use for the proposed project and is summarized in Table 3.13-3. The WSA estimates the total potable water demand of the proposed project at buildout to be 23.9 AFY (15.9 AFY less than the usage originally estimated by CBG Engineers).

For the purposes of the WSA, all indoor water demand is assumed to be from potable water. The applicant has not indicated that recycled water would be used for non-potable indoor uses, though that would remain an option to further reduce potable water demand at the site, should the applicant choose. Table 3.13-3 shows the estimated potable water demand for each building of the proposed project.

Recycled Water

The proposed project would use recycled water for all irrigation needs. Estimated recycled water use within the project is summarized in Table 3.13-3. The current project plans do not have estimates for the area of irrigated landscaping. The proposed project irrigation water demand was approximated by applying the average ratio of 0.604 between irrigated area and building footprint from the neighboring NACC project, with a demand factor of 2.5 acre-feet/acre (from Table 3.13 in the 2010 UWMP). These irrigation demand estimates may be high if the proposed project plans to landscape with xeric or native plant species that have lower-than-typical irrigation needs.

The recycled water usage estimates in Table 3.13-3 are intended to be used for environmental planning documentation. Actual use per building may vary based on final site plans, but total use is

expected to be consistent with (or less than) these assumptions. As stated above, all non-potable indoor water use is anticipated to be served by potable supply, though the option remains open to serve with recycled water, should the applicant choose.

Project Demand Comparison to Urban Water Management Plan

Potable Water Demand

In order to project future systemwide water demand for the 2015 UWMP, the standard demand factors from the 2010 UWMP were used along with a variety of growth-rate estimates for various land-use sectors. For the commercial/industrial sector, the City analyzed the acreage of vacant land zoned for those uses, and applied a water use factor of 675 gallons/day/acre (gpd/acre) to each parcel. The project's demand has been incorporated into long-term projections under an assumption of a buildout use of 675 gpd/acre (0.76 AFY per acre).

Table 3.13-4 compares the estimated project demand with the assumptions for the parcel included in the 2015 UWMP. Due to relatively low water use of warehouse space compared to industrial sector averages, the incorporation of recycled water for irrigation purposes, and the designation of a portion of the site for wetland preservation that would not require supplemental water supply, the proposed project is expected to use 133.3 AFY less water than expected under the 2015 UWMP growth scenario. Implementation of the City's Zero Water Footprint Policy would result in an additional 23.9-acre-foot reduction in potable water demand relative to the UWMP systemwide demand analysis.

Table 3.13-4: Comparison of Estimated Water Demand to Urban Water Management Plan

	Acre-Feet Year					
	Potable Water				Recycled Water	
Phase	UWMP	Project	Difference	ZWF Offset	UWMP	Project
1	71.6	10.8	(60.9)	(10.8)	–	37.1
2	85.6	13.1	(72.5)	(13.1)	–	45.0
Total	**157.2**	**23.9**	**(133.3)**	**(23.9)**	–	**82.1**

Notes:
UWMP = Urban Water Management Plan
ZWF = zero water footprint
The UWMP did not project irrigation demand on a parcel-by-parcel basis. Because project irrigation would be supplied by recycled water, comparison against projections in the UWMP is not necessary.
Source: Balance Hydrologics 2021.

Recycled Water

The American Canyon UWMP assumes irrigation use to be 2.5 acre-feet of water per acre of landscaping but (unlike for potable demand) did not project recycled water demand associated with particular parcels anticipated for development. Because recycled water use offsets demand for potable (or raw imported) water and it is in the City's best interest to maximize use of recycled

water, the project's recycled water demand is assessed relative to the recycled water demand goals outlined in the UWMP.

The 2016 Recycled Water Master Plan showed a delivery of 248 acre-feet for an existing 21 users between August 2013 and July 2014. In 2019, 282 acre-feet of recycled water was delivered to customers which is still below the projected 391 acre-feet of recycled water in 2020. The proposed project would add an estimated 82.1 AFY of recycled water demand.

Systemwide Demand

Recent Actual System Demand

The 2015 UWMP provides a comprehensive assessment of anticipated future water demand that included projections for both potable and recycled water for 2015-2040. However, actual water usage between 2015 and 2020 differed from what was projected in the UWMP, suggesting that demand patterns for 2015-2040 may be different as well. Table 3.13-5 shows the actual water usage within the City's distribution area since the 2015 UWMP was completed, as well as the interpolated yearly demand based on the projections in the UWMP. Since 2015, potable water demand has been much lower than that anticipated in the UWMP.

Table 3.13-5: Recent Potable and Recycled Water Usage for American Canyon

Category	Acre-Feet Year					
	2015	2016	2017	2018	2019	2020
Total Potable Water Use	2,968	2,572	2,558	2,667	2,418	2,665
Total Project Water Demand (UWMP)	2,976	3,062	3,148	3,233	3,319	3,405
Total City Recycled Water Use	180	–	–	–	282	–
Total Projected Recycled Water Demand (UWMP)	385	509	634	758	883	1,007
Total Water Usage (Actual)	3,148	2,572	2,558	2,667	2,700	2,665
Total Projected Water Demand (UWMP)	3,361	3,571	3,781	3,992	4,202	4,412

Notes: Actual water usage from Napa County Flood Control and Water Conservation District SWP delivery accounting tables (provided by the City) plus agricultural raw water. Agricultural raw water use estimated to remain at 2015 level (56 AFY) through 2020, then be reduced to zero thereafter.
Source: Balance Hydrologics 2021.

Projected System Demand

The 2015 UWMP projected future demand on a parcel-by-parcel basis relative to expected growth under the City's general plan. The analysis assumed that recycled water would be available to meet a portion of the total demand, with the remainder supplied by potable water. Table 3.13-6 shows the water demand as presented in the 2015 UWMP.

Table 3.13-6: Projected Potable, Recycled, and Total Water Demand for American Canyon

UWMP Reported Value	Acre-Feet Year					
	2015	2020	2025	2030	2035	2040
Projected Potable Water Demand	2,345	3,150	3,350	3,606	3,862	4,131
Projected Potable System Losses	631	255	272	292	313	335
Recycled Water Demand	385	1,007	1,146	1,351	1,862	1,862
Total Water Demand	**3,361**	**4,412**	**4,768**	**5,249**	**6,037**	**6,328**
Source: Balance Hydrologics 2021.						

Unbilled Water Losses

The UWMP assumed that unbilled water losses would be 7.5 percent for each year between 2020-2040. This is consistent with standards adopted by the California Urban Water Conservation Council, which provides that systems that experience greater than 10 percent losses annually undergo a water audit. In 2015, water delivery and water use records indicate that system losses were 22 percent. The City is currently undertaking an aggressive response to the situation by replacing leaky services and water mains to reduce system loss. The City assumed it would reduce system losses to 7.5 percent of the total potable and raw water deliveries by 2020. In 2015, the City replaced more than 120 segments of residential services lines as part of its program to reduce distribution system losses.

Supply and Demand Comparison

The following analysis compares future citywide water demand to anticipated available supply under "normal year," "single dry year," and "multiple dry year" scenarios. The scenarios presented herein have been summarized from the 2015 UWMP analysis for citywide system planning.

This analysis addresses potable and recycled water separately, as recycled water supply is considered reliable (and available at 100 percent of capacity) under all year-types. Reliability of potable water varies by year-type as a percentage of contracted amount, as shown in Table 3.13-7.

Table 3.13-7: Supply Reliability for Various American Canyon Water Sources

Source	2021-2040 Contracted or Available Volume	Year Type				
		Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3
State Water Project (Table A allotment)	5,200	62%	5%	22%	22%	22%
Vallejo Permit Water[1]	500	100%	100%	100%	100%	100%
Vallejo Treated Water[1]	Varies[2]	100%	80%	80%	80%	80%
Vallejo Emergency Water[1]	500	0%	100%	100%	100%	80%
Groundwater[3]	n/a	–	–	–	–	–

	2021-2040	Year Type				
Source	Contracted or Available Volume	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3
American Canyon Recycled Water	n/a [4]	100%	100%	100%	100%	100%

Notes:
UWMP = Urban Water Management Plan
[1] Percentages from 2015 UWMP, Table 7-4, 7-5, 7-6.
[2] Contracted Amount is 2,074 in 2015; 2,640 in 2020; and 3,206 2021-onward.
[3] Groundwater is not a source for citywide supply.
[4] Recycled water is produced to meet demand, ultimately, maximum production capacity of City's recycled water system is expected to be 1,000 acre-feet per year (AFY).

Potable Water

Table 3.13-8 summarizes available potable water supply under 'normal year,' 'single dry year,' and 'multiple dry year' scenarios. The City's potable water supply relies exclusively on imported water, both from the SWP and through the City of Vallejo. A percentage of the full contracted amount is assumed for each source type under each scenario. These percentages are based on guidance by DWR, analysis in the City's UWMP and the Vallejo UWMP. Resulting supply volumes for each source under the various scenarios through 2040 are shown in Table 3.13-8. The supply and demand for potable water for each of the year-types is discussed as follows.

Table 3.13-8: Projected Water Supply for American Canyon for Various Year Types

Source	2021-2040	2015	2020					2025					2030					2035					2040				
	Contracted or Available Volume	Actual	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3	Normal Year	Single Dry Year	Dry Year 1	Dry Year 2	Dry Year 3
State Water Project Table A allotment	5,200	1,953	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144
State Water Project (Article 21)	Varies	72	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124
Vallejo Permit Water	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Vallejo Treated Water	Varies	102	2,640	2,112	2,112	2,112	2,112	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565
Vallejo Emergency Water	500	387	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400
Total Potable	6,200	3,014	6,553	3,372	4,380	4,380	4,280	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733
American Canyon Recycled Water	n/a[2]	180	616	616	616	616	616	655	655	655	655	655	760	760	760	760	760	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271
NapaSan Recycled Water	Varies[3]	210	391	391	391	391	391	491	491	491	491	491	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591
Total Recycled	–	390	1,007	1,007	1,007	1,007	1,007	1,146	1,146	1,146	1,146	1,146	1,351	1,351	1,351	1,351	1,351	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Total Supply	–	3404	7,560	4,379	5,387	5,387	5,287	8,265	4,971	5,979	5,979	5,879	8,470	5,176	6,184	6,184	6,084	8,981	5,687	6,695	6,695	6,595	8,981	5,687	6,695	6,695	6,595

Notes:
1. Contracted amount is 2,074 in 2015, 2,640 in 2020, and 3,206 2021-onward.
2. Recycled water is produced to meet demand; ultimately, maximum production capacity of City's recycled water system is expected to be 1,000 acre-feet per year (AFY).
3. Projected deliveries from NapaSan to the northern Airport Industrial Area. Does not include demand for the Montalcino Resort, as that amount will not affect citywide demand.

Table 3.13-9: Comparison of Potable and Recycled Water Supply and Demand Under Various Year-type Scenarios

	2015	2020					2025					2030					2035					2040				
Source	Actual (AFY)	Normal Year (AFY)	Single Dry Year (AFY)	Dry Year 1 (AFY)	Dry Year 2 (AFY)	Dry Year 3 (AFY)	Normal Year (AFY)	Single Dry Year (AFY)	Dry Year 1 (AFY)	Dry Year 2 (AFY)	Dry Year 3 (AFY)	Normal Year (AFY)	Single Dry Year (AFY)	Dry Year 1 (AFY)	Dry Year 2 (AFY)	Dry Year 3 (AFY)	Normal Year (AFY)	Single Dry Year (AFY)	Dry Year 1 (AFY)	Dry Year 2 (AFY)	Dry Year 3 (AFY)	Normal Year (AFY)	Single Dry Year (AFY)	Dry Year 1 (AFY)	Dry Year 2 (AFY)	Dry Year 3 (AFY)
Total potable supply[1]	3,014	6,556	3,372	4,380	4,380	4,280	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733
Potable demand[2]	2,345	3,405	3,405	3,405	3,405	3,405	3,622	3,622	3,622	3,622	3,622	3,898	3,898	3,898	3,898	3,898	4,175	4,175	4,175	4,175	4,175	4,466	4,466	4,466	4,466	4,466
Potable supply minus demand	669	3,148	-33	975	975	875	3,497	203	1,211	1,211	1,111	3,221	-73	935	935	835	2,944	-350	658	658	558	2,653	-641	367	367	267
Recycled water supply[3]	390	1,007	1,007	1,007	1,007	1,007	1,146	1,146	1,146	1,146	1,146	1,351	1,351	1,351	1,351	1,351	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Recycled water demand[4]	385	1,007	1,007	1,007	1,007	1,007	1,146	1,146	1,146	1,146	1,146	1,351	1,351	1,351	1,351	1,351	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Recycled supply minus demand	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:
AFY = acre-feet per year
1. From Table 7.
2. Projected potable normal year demand, from Table 5.
3. From Table 7.
4. From Table 5

Normal Year

In a "normal year," the City's 2015 UWMP assumes "Table A" SWP deliveries would be 62 percent of the total contracted amount. Treated water from Vallejo water and raw Vallejo Permit Water are assumed to be 100 percent available in normal years, consistent with the 2015 UWMP.

The UWMP concluded that future supply is available to meet anticipated demand in normal years through buildout in 2035, as does the analysis in the WSA (Table 8). Excess supply in normal years ranges from a low of 2,653 in 2040 to a high of 3,497 AFY in 2025.

Single Dry Year

Under the "single dry year" scenario, the 2015 UWMP assumed SWP Table A deliveries to be curtailed to 5 percent of the contracted amount (see Table 3.13-8 and Table 3.13-9).

All water from Vallejo is considered a more reliable source than the City's SWP supply. The 2015 UWMP assumes that raw Vallejo Permit Water is available at 100 percent and Treated Vallejo Water is available at 80 percent of the contracted amount during single dry years. In addition, the full allotment of raw Vallejo Emergency Water (500 acre-feet) would be available under dry year conditions. The analysis herein uses these same assumptions.

The 2015 UWMP shows that single dry year supply is not significantly currently constrained and the City will be able to reliably meet potable demand until the year 2030. Single dry year deficiencies are anticipated starting in 2035 (Table 3.13-9). The City has several options available to resolve dry-year supply deficiencies.

Multiple Dry Years

The multiple dry year scenario, as described in the UWMP, consists of three consecutive years of reduced water deliveries, though none are reduced to the same degree as the single dry year scenario. The UWMP assumed that SWP Table A water would be reduced to 22 percent of the contracted amount for each of the three years.

Raw Permit Water is assumed to be available at 100 percent, and Treated Water from Vallejo is assumed to be available at 80 percent of the contracted amount for years 1, 2, and 3 of the multi-year drought following the assumptions in the 2015 UWMP. Vallejo Emergency Water is assumed to be available at the full contracted amount (500 acre-feet) for each of the 3 years of a multi-year drought, consistent with the 2015 UWMP.

The 2015 UWMP projects that water supply will exceed demand during a 3-year drought through the full 2040 planning period.

Potable Water Deficiency Resolution

The prior analysis compares potable water supply and normal year demand, and projects supply shortages in several of the "dry year" and "multiple dry year" planning scenarios. This section describes a series of options available to the City to eliminate those shortfalls in order to provide reliable supply. Estimated SWP carryover water would be sufficient to eliminate dry year supply shortfalls and could also be used in combination with drought demand reductions to further improve supply reliability.

State Water Project Carryover Water

If the City does not use its entire allotment of Table A water in a given year, the remaining water will carry over to the following year, assuming there is adequate storage in SWP reservoirs to contain the excess supply.[6] Between 2015 and 2020, the City has stored between 35 and 2,600 acre-feet of carryover water in a given year (Table 3.13-10), which has helped to meet demand during recent dry years. Because of the variability of carryover supply and the periodic "re-set" of the accounting when reservoirs are full, it is not considered a consistent yearly supply for planning purposes, but it does allow the City extra flexibility during droughts. As such, the carryover water has been incorporated into the analysis in the WSA.

Table 3.13-10: Recent State Water Project Carryover Water Supply

	2015	2016	2017	2018	2019	2020	Mean
Table A deliveries (percentage of total contract amount)[1]	25%	75%	100%	50%	85%	20%	59%
Available carryover water (remaining from previous year, in AFY)[1]	876	1,087	127	2,210	35	2,600	1,156

Notes:
AFY = acre-feet per year
[1] From Napa County Flood Control and Water Conservation District SWP delivery accounting tables (provided by the City).

It is assumed that 1,156 acre-feet of carryover water, the average over the last six years, would be available at the beginning of a dry year and the first year of a multi-year drought. Projected excess normal year supply ranges from 2,653 to 3,497 acre-feet for 2020-2040, suggesting that the 1,156 acre-feet is a reasonable and somewhat conservative estimate for planning purposes.[7] In the second and third year of a multi-year drought, the remaining carryover supply (presuming there is any) would continue to carry over to subsequent years to supplement supplies.

For example, in the single dry year scenario for 2035, 1,156 acre-feet would be available to meet the supply deficit of 350 acre-feet. The difference (806 acre-feet) would be available if there was another drought year. Under the above assumptions, the City would be able to meet projected supply deficiencies under all dry and multiple dry year scenarios within the planning period (2015-2040) through the use of available carry-overwater.

Advanced Table A Program

A recent court settlement (Area of Origin Settlement 18, 2014), clarifies another potential mechanism for the Napa County Flood Control and Water Conservation District, the Solano County Water Agency, and Yuba City (along with subcontractors to those agencies, which includes American Canyon) to obtain water during dry periods. The Advanced Table A Program allows these agencies to borrow against future SWP deliveries during times when annual deliveries are not sufficient to meet

[6] In years when SWP reservoirs spill, the carryover water is released, effectively re-setting carryover accounting to zero. Typically, however, ample storage is available in dry years.
[7] By definition, a single dry year would follow a normal or wet year, as would the first year of a 3-year drought

demand. The agreement requires that all Table A and Table A carryover water be used prior to utilizing the Advanced Table A Program, but under those circumstances the City could request an advance of up to 949 acre-feet from future years' Table A allotments.

The projections in Table 3.13-11 do not rely on the use of the Advanced Table A Program water to meet dry year demand, as estimated Table A carryover is enough to cover supply deficiencies for all scenarios. However, this program provides an important tool available to the City should unforeseen circumstances result in significantly lower-than-expected carryover.

Table 3.13-11: Potable Water Deficiency Resolution for Dry- and Multi-dry Year Scenarios

Source	2015 Actual (AFY)	2020 Normal Year (AFY)	2020 Single Dry Year (AFY)	2020 Dry Year 1 (AFY)	2020 Dry Year 2 (AFY)	2020 Dry Year 3 (AFY)	2025 Normal Year (AFY)	2025 Single Dry Year (AFY)	2025 Dry Year 1 (AFY)	2025 Dry Year 2 (AFY)	2025 Dry Year 3 (AFY)	2030 Normal Year (AFY)	2030 Single Dry Year (AFY)	2030 Dry Year 1 (AFY)	2030 Dry Year 2 (AFY)	2030 Dry Year 3 (AFY)	2035 Normal Year (AFY)	2035 Single Dry Year (AFY)	2035 Dry Year 1 (AFY)	2035 Dry Year 2 (AFY)	2035 Dry Year 3 (AFY)	2040 Normal Year (AFY)	2040 Single Dry Year (AFY)	2040 Dry Year 1 (AFY)	2040 Dry Year 2 (AFY)	2040 Dry Year 3 (AFY)
Potable supply minus demand[1]	669	3,403	222	1,230	1,230	1,130	3,769	475	1,483	1,483	1,383	3,513	219	1,227	1,227	1,127	3,257	-37	971	971	871	2,988	-306	702	702	602
Estimated Table A carryover water[2]	–	–	1,156	1,156	2,386	3,616	–	1,156	1,156	2,639	4,122	–	1,156	1,156	2,383	3,610	–	1,156	1,156	2,127	3,098	–	1,156	1,156	1,858	2,560
"Advanced Table A" water[3]	–	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0
Demand savings through drought restrictions[4]	–	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	0	0	0	0	0
Open market water purchases[5]	–	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	–	0	0	0	0	0	0	0	0	0
Adjusted supply minus demand[6]	**669**	**3,403**	**1,378**	**2,386**	**3,616**	**4,746**	**3,769**	**1,631**	**2,639**	**4,122**	**5,505**	**3,513**	**1,375**	**2,383**	**3,610**	**4,737**	**3,257**	**1,119**	**2,127**	**3,098**	**3,969**	**2,988**	**850**	**1,858**	**2,560**	**3,162**

Notes:
AFY = acre-feet per year
[1] From Table 3.13-9.
[2] Table A water not used in the prior year may be used in the following year, assuming storage is available; estimated from previous six years of carryover availability. Assume 1,156 acre-feet available in a dry year and the first year of a multi-year drought. Remaining carryover after the first year of a drought is available in the second year, and remaining water after the second year is available in the third year of a drought.
[3] When the City exhausts its supply of carryover water, the City can "borrow" against future State Water Project (SWP) deliveries, up to 949 acre-feet. Projected water shortages can be met solely through carryover supply, so no Advanced water is projected to be needed to meet demand.
[4] The City may choose to offset supply deficiency through demand reduction (drought restrictions) during dry periods. All supply deficiencies are projected to be satisfied through carryover water; restrictions are not likely to be required, but remain an option for the City, if needed; see Table 3.13-12 for projected estimated volume for drought conservation savings.
[5] The City also has the option to purchase additional water on the open market. While not required to meet long-term supply deficiencies the City may choose to use this option during droughts,
[6] Supply minus demand from above, plus additional supply available through carryover, "Advanced Table A," demand savings, and open market purchases

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Drought Year Demand Reductions

It is important to note that the demand projections in the 2015 UWMP (as well as for the analysis in the WSA) were not explicitly adjusted for voluntary or mandatory water use reduction measures that may be implemented in response to drought conditions. The City has a Water Shortage Contingency Plan that outlines four stages of water demand reduction measures that could be utilized when water supply is constrained due to environmental or other conditions. The City projects demand reductions of 10/20/30/50 percent corresponding to each of the tiers, beginning with voluntary actions at Tier 1 and moving to increasingly restrictive mandatory measures for Tiers 2-4.

On June 1, 2021, in response to ongoing Statewide drought conditions, the City declared a Stage 1 drought emergency that called for a voluntary reduction from residential and commercial customers compared to the previous year. On July 20, 2021, the City declared a Stage 2 drought emergency, enacting mandatory water use restrictions, requiring all water customers to reduce their water use by 20 percent. As of the end of August 2021, water conservation measures have resulted in an 18 percent decrease from residential customers and 13 percent decrease from commercial customers.

Because estimated carryover water was sufficient to satisfy projected shortages, the supply and demand analysis in Table 3.13-11 does not account for drought year demand reduction. However, the City may choose to use these measures to provide additional flexibility during droughts. Assuming drought reductions of 13 percent, similar to what was achieved in 2014, the City could be expected to reduce demand in future years ranging between 305 acre-feet in 2015 and 537 acre-feet in 2040 (Table 3.13-12). While these volumes would not solely eliminate projected dry year shortages, these measures could be used in conjunction with the above measures to provide additional buffer, as needed, if other supplies are unexpectedly curtailed. Stronger restrictions (level 3 or 4), could be used to achieve greater reductions if necessary, but are not likely to be needed.

Table 3.13-12: Projected Drought Year Demand Savings

	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Projected normal year potable demand[1]	2,345	3,150	3,350	3,606	3,862	4,131
Estimated drought conservation volume[2]	305	410	436	469	502	537

Notes:
AFY = acre-feet per year
[1] From Table 3.13-6.
[2] 13 percent of potable demand.

Open Market Purchases

The City has the option to purchase additional water from a variety of other sources on an as-needed and as-available basis. These potential purchases were not considered as a reliable long-term supply for the purposes of the WSA, though the City could choose to purchase additional supply in dry years when normal supplies are constrained. In fact, the City chose to utilize this option in 2015, and purchased 216 acre-feet of additional supply through the Dry Year Transfer and Yuba Accord Programs. As with the above options, Open Market Purchases can provide additional operational flexibility for the City during dry periods when other supplies are reduced.

Recycled Water

The City's recycled water system has a supply capacity of up to 1,271 AFY by 2035, and NapaSan has agreed to provide up to 591 acre-feet to supply the northern portion of the Airport Industrial Area (which is located within the City's water service area). Practically, however, the City produces recycled water to meet demand, as shown in Table 8 (above). Because recycled water is derived from wastewater that is: (1) less susceptible to fluctuation due to climatic conditions, and (2) available in excess of the capacity of the recycled water system, recycled water is assumed to be 100 percent available during single- and multi-year-drought scenarios. Table 3.13-9 presents recycled water supply versus demand for the 2015-2040 planning period under various year-type scenarios. Because recycled water use offsets water that would otherwise be delivered from limited potable or imported water supply, it is in the City's best interest to maximize recycled water use by way of increasing the number of recycled water users tied into the system.

The projections for recycled water use in the 2015 UWMP were, in effect, operational goals to maximize recycled water use. The UWMP projected 1,862 acre-feet of recycled water use by 2035. Recent recycled water use has been much lower than projected in the UWMP. For example, in 2019 water demand was projected to be about 883 acre-feet, but the City only used 282 acre-feet of recycled water. The City expects a significant expansion in the recycled water delivery system by 2035, allowing full use of the system by that time. Recycled water demand by sector is shown in Table 3.13-13.

Table 3.13-13: Summary of Potential Recycled Water Demand by Sector

Utility land-use classification	Potable offset demand[1] (AFY)	Buildout demand[2] (AFY)
Single-family Residential	–	22.8
Multi-family Residential	–	41.8
Commercial	3.4	49.7
Industrial	4.7	209.9
Institutional/Governmental	101.9	127.4
Landscape	69.4	119.5
Open Space	–	–
Watson Ranch	–	253.2
Recreation	–	204.3
Agricultural	68.1	173.2
Total	24.7	1,201.9

Notes:
AFY = acre-feet per year
[1] Projected demand used in WSA analysis (Table 3.13-7) are lower than the numbers shown here in order to provide a conservative estimate for future demand.
[2] Buildout demand for Institutional/Governmental assumes the American Canyon High School will halve existing demand by fixing suspected leaks in irrigation system.

Conclusion

In summary, the analysis in the WSA shows that the City's water supply is sufficient to meet projected demand, in all years and under all normal-, dry-, and multi-dry-year scenarios. The analysis shows that demand will exceed supply during some dry years, but the City will still be able to meet demand through the use of carryover SWP water or through some combination of carryover SWP water, Advanced Table A Water, demand reductions, and/or additional purchases on the open market. In addition, recycled water supply in the City is available to meet existing and projected demand and available in sufficient volume to support non-potable uses at the project site. Use of recycled water at the site will increase the City's utilization of this supply. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Wastewater

Impact USS-2:	**The proposed project would not create a need for new or expanded wastewater collection or treatment facilities.**

Impact Analysis

Phases 1 and 2

The proposed project would be served by City of American Canyon for wastewater collection and treatment. Table 3.13-14 estimated the proposed project's wastewater generation using rates provided by the City's Sewer Master Plan. The proposed project would generate 402,500 gallons of effluent per day (0.41 mgd) at buildout.

Table 3.13-14: Wastewater Generation Estimate

Developed Area	Wastewater Generation Rate	Daily Wastewater Generation
161 acres	2,500 gallons/day/acre	402,500 gallons (0.41) mgd)

Notes:
mgd = million gallons per day
Sources: GHD 2016; FirstCarbon Solutions (FCS) 2021.

Phase 1 of the proposed project would generate 276,800 gallons per day (0.28 mgd) and Phase 2 would generate 125,700 gallons (0.13 mgd). Wastewater effluent generation would increase incrementally as each building comes online; there would not be a sudden influx of 0.41 mgd into the City's sewer system.

The proposed project would connect to both an existing 12-inch diameter sewer line within Green Island Road and a future sewer line within the Devlin Road extension. Both lines convey effluent to the Green Island Road Sanitary Pump Station and ultimately the City's Water Reclamation Facility.

The Water Reclamation Facility has an existing design capacity of 2.5 mgd. In the 2008 Interim Facilities Plan for the Water Recycling Plant, a phased improvement plan is outlined to increase the plant capacity over time to 4.0 mgd. The proposed project's wastewater generation of 0.41 mgd would represent 16 percent of the existing treatment capacity and 10 percent of the future capacity. The Water Reclamation Facility would treat effluent and either reclaim it for beneficial use or discharge it to the Napa River. As such, existing and planned treatment capacity would be sufficient to serve the proposed project. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Storm Drainage

Impact USS-3:	**The proposed project would not result in a need for new or expanded off-site storm drainage facilities.**

Impact Analysis

Phases 1 and 2

The proposed project would result in the development of 2.4 million square feet of high-cube warehouse uses on 161 acres of the project site. The remaining 44.8 acres would be preserved as open space. Thus, the proposed project would increase the amount of impervious surface coverage on the project site and would create the potential for increased runoff leaving the project site that may create potential flooding conditions in downstream waterways.

The proposed project would provide 110,766 square feet (2.6 acres) of storm drainage retention on-site. A network of underground piping ranging from 12- to 48-inches in diameter would convey runoff to bioretention and detention basins in the northern portion of the property.

In accordance with applicable provisions of Section C.3 of the San Francisco Bay RWQCB Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008) (or more recent permit) as required under Mitigation Measure (MM) HYD-1b, the proposed project would implement LID stormwater management methods into the on-site storm drainage system consisting of rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment.

Collectively, these measures would serve to slow, reduce, and meter the volume of runoff leaving the project site and ensure that downstream storm drainage facilities are not inundated with

project-related stormwater such that new or expanded facilities would be required. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Solid Waste

Impact USS-4: The proposed project's solid waste would not create a need for additional landfill capacity.

Impact Analysis

Phases 1 and 2

This impact discussion assesses whether the proposed project would be served by a landfill with adequate capacity or comply with federal, State, and local statutes and regulations related to solid waste. Solid waste would be generated by construction and operational activities. Each is discussed as follows.

Construction Waste

The proposed project would result in the construction of 2.4 million square feet of commercial and industrial uses. Using a nonresidential construction waste generation rate published by the United States Environmental Protection Agency (EPA), an estimate of the total construction debris generated by the proposed project is provided in Table 3.13-15.

Table 3.13-15: Construction Solid Waste Generation

Waste Generation Rate	Square Feet	Construction Waste Generation	
		Tons	Cubic Yards
3.89 pounds/square foot	2.4 million	4,668	6,536

Notes:
1 ton = 2,000 pounds; 1 ton = 1.4 cubic yards
Source: United States Environmental Protection Agency (EPA) 1998; FirstCarbon Solutions (FCS) 2021.

Development of the proposed project would generate an estimated 6,536 cubic yards of construction debris. This waste volume represents less than 0.01 percent of the 38.8 million cubic yards of remaining capacity at the Potrero Hills Landfill. Moreover, the values shown in the table do not adjust construction solid waste generation to account for C&D debris recycling that would serve

to divert waste from the landfill. The Napa Valley Waste Management Authority provides C&D debris recycling at the nearby Devlin Road Transfer Station.

Therefore, short-term construction impacts on landfill capacity would be less than significant.

Operational Waste

Table 3.13-16 summarizes the proposed project's operational waste generation based on rates provided by Cal Recycle.

Table 3.13-16: Operational Solid Waste Generation

Waste Generation Rate	Square Feet	Operational Waste Generation	
		Tons	Cubic Yards
4.8 pounds/square foot	2.4 million	5,760	8,064

Notes:
1 ton = 2,000 pounds; 1 ton = 1.4 cubic yards
Source: California Department of Resources Recycling and Recovery (CalRecycle); FirstCarbon Solutions (FCS) 2021.

The proposed project would generate an estimated 8,064 cubic yards of operational solid waste on an annual basis at buildout. This waste volume represents less than 0.01 percent of the 38.8 million cubic yards of remaining capacity at the Potrero Hills Landfill. Moreover, the values shown in the table do not adjust operational solid waste generation to account for recycling and waste reduction activities that would serve to divert waste from the landfill. Therefore, long-term operational impacts on landfill capacity would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

CHAPTER 4: CUMULATIVE EFFECTS

4.1 - Introduction

California Environmental Quality Act (CEQA) Guidelines Section 15130 requires the consideration of cumulative impacts within an Environmental Impact Report (EIR) when a project's incremental effects are cumulatively considerable. According to CEQA ". . . the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines § 15065[a][3]). In identifying projects that may contribute to cumulative impacts, CEQA allows the use of a list of past, present, and reasonably anticipated future projects that have the potential to result in related or cumulative impacts, including those outside of the control of the lead agency.

In accordance with CEQA Guidelines Section 15130(b), ". . . the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, the discussion need not provide as great [a level of] detail as is provided for the effects attributable to the project alone." The discussion should be guided by standards of practicality and reasonableness, and it should focus on the cumulative impact to which the identified other projects contribute rather than on the attributes of other projects that do not contribute to the cumulative impact.

In general, the cumulative study area for each particular environmental topic is defined based on what is reasonable given the environmental resource under analysis. For example, some environmental resource topics are naturally broad in their impact while others are localized. Cumulative air quality effects, for instance, considers the cumulative effect on the entire Air Basin, whereas cumulative geological hazard impacts generally define the cumulative study area as the project site and potentially projects in the immediate vicinity that may combine to result in a cumulative geological hazard impact. With these qualifications, the list of related past, present, and probable future set forth in Table 4-1 below (Cumulative Projects) extends to the entire City of American Canyon, though some resources require a larger cumulative study area and some a smaller area.

Table 4-1: Cumulative Projects

Jurisdiction	Project	Location	Characteristics	Status
City of American Canyon	Pacific Gas and Electric Company Napa Regional Center	500 Boone Road	100,668-square-foot maintenance and operations center on 24.5 acres	Pending
	Devlin Road Segment H	Project Site	3,084-lineal-foot extension of Devlin Road between Green Island Road to Boone Road; Includes Napa Valley Vine Trail	Under construction

Jurisdiction	Project	Location	Characteristics	Status
	Green Island Road Widening	Green Island Road between State Route (SR) 29 and a cul-de-sac	Reconstruction of roadway; Addition of a two-way left-turn lane, curb, gutter, sidewalks; Construction of the Napa Valley Vine Trail	Approved; Not constructed
	Napa-Vallejo Waste Management Authority Construction and Demolition Debris Recycling Facility	South Kelly Road/Devlin Road (southwest quadrant)	Enclosed construction and demolition debris recycling facility on 9 acres	Approved; Not constructed
	Napa Airport Corporate Center	South Kelly Road/Devlin Road (southeast quadrant)	300,000-square-foot business park on 35 acres	Approved; Not constructed
	Commerce Court Distribution Centers	Commerce Court	Two warehouses (224,593 square feet and 217,294 square feet) on 20.56 acres	Pending
	Sentinels of Freedom Property	West of Napa Logistics; South of Napa County Airport	Two warehouses (224,593 square feet and 217,294 square feet) on 20.56 acres	Pending
	Watson Ranch Specific Plan	East of Napa Junction	1,253 dwelling units; 50 live/work units; 93,500-square-feet commercial; 100-room hotel; 600-student school	Under construction
	Broadway District Specific Plan	SR-29 corridor from the southern city limit to Green Island Road	1,200 dwelling units; 840,000 square feet of nonresidential uses within 300 acres	Under Construction
Source: City of American Canyon 2021.				

4.2 - Cumulative Impact Analysis

The cumulative impact analysis below is guided by the requirements of CEQA Guidelines Section 15130. Key principles established by this section include:

- A cumulative impact only occurs from impacts caused by the proposed project together with other projects. An EIR should not discuss impacts that do not result from the proposed project.
- When the combined cumulative impact from the increment associated with the proposed project and other projects is not significant, an EIR need only briefly explain why the impact is not significant; detailed explanation is not required.

- An EIR may determine that a project's contribution to a cumulative effect impact would be rendered less than cumulatively considerable if a project is required to implement or fund its fair share of mitigation intended to alleviate the cumulative impact.

The cumulative impact analysis that follows relies on these principles as the basis for determining the significance of the proposed project's cumulative contribution to various impacts.

4.2.1 - Aesthetics, Light, and Glare

The geographic scope of the cumulative aesthetics, light, and glare analysis is the 0.25-mile radius surrounding the project site. This is the area within view of the project site and, therefore, the area most likely to experience cumulative changes in visual character or experience cumulative light and glare impacts.

Several of the projects listed in Table 4-1 are immediately adjacent to or within 0.25 mile of the project site (e.g., Napa Logistics Park, Napa Airport Corporate Center, Devlin Road Transfer Station Construction and Demolition Debris Recycling Facility, the Devlin Road Extension, etc.).

The project site and the surrounding area have long been planned to accommodate large industrial and warehouse uses and are isolated and separate from the residential areas of the City. The existing surrounding uses are large industrial uses. The City of American Canyon General Plan designates the project site as "Industrial," and the American Canyon Zoning Ordinance zones the project site as "General Industrial." Both land use designations permit the types of end uses envisioned by the proposed project and other existing, approved, and reasonably foreseeable future developments.

Although the development of the proposed project would fundamentally change the visual character of the project site, it would be compatible with surrounding industrial uses and would be consistent with the City of American Canyon General Plan land use designation for the project site. Because the proposed project would preserve 48 acres of the project site that contain No Name Creek and associated wetlands, this area would continue to provide a visual buffer between the industrial uses and the undeveloped marsh area near the Napa River. The project site would feature attractive landscaping consisting of trees, shrubs, and groundcover. Landscaping would be installed along internal roadways, around the buildings, and in the parking areas and would be approved and installed at the time of construction of each building. Design Permits would be required from the City to approve the specific building and site design on each lot, including building height. Furthermore, due to its location, it would not degrade any views of a scenic vista such as the Napa River or Sulphur Springs Hills. Other past projects, present projects under construction, and reasonably foreseeable projects in the surrounding area would be subject to similar landscaping and design requirements. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable projects, would not result in cumulatively significant aesthetic impacts.

The past, present, and reasonably foreseeable developments near the project site have contributed to—and would continue to contribute to—ambient light and glare in the project vicinity. The proposed project would install new sources of light and glare on the project site from exterior building lighting, security lighting, and lights and glare associated with vehicles accessing the project

site. Mitigation Measure (MM) AES-3 requires new exterior lighting fixtures to employ full cut-off fixtures to direct light downward and eliminate spillage. Other past, present, and reasonably foreseeable future developments in the project vicinity that involve the installation of new exterior lighting fixtures have been and would be required to implement similar standard measures to prevent light spillage. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable projects in the applicable geographic area, would not have a cumulatively significant impact related to light and glare.

4.2.2 - Air Quality

The geographic scope of the cumulative air quality analysis is the San Francisco Bay Area Air Basin, which covers all or portions of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Sonoma, and Solano. Air quality is impacted by topography, dominant air flows, atmospheric inversions, location, and season; therefore, using the Air Basin represents the area most likely to be impacted by air emissions. The Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines cumulative significance criteria are used in the cumulative analysis of air quality.

The Air Basin is currently designated as nonattainment for the State and federal ozone and $PM_{2.5}$ standards and the PM_{10} State standards. While an air quality plan exists for ozone, none currently exists for particulate matter. A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process. Regional emissions forecasts in the air quality plan are based on population and employment forecasts based on City and County General Plans. The proposed project is consistent with land use designations and applicable goals and policies of the American Canyon General Plan, site zoning, and other applicable land use regulatory documents. As such, the proposed project would be considered planned growth. The proposed project would not result in a substantial unplanned increase in population, employment, or regional growth or in Vehicle Miles Traveled (VMT) and would not conflict with or obstruct implementation of the air quality plan in this regard.

Additionally, the proposed project would meet all of the applicable Land Use Measures and Energy and Climate Measures contained in the BAAQMD's Clean Air Plan. For example, the proposed project would not preclude extension of a transit line or bike path, propose excessive parking beyond parking requirements, or otherwise create an impediment or disruption to implementation of any air quality plan control measures.

In developing thresholds of significance for air pollutants, BAAQMD established numerical thresholds for determining when a project's individual contributions would be cumulatively considerable. If a project does not exceed the identified significance thresholds, its emissions would not be cumulatively considerable, resulting in less than significant air quality impacts to the region's existing air quality conditions. The proposed project would emit operational criteria pollutant emissions (reactive organic gases and oxides of nitrogen) at levels that would exceed the BAAQMD CEQA Guidelines and significance thresholds. Mitigation is proposed requiring the implementation of criteria pollutant emissions reduction measures; however, mitigation would not reduce these

emissions to below BAAQMD thresholds. Because the proposed project cannot reduce criteria pollutant emissions to below BAAQMD regional thresholds with mitigation, the proposed project would contribute to a cumulatively considerable (i.e., significant and unavoidable) regional air quality impact with regard to consistency with the BAAQMD's current Clean Air Plan.

With implementation of fugitive dust control measures, the proposed project would not result in any localized construction fugitive dust impacts. The proposed project was not found to result in any CO hotspots or project-level health risk impacts to sensitive receptors or to create objectionable odors affecting a substantial number of people. Therefore, the proposed project would not contribute to any potential significant cumulative significant impact related to localized criteria pollutant impacts from fugitive dust, CO, or objectionable odors.

As noted above, the proposed project would emit operational criteria pollutant emissions (reactive organic gases and oxides of nitrogen) at levels that would exceed the BAAQMD 2010 CEQA Guidelines and significance thresholds. Therefore, the proposed project would contribute to a cumulatively significant and unavoidable regional air quality impact in regard to criteria pollutants.

As noted above, BAAQMD's established numerical thresholds for individual projects are set at levels determined to represent cumulatively considerable emissions. Since the proposed project's health risk impacts and $PM_{2.5}$ concentration at sensitive receptors are below these levels under the BAAQMD criteria, the proposed project would not result in a cumulatively considerable contribution to any potentially significant cumulative impact. Nonetheless, because of emissions from existing nearby projects, this EIR concludes that a significant cumulative impact would occur.

4.2.3 - Biological Resources

The geographic scope of the cumulative biological resources analysis is a 0.5-mile radius of the project site. The project site is located at the transition between urban development and the marshes associated with the Napa River; accordingly, habitats in these areas tend to be disrupted and impacts would be localized.

The proposed project has the potential to impact special-status plant species and several special-status bird species, including Swainson's hawk, golden eagle, northern harrier, and burrowing owl. However, through the implementation of MM BIO-1a through MM BIO-2e, impacts to these species as a result of the development of the proposed project would be reduced to less than significant levels by requiring pre-construction surveys for these species and establishing buffer zones around any active nests. Although there would be loss of foraging habitat, the cumulative loss of this resource would not be considerable due to the abundance of habitat in the American Canyon area. These mitigation measures would be consistent with other mitigation measure implemented for other projects within the local vicinity of the proposed project including the Devlin Road project and the Green Island Road Reconstruction and Widening project. With the implementation of these mitigation measures any potentially significant cumulative impacts by the probable future projects in Table 4-1, together with the proposed project, would be reduced to less than significant levels.

The proposed project would impact approximately 0.496-acres of palustrine emergent wetlands. Plans for wetland mitigation, including the preservation of an approximately 44.8-acre Wetland

Preserve, to include existing wetlands as well as established/created wetlands, are intended to offset wetland impacts of buildout development of the project site. No Name Creek is contained within the approximately 44.8-acre Wetland Preserve; no impacts to the palustrine emergent wetland swale associated with No Name Creek would occur from the proposed project in the area east of Devlin Road. No impacts would occur to areas that would be subject to California Department of Fish and Wildlife (CDFW) jurisdiction under Fish and Game Code Section 1602, therefore the development of the proposed project would not result in greater cumulative impacts to sensitive natural communities or riparian habitats.

The development of Phase 1 of the proposed project would impact 0.496 acres of palustrine emergent wetlands considered waters of the State under the Porter-Cologne Water Quality Control Act as well as 0.004 acres of palustrine emergent wetlands considered waters of the United States. As described in MM BIO-1a, these impacts would require that the applicant apply for and obtain a Nationwide Permit from the United States Army Corps of Engineers (USACE) and a Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB) for discharge within 0.004 acres of wetlands. The applicant would also need to apply for and obtain a separate Waiver of Waste Discharge from the San Francisco Bay RWQCB for impacts to 0.496 acres of WOS.

The development of Phase 2 of the proposed project would impact approximately 3.7 acres of wetlands considered both waters of the United States and State. These impacts would require that the applicant submit a separate application for an Individual Permit from USACE to include a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines to include a detailed evaluation of both on-site and off-site alternatives for the proposed project. Similar to Phase 1, these impacts would also require a Clean Water Act Section 401 Water Quality Certification and a Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB, as described in MM BIO-1b.

As described in MM BIO-1c, to compensate the loss of these wetlands an approximately 44.8-acre Wetland Preserve fronting the northern boundary of the project site would preserve 7.71 acres of existing wetlands and create approximately 4.7 acres of new wetlands within the Wetland Preserve. The creation of this Wetland Preserve and new wetlands would help offset any significant cumulative impacts to jurisdictional wetlands by the proposed project or other projects listed in Table 4-1 and reduce them to less than significant levels overall.

The wildlife corridor along No Name Creek would remain unaffected by the development of the proposed project and would be entirety contained and incorporated into the Wetland Preserve. Therefore, the proposed project would not result in substantial change in animal populations at the site, nor would it cause a fish or wildlife population to drop below self-sustaining levels. Additionally, the requirement for the implementation of a Stormwater Pollution Prevention Plan (SWPPP) would assure that water quality of nearby waterways is not affected by on-site construction activities. This mitigation measure would be consistent with other mitigation measure implemented for other projects listed in Table 4-1, including the Devlin Road project and the Green Island Road Reconstruction and Widening project. As a result, the proposed project would not result in greater cumulative impacts to potential wildlife corridors.

The development of the proposed project does have the potential to impact nesting birds if construction includes the removal of vegetation occurs during the breeding season (February 1 to August 31). However, the implementation of MM BIO-4a would avoid direct and indirect impacts to nesting birds by requiring pre-construction nesting bird surveys and establishing buffer zones around any active nests. This mitigation measures would be consistent with other mitigation measure implemented for other projects listed in Table 4-1, including the Devlin Road project and the Green Island Road Reconstruction and Widening project. With the implementation of MM BIO-4a, any cumulative impacts by the proposed project would be reduced to less than significant levels.

4.2.4 - Cultural Resources

The geographic scope of the cumulative cultural resources analysis is a 0.5-mile radius of the project site. Cultural resource impacts tend to be localized because the integrity of any given resource depends on what occurs only in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the project site (including the off-site construction areas), the area near the project site would be the area most affected by project activities (generally within a 500-foot radius).

No listed historic resources are within the project boundaries. Thus, none would be adversely impacted by project construction, therefore no cumulative impacts would occur within the City of American Canyon or its immediate vicinity. Archaeological resource impacts tend to be localized, because the integrity of any given resource depends on what occurs in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the project site itself, the area near the project site would be the area most affected by project activities (generally within a 0.5-mile radius). Given that the proposed project would not have a known, direct impact on any known archaeological resources, cumulative project impacts are less than significant. Construction activities associated with cumulative development projects in the project vicinity may have the potential to encounter undiscovered cultural resources. These cumulative projects listed in Table 4-1 would be required to mitigate for impacts through compliance with applicable federal and State laws governing cultural resources.

Additionally, the implementation of standard construction mitigation measures would ensure undiscovered cultural resources are not adversely affected by project-related construction activities, which would prevent the destruction or degradation of potentially significant cultural resources in the project vicinity. Given the standard archaeological resources mitigation measures that would apply to the cumulative projects listed in Table 4-1 (including the proposed project), the cumulative impact related to archaeological resources would be less than significant with mitigation (MM CUL-2a, 2b, and 3)

Although there is the possibility that previously undiscovered tribal cultural resources (TCRs) could be encountered by subsurface earthwork activities associated with the cumulative projects, the implementation of construction mitigation measures (MM CUL-4) would ensure that undiscovered TCRs are not adversely affected by cumulative project-related construction activities. Given the low potential for disruption, the standard conditions of approval, and mitigation measures that cumulative projects would be required to implement, the proposed project, in conjunction with

other planned and approved projects, would result in a less than significant with mitigation cumulative impact related to TCRs.

With the implementation of MM CUL-2a, MM CUL-2b, MM CUL-3, and MM CUL-4, the proposed project would not result in a significant cumulative impact to cultural resources in the City of American Canyon or surrounding area.

4.2.5 - Geology, Soils, and Seismicity

The geographic scope of the cumulative geology, soils, and seismicity analysis is the project vicinity. Adverse effects associated with geologic, soil, and seismic hazards tend to be site specific, because each project site has its own geologic and soils conditions, and each project has its own design characteristics, localized within the area near the project site most affected by project activities (generally within a 0. 5-mile radius).

Past, present, and future development projects in the project vicinity have the potential to exacerbate exposure to seismic hazards. The West Napa Fault bisects the project site and, thus, the project site may be susceptible to fault rupture during a seismic event. MM GEO-1a requires the project applicant to retain a qualified geotechnical consultant to prepare a fault investigation study and ensure project plans comply with all required setback requirements. Additionally, the project site may be subject to strong ground shaking during an earthquake; thus, MM GEO-1b requires the project applicant to retain a qualified geotechnical consultant to prepare a design-level geotechnical study and implement all California Building Standards Code applicable requirements into project plans. Other nearby past, present, and reasonably foreseeable development projects have been and may exacerbate exposure to similar potential seismic hazards and would be required to comply with the relevant State and local laws designed to mitigate seismic hazards and mitigation measures imposed under CEQA. Therefore, the proposed project in conjunction with other cumulative development would not expose people or structures to substantial adverse effects, including the risk of loss, injury, or death in the event of a major earthquake; fault rupture; ground shaking; seismic-related ground failure; landslide; or liquefaction.

Regarding soil erosion, development activities could lead to increased erosion rates on-site soils, which could cause unstable ground surfaces and increased sedimentation in nearby streams and drainage channels. MM HYD-1a requires implementation of standard stormwater pollution prevention measures to ensure earthwork activities do not result in substantial erosion off-site. This mitigation, in turn, would have to comply with the National Pollution Discharge Elimination System (NPDES) stormwater permitting program, which regulates water quality originating from construction sites. The NPDES program, which governs projects statewide (and nationwide), requires the preparation and implementation of Stormwater Pollution Prevention Programs for construction activities that disturb more than 1 acre and the implementation of Best Management Practices (BMPs) that ensure the reduction of pollutants during stormwater discharges, as well as compliance with all applicable water quality requirements. The proposed project would be required to comply with these regulations, as have and would other nearby past, present, and reasonably foreseeable development projects. Therefore, the proposed project in conjunction with other nearby cumulative development would not have a cumulatively significant impact associated with erosion.

The project site contains native soils that have shrink-swell characteristics, which may exacerbate exposure of project structures to expansive soil hazards. MM GEO-1b requires the project applicant to retain a qualified geotechnical consultant to prepare a design-level geotechnical study and incorporate all California Building Standards Code applicable requirements into project plans. Other nearby past, present, and reasonably foreseeable development projects could be exposed to expansive soil hazards and, therefore, have been and would be required to implement similar mitigation measures based on State and local regulations and CEQA requirements. As such, the proposed project, in conjunction with other nearby past, present, and reasonably foreseeable projects, would not have a cumulatively significant impact associated with expansive soils.

Paleontological resources resource impacts tend to be localized, because the integrity of any given resource depends on what occurs in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the project site itself, the area near the project site would be the area most affected by project activities (generally within a 0.5-mile radius). Given that the proposed project would not have a known, direct impact on any known paleontological resources, cumulative project impacts are less than significant. Construction activities associated with cumulative development projects in the project vicinity may have the potential to encounter undiscovered paleontological resources. These cumulative projects listed in Table 4-1 would be required to mitigate for impacts through compliance with applicable federal and State laws governing paleontological resources.

Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable planned and approved projects in the vicinity, would not have a cumulatively significant impact related to geology, soils, and seismicity.

4.2.6 - Greenhouse Gas Emissions

The geographic scope of the cumulative greenhouse gas (GHG) emissions analysis is the San Francisco Bay Area Air Basin, which covers all or portions of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Sonoma, and Solano. In a larger sense, however, the relevant geographic area is the entire Earth, as explained by the California Supreme Court. "[B]ecause of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (*Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, 219.) "'With respect to climate change, an individual project's emissions would most likely not have any appreciable impact on the global problem by themselves, but they would contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe. The question therefore becomes whether the proposed project's incremental addition of greenhouse gases is "cumulatively considerable" in light of the global problem, and thus significant.'" (*Id.*, quoting Crockett, Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World (July 2011) Golden Gate U. Envtl. L.J. 203, 207–208).)

The proposed project would emit new GHG emissions, as would other past, present, and reasonably foreseeable projects within the Air Basin. The BAAQMD has not set a numerical threshold of significance for GHG emissions from construction. The BAAQMD has a numerical threshold of

significance for GHG emissions from operation as well as a threshold on a per-service population basis. Although the proposed project would comply with relevant elements of the City of American Canyon Energy Efficiency Climate Action Plan (EECAP), such as exceeding the Title 24 standards for new construction, it exceeds both of the BAAQMD operational GHG thresholds and as such could be considered cumulatively significant. As the proposed project also includes a potential new stationary source, GHG emissions from the stationary source were compared to the BAAQMD significance threshold for GHG from stationary sources. The proposed stationary source emissions exceed the relevant BAAQMD significance threshold and as such could be considered cumulatively significant. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable future development in the Air Basin and around the world, would result in a significant cumulative GHG emissions impact. The proposed project's contribution would be cumulatively considerable and thus significant in and of itself.

4.2.7 - Hazards and Hazardous Materials

For most topics the geographic scope of the cumulative hazards and hazardous materials analysis is the project area. Adverse effects of hazards and hazardous materials tend to be localized; therefore, the area near the project area would be most affected by project activities. For the transport of hazardous materials, the geographic scope includes local and regional transportation facilities.

The proposed project would not result in any significant impacts associated with hazardous materials because there is no evidence of contamination from past uses, and any use or storage of hazardous materials during construction or operations would be subject to compliance with regulatory requirements and mitigation measures. Accordingly, all project-related impacts associated with hazardous materials were found be less than significant. As with the proposed project, other past, present, and reasonably foreseeable projects have been and would continue to be required to comply with applicable federal, State, and local regulatory requirements regarding the transport of hazardous materials, clean up of hazardous materials, and the use and storage of hazardous materials during construction and operation. Additionally, hazardous material impacts tend to be localized to individual project sites. Consequently, no significant cumulative impacts would occur.

The proposed project would create a wetland preserve in the northern portion of the project site. Mitigation is proposed requiring the implementation of a wildlife management plan to minimize the avian attractant potential of the Wetlands Preserve to avoid creating hazards to aviation. Other past, present, and reasonably foreseeable projects would not create a wildlife attractant hazard for the Napa County Airport, because required compliance with the Napa County Airport Land Use Compatibility Plan and Federal Aviation Administration (FAA) regulations would ensure inappropriate land uses do not locate near the airport. Additionally, stormwater and landscaping features of the proposed project and other land uses would include management plans to avoid or reduce the potential for wildlife hazards. Consequently, no significant cumulative impacts would occur. Therefore, the proposed project, in conjunction with other past, approved, and reasonably foreseeable future projects, would not have a cumulatively significant impact related to hazards and hazardous materials.

4.2.8 - Hydrology and Water Quality

The geographic scope of the cumulative hydrology and water quality analysis is the No Name Creek watershed, which generally encompasses the area within 0.5 mile of the project site. Hydrologic and water quality impacts tend to be localized to a watershed; therefore, the area within the No Name Creek watershed would be most affected by project activities.

The proposed project would involve short-term construction and long-term operational activities that would have the potential to degrade water quality in downstream water bodies. These activities are subject to regulatory requirements that would ensure no significant adverse impacts would occur. MM HYD-1a and MM HYD-1b would require implementation of various construction and operational water quality control measures that would prevent the release of pollutants into downstream waterways. These measures include preparation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit and compliance with the Municipal Regional Permit, including implementation of BMPs and Low Impact Development (LID) features.

Other past, present, and reasonably foreseeable projects that propose new development have been and would be required to implement similar mitigation measures in accordance with applicable laws and regulations. The combined implementation of construction and operation water quality control measures by other past, present, and reasonably foreseeable projects would avoid, or reduce to a less than significant level, any related cumulative impacts on downstream waterways including the Napa River.

All other project-related hydrology impacts were found to be less than significant and did not require mitigation (e.g., groundwater and drainage). Other past, present, and reasonably foreseeable projects that result in groundwater and drainage impacts have been and would be required to comply with applicable laws and regulations designed to protect groundwater resources and ensure adequate drainage facilities are provided for all projects and include facilities to prevent and reduce runoff from development sites.

Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable planned and approved projects in the vicinity, would not have a cumulatively significant impact related to hydrology and water quality.

4.2.9 - Land Use

The geographic scope of the cumulative land use analysis is the area within 1 mile of the project site. Existing development in this area is predominantly industrial uses, including the airport. Projects under construction include the Napa Logistics Park Project, which is approved for warehouse and other similar uses. Foreseeable future development in the area includes the Napa Airport Corporate Center and the Devlin Road Transfer Station Construction and Demolition Debris Facility.

The proposed project would be consistent with the American Canyon General Plan, American Canyon Zoning Ordinance, and the Napa County Airport Land Use Compatibility Plan because its proposed uses are allowed under these plans. The existing uses in the area are generally industrial

and related compatible uses. Projects under consideration in the area and reasonably foreseeable future projects would be required to be consistent with the General Plan, the City's Zoning Ordinance, and the Airport Land Use Compatibility Plan. Additionally, the proposed project and other nearby development would be and have been required to implement wildlife management plans to ensure compatibility with airport operations. Consequently, the proposed project, in conjunction with past, present, and reasonably foreseeable development, would not result in a cumulatively significant land use impact.

4.2.10 - Noise

The geographic scope of the cumulative noise analysis is the project vicinity, including surrounding sensitive receptors. Noise impacts tend to be localized; therefore, the area near the project site (approximately 0.25 mile) would be the area most affected by project activities. Furthermore, given the properties and the distance between other past, present, and reasonably foreseeable development projects (more than 0.5 mile away), project-related noise would not combine with other sources further away.

The proposed project's construction noise levels may cause a temporary substantial increase in noise levels at nearby receptors. Mitigation is proposed that would require implementation of construction noise attenuation measures to reduce noise levels. Other projects in the project vicinity that could be under construction at the same time as the proposed project (such as Napa Logistics Park Phase 1 and Napa Corporate Center) could combine to expose nearby sensitive receptors to excessive construction noise from trucks and equipment. However, because noise is a localized phenomenon, the properties of noise are not additive, construction activities on these projects may not overlap, and all projects would be subject to the City's noise ordinance requirements and mitigation measures, the proposed project, together with other past, present, and probable future projects, would not result in cumulatively significant construction noise impacts.

The proposed project's construction and operational vibration levels would not exceed annoyance thresholds. Because vibration is a highly localized phenomenon, there would be no possibility for vibration associated with the proposed project to combine with vibration from other projects because of their distances from the project site. Therefore, the proposed project, together with other past, present, and probable future projects, would not result in cumulatively significant vibration impacts.

As discussed in Section 3.9, Noise, after mitigation, the proposed project's vehicular trips would not make a substantial incremental contribution to ambient noise levels under baseline-with-project and future-with-project conditions. These noise levels account for existing vehicle trips as well as vehicle trips from future projects. Furthermore, the proposed project's contribution to vehicular noise levels would not exceed the applicable thresholds of significance, which take into account existing noise levels as well as noise from trips associated with other planned or approved projects. Finally, because most of the other projects included within the scope of the transportation analysis are more than 1 mile from the project site, cumulative vehicular trips would be unlikely to add to roadway noise levels in the project vicinity. Thus, the proposed project would not combine with other projects to cause a cumulatively significant increase in ambient roadway noise.

4.2.11 - Public Services and Utilities

The geographic scope of the cumulative public services analysis is the service area of each of the providers serving the proposed project. Because of differences in the nature of the public service and utility topical areas, they are discussed separately.

Fire Protection and Emergency Medical Services

The geographic scope of the cumulative fire protection and emergency medical services analysis is the American Canyon Fire Protection District service area, which consists of the American Canyon city limits.

The proposed project would result in the development of 2.4 million square feet of high-cube warehouse on the project site. The project site is located within 3.1 miles of the nearest fire station and is within an acceptable response time for fire protection (5 minutes or less). As such, the proposed project would not create a need for new or expanded fire protection facilities and would not result in a physical impact on the environment. Additionally, the proposed project would comply with all applicable requirements of the California Fire Code, including provision of adequate emergency access points, and it would be accessible to fire apparatus. Other past, present, and reasonably foreseeable development projects in the Fire District service area have been and would be reviewed for impacts on fire protection and emergency medical services and have been and would be required to address any potential impact with mitigation. Additionally, the Fire District plans for service needs consistent with existing demands and growth anticipated in the City planning documents. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable development, would not have a cumulatively significant impact related to fire protection and emergency medical services.

Police Protection

The geographic scope of the cumulative police protection analysis is the service area of the American Canyon Police Department, which consists of the American Canyon city limits.

The proposed project and other past, present, and reasonably foreseeable projects in the police service area have been and would continue to be reviewed for impacts on police services and also have been and would continue to be required to address any potential impact with mitigation. Additionally, the police department plans for service needs consistent with existing demands and growth anticipated in the City planning documents. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable development, would not have a cumulatively significant impact related to police protection.

4.2.12 - Transportation

The geographic scope of the cumulative transportation analysis is on the nine-county San Francisco Bay Area region. VMT is evaluated and regulated at a regional level and, thus, the San Francisco Bay Area region is an appropriate geographical area.

Impact TRANS-1 concluded that the proposed project would not have a significant impact on the circulation system and, therefore, no mitigation would be necessary. As such, the proposed project would not have a cumulative considerable contribution in this regard. Impact TRANS-2 concluded that the proposed project would not have a significant impact on VMT because the proposed project would have a VMT rate of 16.24, well below the regional average of 23.00. As such, the proposed project would not have a cumulative considerable contribution in VMT.

With respect to Impact TRANS-3, the potential hazards from design features or incompatible uses are project site specific (e.g., site access, sight distance, etc.) and would not combine with other projects. The proposed project and other past, present, and reasonably foreseeable future projects have complied and must comply with local, standard requirements for transportation-related design features specifically adopted to avoid and reduce hazards from project design or the location of incompatible uses, thereby reducing the potential for significant cumulative impacts to less than significant levels. Therefore, no significant adverse cumulative impacts would result from the proposed project combined with past, present, and probable future projects.

With respect to Impact TRANS-4, the provision of adequate emergency access is site specific and would not combine with other projects. The proposed project and other past, present, and reasonably foreseeable future projects must comply with local, standard requirements for adequate emergency access specifically adopted to avoid or reduce the potential for inadequate access. Furthermore, the proposed project and other projects would not have significant impacts on the performance of the study intersections and, therefore, it can be inferred that it would also not impair emergency response to the project vicinity. Therefore, no significant adverse cumulative impacts would result.

4.2.13 - Utilities and Service Systems

Water

The geographic scope of the cumulative potable water analysis is the City of American Canyon Public Works Department service area, which encompasses the American Canyon city limits.

The proposed project's estimated demand is 23.9 acre-feet of potable water and 82.1 acre-feet of recycled water annually. The City of American Canyon 2015 Urban Water Management Plan (2015 UWMP) indicates that potable water demand and supplies would total 3,350 acre-feet and recycled water demand and supply would total 1,146 acre-feet in 2025. The proposed project's demands would represent less than 1 percent of potable water supplies and 7 percent of recycled water supplies. Furthermore, the City of American Canyon's 2015 UWMP estimates that sufficient water is available to meet the needs of the service area through the year 2040, which accounts for the City of American Canyon's long-term growth assumptions. The City has adopted the Zero Water Footprint Policy that requires all new development to completely offset its potable water demand. This is accomplished by means including, but not limited to: replacing existing potable water use with recycled water use; securing new water supplies; or repairing infrastructure to eliminate existing losses of potable water. The proposed project is required to comply with this policy, as would other projects listed in Table 4-1 that are served by the City of American Canyon's Water District.

For those projects that are located within the City's water service area and areas in the County that were included in the original water district service area, the 2015 UWMP anticipates adequate water supplies for all water year scenarios through 2040. These projects also would be required to demonstrate that they would be served with potable water service as a standard requirement of the development review process, and these projects may be required to implement water conservation measures and to meet the requirements of the Zero Water Footprint Policy. Furthermore, the proposed project does not require any off-site water facilities to be constructed and expanded and, thus, would not result in physical impacts on the environment from such activities. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable projects, would not have a cumulatively significant impact related to potable water supply.

Wastewater

The geographic scope of the cumulative wastewater analysis is the American Canyon Wastewater Treatment Plant service area, which encompasses the American Canyon city limits and areas within the Napa County Airport Industrial Park south of Fagan Creek.

The treatment plant has an existing design capacity of 2.5 million gallons per day (mgd) and the City has plans to increase it to 4.0 mgd over time. All future projects that are tributary to the American Canyon Wastewater Treatment Plant would be required to demonstrate that sewer service is available to ensure that adequate sanitation can be provided. The proposed project is estimated to generate 402,500 gallons of wastewater on a daily basis (0.41 mgd) at buildout. The proposed project's estimated wastewater generation of 0.41 mgd per day would represent 10 percent of the average daily flow treated by the expanded Wastewater Treatment Plant.

The sewer flows assumed from the proposed project are significantly less than anticipated for industrial projects in previous City planning documents. The lower sewer flows are a direct result of the conservation activities that reduce water use and, in turn, reduce sewer flows. The original planning documents were drafted prior to the State passing all the conservations laws (2008-2010) and before the City defined the Zero Water Footprint Policy. Thus, conservation is the main reason for reduced sewer flows estimated in previous planning documents. The City has verified that the treatment plant has enough capacity to serve the planned development for Phases 1 and 2 of the proposed project, along with other projects that would be tributary to the Wastewater Treatment Plant. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable projects, would not have a cumulatively significant impact related to wastewater.

Storm Drainage

The City of American Canyon Public Works Department oversees municipal storm drainage within the American Canyon city limits. The municipal storm drainage system consists of ditches, inlets, basins, and underground piping that ultimately discharges flows into the Napa River. The City maintains a Storm Drainage Master Plan and engineering standards that guide development of the municipal storm drainage system.

All future development projects in the City are required to provide storm drainage facilities that collect and detain stormwater. The storm drainage facility shall include provisions for future

upstream development and no development shall discharge at a rate that exceeds the capacity of any portion of the existing downstream system. Runoff from storms up to the 100-year return frequency are conveyed through storm facilities and disposed of in a manner that protects public and private improvements from flood hazards. The proposed project would install an on-site storm drainage system consisting of inlets, piping, and a series of detention basins. The peak discharge from the detention basin shall not exceed 90 percent of the undeveloped peak flow from the 24-hour, 100-year storm event. As such, the proposed project would ensure no net increase in stormwater would leave the project site during a peak storm event and would avoid cumulatively significant stormwater impacts to downstream waterways at times when capacity is most constrained. The proposed project would implement standard stormwater pollution prevention measures during construction to ensure downstream water quality impacts are minimized to the greatest extent possible. In addition, the proposed project would provide water quality measures to prevent pollution during project operations. Most past, and all present and reasonably foreseeable future, development must comply with these State and local requirements that ensure no significant adverse cumulative impacts would result. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable projects, would not have a cumulatively significant impact related to storm drainage.

Solid Waste

The geographic scope of the cumulative solid waste analysis is the City of American Canyon. American Canyon Recology provides solid waste and recycling collection services to commercial customers in the City of American Canyon.

Many past and all present and reasonably foreseeable future development projects, which have or would generate construction and operational solid waste and, depending on the volumes and end uses, have been or would be required to implement recycling and waste reduction measures. The proposed project is anticipated to generate 6,536 cubic yards of solid waste during construction and 8,064 cubic yards annually during operations. For comparison purposes, the Potrero Hills Landfill has a remaining capacity of 38.8 million cubic yards. The proposed project's construction and operational solid waste generation would represent less than 1 percent of the remaining capacity at this facility. As such, it appears that sufficient capacity would be available to serve the proposed project as well as existing and planned land uses in the City of American Canyon for the foreseeable future. Additionally, the nearby Devlin Road Transfer Station offers construction and demolition debris recycling and incentivizes such activities through pricing. Thus, it would be expected that some of the projects listed in Table 4-1 would take advantage of construction and demolition debris recycling, which would divert materials from the solid waste stream and contribute to conserving landfill capacity, thereby extending the operational life of Potrero Hills Landfill. Therefore, the proposed project, in conjunction with other past, approved, and reasonably foreseeable future projects, would not have a cumulatively significant impact related to solid waste.

CHAPTER 5: ALTERNATIVES TO THE PROPOSED PROJECT

5.1 - Introduction

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this Draft Environmental Impact Report (Draft EIR) contains a comparative impact assessment of alternatives to the proposed project. The primary purpose of this section is to provide decision-makers and the general public with a reasonable number of feasible project alternatives that could attain most of the basic project objectives, while avoiding or reducing any of the project's significant adverse environmental effects. Important considerations for these alternatives analyses are noted below (as stated in CEQA Guidelines § 15126.6).

- An EIR need not consider every conceivable alternative to a project.
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process.
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental effects.

5.1.1 - Significant Unavoidable Impacts

The proposed project would result in the following significant unavoidable impacts:

- **Consistency With Air Quality Management Plan:** The proposed project would result in exceedances of regional emissions thresholds and, therefore, be inconsistent with the Bay Area Air Quality Management District (BAAQMD) regional air quality planning assumptions. Mitigation is proposed requiring the implementation of feasible emissions reduction measures; however, these measures would not reconcile this inconsistency. Therefore, the significance after mitigation is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** The project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Mitigation is proposed requiring the implementation of air emissions reduction measures, but it would not fully reduce this impact to a level of less than significant. Therefore, the significance after mitigation is significant and unavoidable.

5.1.2 - Alternatives to the Proposed Project

The three alternatives to the proposed project analyzed in this section are as follows:

- **No Project/No Development Alternative:** The project site would remain undeveloped for the foreseeable future and no development would occur.

- **No Project/Existing General Plan Alternative:** A 2.4-million-square-foot food and beverage processing facility would be developed on the project site.
- **Reduced Density Alternative:** A 1.6-million-square-foot logistics center would be developed on the project site, which represents a 25 percent reduction in square footage relative to the proposed project. The layout and project boundaries would remain the same as the proposed project.
- **Phase 1 Only Alternative:** Phase 1 of the proposed project would be developed, which consists of approximately 1.1 million square feet of high-cube warehouse on 95 acres. Phase 2 would not be developed, and the remaining 113 acres would remain undeveloped.

Three alternatives to the proposed project are analyzed below. These analyses compare the proposed project and each individual project alternative. In several cases, the description of the impact may be the same under each alternative when compared with the CEQA Thresholds of Significance (i.e., both the project and the alternative would result in a less than significant impact). The actual degree of impact may be slightly different between the proposed project and each alternative, and this relative difference is the basis for a conclusion of greater or lesser impacts.

5.2 - Project Objectives and Underlying Purpose

The underlying purpose of the proposed project is to develop industrially-zoned undeveloped land within the American Canyon city limits to its highest and best use.

As stated in Section 2, Project Description, the objectives of the proposed project are to:

1. Promote economic growth in American Canyon by attracting new industries.
2. Promote development that that generates net positive tax revenues for the City by generating more in new tax revenues than are consumed by City expenditures on services provided to the development.
3. Create new employment opportunities for residents of Napa County and the surrounding region.
4. Develop compatible land uses near the Napa County Airport in the interests of avoiding interference with aviation operations.
5. Improve American Canyon's jobs-housing ratio by adding new employment opportunities.
6. Continue the orderly development of the Devlin Road corridor with a well-designed project.
7. Further the goals and policies of the City of American Canyon General Plan by developing land contemplated to support urban development to its highest and best use.
8. Preserve the most biologically sensitive portions of the project site as open space.

9. Install circulation improvements along Green Island Road and Devlin Road that provide efficient ingress and egress to the proposed project while also ensuring these facilities operate at acceptable levels.
10. Promote public safety by incorporating security measures into the project design.
11. Mitigate impacts on the environment through implementation of feasible mitigation measures.

5.3 - Alternative 1—No Project/No Development Alternative

CEQA Guidelines Section 15126.6(e) requires that an EIR evaluate a "No Project Alternative," which is intended to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. In cases where the project constitutes a land development project, the No Project Alternative is the "circumstance under which the project does not proceed." For many projects, the No Project Alternative represents a "No Development" scenario, in which the project site remains in its existing condition and no development occurs for the foreseeable future. However, CEQA Guidelines Section 15126.6(e)(3)(B) establishes that "If disapproval of the project under consideration would result in predictable actions by others such as the proposal of some other project, this 'no project' consequence should be discussed." In the interests of informed decision-making, this EIR shall consider both a No Project/No Development Alternative and a No Project/Existing General Plan Alternative.

Under the No Project/No Development Alternative, the project site would remain undeveloped for the foreseeable future.

5.3.1 - Impact Analysis

The project site would remain undeveloped for the foreseeable future. Accordingly, this alternative would avoid all of the proposed project's significant impacts (including significant and unavoidable impacts), as well as the need to implement any mitigation measures.

5.3.2 - Conclusion

The No Project/No Development Alternative would avoid the proposed project's significant and unavoidable impacts and would avoid any potential impacts related to all environmental topical areas. However, this alternative would not advance any of the project objectives, including those related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for manufacturing, logistics warehouse, and other industrial uses. Finally, it should be noted that the project site is zoned for industrial use, has been the subject of previous industrial development proposals, and is currently served with infrastructure suitable for this type of development. Thus, should the proposed project not advance, it would be expected that another industrial development proposal would be submitted.

5.4 - Alternative 2–No Project/Existing General Plan Alternative

Under the No Project/Existing General Plan Alternative, the project site would be developed as 2.4 million square feet of food and beverage processing uses. This alternative would have the same development footprint as the proposed project, albeit with single buildings on either side of Devlin Road. The end user would be a large-scale manufacturer of locally sourced food and beverage products such fruits, vegetables, sauces, oils, specialty items, wine, and beer.

Table 5-1: No Project/Existing General Plan Alternative

Scenario	Total Acres	Developed Acres	End Use	Square Feet
No Project/Existing General Plan Alternative	208	163	Food and beverage processing	2,400,000
Proposed Project	208	163	High-Cube Warehouse	2,400,000
Difference	–	–	–	–
Source: FirstCarbon Solutions (FCS) 2021.				

5.4.1 - Impact Analysis

Aesthetics, Light, and Glare

The No Project/Existing General Plan Alternative consists of developing 2.4 million square feet of food and beverage processing uses and associated infrastructure on the project site. Similar exterior light fixtures would be installed, and Mitigation Measure (MM) AES-3 would be implemented. The buildings developed under this alternative would be industrial in appearance similar to other structures in the Green Island Road Business Park. Therefore, the No Project/Existing General Plan Alternative would have similar aesthetics, light, and glare impacts as the proposed project.

Air Quality

The No Project/Existing General Plan Alternative would result in an equivalent amount of construction activity and 5,544 more daily vehicle trips (refer to Table 5-2), which have an approximately 240 percent increase in operational criteria pollutant and toxic air contaminant (TAC) emissions, assuming an equal fleet proportion of passenger vehicles versus trucks as that considered in the proposed project. Additionally, this alternative would attract more truck trips beyond what was considered under the proposed project and, thus, increase the severity of the significant unavoidable sensitive receptor impact. MM AIR-2a, MM AIR-2b, MM AIR-2c, and MM AIR-2d would be implemented under this alternative. This alternative would increase the severity of the proposed project's significant unavoidable air quality impacts by emitting more pollutants from operational activities. Therefore, this alternative would have greater impact on air quality than the proposed project.

Biological Resources

Similar ground-disturbing activities would occur within the same development footprint as the proposed project, and MM BIO-1a, MM BIO-1b, MM BIO-1c, MM BIO-1d, MM BIO-1e, MM BIO-3a, MM BIO-3b, MM BIO-3c, and MM BIO-4 would be implemented. Therefore, the No Project/Existing General Plan Alternative would have similar biological resources impacts as the proposed project.

Cultural and Tribal Cultural Resources

Similar ground-disturbing activities would occur within the same development footprint as the proposed project, and MM CUL-1a, MM CUL-1b, MM CUL-2, and MM CUL-3 would be implemented. Therefore, the No Project/Existing General Plan Alternative would have similar cultural resources impacts as the proposed project.

Geology, Soils, and Seismicity

Similar development activities would occur within the same development footprint, and MM GEO-1a and MM GEO-1b would be implemented. Therefore, the No Project/Existing General Plan Alternative would have similar geology, soils, and seismicity resources impacts as the proposed project.

Greenhouse Gas Emissions and Energy

The No Project/Existing General Plan Alternative would result in an equivalent amount of construction activity and 5,544 more daily vehicle trips (refer to Table 5-2), which have an approximately 240 percent increase in operational greenhouse gas (GHG) emissions, assuming an equal fleet proportion of passenger vehicles versus trucks as that considered in the proposed project. MM GHG-1a and MM GHG-1b would be implemented under this alternative. This alternative would increase the severity of the proposed project's significant unavoidable GHG impacts by emitting more pollutants from operational activities. Therefore, this alternative would have greater impact on GHG emissions than the proposed project.

Hazards and Hazardous Materials

As with the proposed project, no hazardous conditions exist on-site, and, therefore, impacts would be less than significant. This alternative would develop a 2.4-million-square-foot food and beverage processing facility, which would not involve the routine use of hazardous materials. Therefore, this alternative would have similar hazards and hazardous materials impacts as the proposed project.

Hydrology and Water Quality

Similar ground-disturbing activities would occur within the same development footprint, and MM HYD-1a and MM HYD-1b would be implemented. This alternative would develop an equivalent amount if impervious surface coverage as the proposed project and, thus, have equivalent drainage impacts. Therefore, the No Project/Existing General Plan Alternative would have similar hydrology and water quality impacts as the proposed project.

Land Use

This alternative would develop a 2.4-million-square-foot food and beverage processing facility, which is allowable under the existing General Plan and Zoning designations for the project site. Therefore, it would yield similar conclusions in terms of consistency with the City of American Canyon General Plan and the American Canyon Zoning Ordinance. Food and beverage processing would emit sources of steam, which have the potential to conflict with the provisions of the Napa County Airport Land Use Compatibility Plan. Therefore, the No Project/Existing General Plan Alternative would have greater land use impacts than the proposed project.

Noise

The No Project/Existing General Plan Alternative would result in equivalent construction activity and 5,544 more daily vehicle trips (refer to Table 5-2), which would have corresponding increases in the severity of operational noise impacts. MM NOI-1 would be implemented under this alternative. Although this alternative would implement mitigation measures similar to the proposed project, the increase in vehicle trips would increase the severity of noise impacts. Therefore, this alternative would have greater impact on noise than the proposed project.

Public Services

End uses would be similar to the proposed project. Although the proposed project's public services impacts were found to be less than significant and did not require mitigation, this alternative would result in less demand for fire protection and police protection through the 600,000-square-foot reduction in development potential. Accordingly, no new or expanded fire or police facilities would be required. Therefore, the No Project/Existing General Plan Alternative would have less impact on public services than the proposed project.

Transportation

Table 5-2 summarizes the daily and peak-hour trip generation associated with the No Project/Existing General Plan Alternative. As shown in the table, this alternative would yield an increase of 5,544 daily vehicle trips, 1,248 AM peak-hour vehicle trips, and 1,344 PM peak-hour vehicle trips. Although the proposed project's transportation impacts were found to be less than significant and did not require mitigation, the substantial increase in Vehicle Miles Traveled (VMT) by the No Project/Existing General Plan Alternative would be considered detrimental from a transportation perspective. The No Project/Existing General Plan Alternative would have greater transportation impacts than the proposed project.

Table 5-2: No Project/Existing General Plan Alternative Trip Generation Comparison

Scenario	Daily	AM Peak-hour	PM Peak-hour
No Project/Existing General Plan Alternative	9,432	1,488	1,608
Proposed Project	3,888	240	264
Difference	**5,544**	**1,248**	**1,344**

Notes:
Source: W-Trans, 2021; FirstCarbon Solutions (FCS) 2021.

Utilities and Service Systems

The No Project/Existing General Plan Alternative end uses would consist of food and beverage processing, which would demand more water and generate more effluent and solid waste by an estimated 240 percent. The proposed project's utilities and service system impacts were found to be less than significant and did not require mitigation. Because this alternative would result in an approximately 240 percent increase in demand for water and an approximately 240 percent increase in generation of wastewater and solid waste, it would have more severe impacts on utilities and service systems. Therefore, the No Project/Existing General Plan Alternative would have less impact on utilities and service systems than the proposed project.

5.4.2 - Conclusion

The No Project/Existing General Plan Alternative would not avoid the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project and in fact would increase the severity of these impacts. The No Project/Existing General Plan Alternative would increase the severity of impacts associated with land use, noise, public services, transportation, and utilities. Additionally, the No Project/Existing General Plan Alternative would have similar impacts on aesthetics, biological resources, cultural resources, geology, hazards, and hydrology and water quality.

The No Project/Existing General Plan Alternative would advance most of the project objectives including those related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development. However, the change of the end use would not advance the project objective concerning serving local and regional demand for logistics warehouse uses.

5.5 - Alternative 3—Reduced Density Alternative

Under the Reduced Density Alternative, a 1.6 million square-foot logistics center would be developed on the project site, which represents a 25 percent reduction in the proposed project's square footage. This would yield a 600,000-square-foot reduction in buildout potential, which would be applied proportionately to all project buildings. The reduction in building square footage would allow for 10 additional acres of the site to be preserved in its natural state.

The project boundaries, layout, (including disturbance area) and high-cube warehouse end uses would remain the same. Vehicular access points would remain at the same locations. The Napa Valley Vine Trail would be constructed along the project's frontages with Devlin Road and Green Island Road.

Table 5-3 summarizes the Reduced Density Alternative. The purpose of this alternative is to evaluate a smaller project with end uses identical to the proposed project that may avoid or substantially lessen the severity of significant project impacts.

Table 5-3: Reduced Density Alternative

Scenario	Total Acres	Developed Acres	End Use	Square Feet
Reduced Density Alternative	208	153	High-Cube Warehouse	1,800,000
Proposed Project	208	163	High-Cube Warehouse	2,400,000
Difference	**–**	**(10)**	**–**	**(600,000)**
Source: FirstCarbon Solutions (FCS) 2021.				

5.5.1 - Impact Analysis

Aesthetics, Light, and Glare

The Reduced Density Alternative consists of developing 1.8 million square feet of high-cube warehouse uses and associated infrastructure on the project site. Similar exterior light fixtures would be installed, and MM AES-3 would be implemented. The buildings developed under this alternative would retain a similar appearance to the proposed project's structures; however, 600,000-square-foot reduction in warehouses would reduce the amount of development on the project site and add 10 acres to the open, natural area of the site. Therefore, the Reduced Density Alternative would have less impact on aesthetics, light, and glare than the proposed project.

Air Quality

The Reduced Density Alternative would result in less construction activity and 972 fewer daily vehicle trips (refer to Table 5-4), which have an approximately 25 percent reduction in construction and operational criteria pollutant and TAC emissions. Additionally, this alternative would attract approximately 25 percent fewer truck trips and passenger vehicle trips and, thus, lessen the severity of the significant unavoidable sensitive receptor impact. MM AIR-2a, MM AIR-2b, MM AIR-2c, and MM AIR-2d would be implemented under this alternative. Although this alternative would not avoid the proposed project's significant unavoidable air quality impacts, it would lessen the severity by emitting fewer pollutants from operational activities. Therefore, this alternative would have less impact on air quality than the proposed project.

Biological Resources

Similar ground-disturbing activities would occur within the same development footprint as the proposed project, and MM BIO-1a, MM BIO-1b, MM BIO-1c, MM BIO-1d, MMBIO-1e, MM BIO-3a, MM BIO-3b, MM BIO-3c, and MM BIO-4 would be implemented. Therefore, the Reduced Density Alternative would have similar biological resources impacts as the proposed project.

Cultural and Tribal Cultural Resources

Similar ground-disturbing activities would occur within the same development footprint as the proposed project, and MM CUL-1a, MM CUL-1b, MM CUL-2, and MM CUL-3 would be implemented. Therefore, the Reduced Density Alternative would have similar cultural resources impacts as the proposed project.

Geology, Soils, and Seismicity

Similar development activities would occur within the same development footprint, and MM GEO-1a and MM GEO-1b would be implemented. Therefore, the Reduced Density Alternative would have similar geology, soils, and seismicity resources impacts as the proposed project.

Greenhouse Gas Emissions and Energy

The Reduced Density Alternative would result in less construction activity and 972 fewer daily vehicle trips (refer to Table 5-4), which have corresponding reductions in the severity of construction and operational greenhouse gas emissions. MM GHG-1a and MM GHG-1b would be implemented under this alternative. Although this alternative would not avoid the proposed project's significant unavoidable greenhouse gas impacts, it would lessen the severity by emitting fewer emissions from operational activities. Therefore, this alternative would have less impact on GHGs than the proposed project.

Hazards and Hazardous Materials

As with the proposed project, no hazardous conditions exist on-site, and, therefore, impacts would be less than significant. This alternative would result in a 600,000-square-foot reduction in high-cube warehouse development potential and, thus, would reduce the potential for hazardous material releases during construction and operations. Therefore, this alternative would have less impact on hazards and hazardous materials than the proposed project.

Hydrology and Water Quality

Similar ground-disturbing activities would occur within the same development footprint, and MM HYD-1a and MM HYD-1b would be implemented. This alternative would reduce the project's less than significant (after mitigation) hydrology and water quality impacts because there would be less impervious surface coverage. Therefore, the Reduced Density Alternative would have less impact on hydrology and water quality than the proposed project.

Land Use

This alternative would develop similar uses to the proposed project, and, therefore, would yield similar conclusions in terms of consistency with the City of American Canyon General Plan, American Canyon Zoning Ordinance, and the Napa County Airport Land Use Compatibility Plan. Thus, MM LU-3 would be implemented to reduce wildlife hazards associated with aviation to a level of less than significant. Therefore, the Reduced Density Alternative would have land use impacts similar to the proposed project.

Noise

The Reduced Density Alternative would result in less construction activity and 972 fewer daily vehicle trips (refer to Table 5-4), which would have corresponding reductions in the severity of construction and operational noise impacts. MM NOI-1 would be implemented under this alternative. Although this alternative would implement mitigation measures similar to the proposed project, the reduction in development potential and vehicle trips would reduce the severity of noise impacts. Therefore, this alternative would have less impact on noise than the proposed project.

Public Services

End uses would be similar to the proposed project. Although the proposed project's public services impacts were found to be less than significant and did not require mitigation, this alternative would result in less demand for fire protection and police protection through the 600,000-square-foot reduction in development potential. Accordingly, no new or expanded fire or police facilities would be required. Therefore, the Reduced Density Alternative would have less impact on public services than the proposed project.

Transportation

Table 5-4 summarizes the daily and peak-hour trip generation associated with the Reduced Density Alternative. As shown in the table, this alternative would yield a reduction of 972 daily vehicle trips, 60 AM peak-hour vehicle trips, and 66 PM peak-hour vehicle trips. Although the proposed project's transportation impacts were found to be less than significant and did not require mitigation, the substantial reduction in VMT by the Reduced Density Alternative would be considered beneficial from a transportation perspective. The Reduced Density Alternative would have less transportation impacts than the proposed project.

Table 5-4: Reduced Density Alternative Trip Generation Comparison

Scenario	Daily	AM Peak-hour	PM Peak-hour
Reduced Density Alternative	2,916	180	198
Proposed Project	3,888	240	264
Difference	**(972)**	**(60)**	**(66)**

Notes:
Source: W-Trans, 2021; FirstCarbon Solutions (FCS) 2021.

Utilities and Service Systems

End uses would be similar to the proposed project. Although the proposed project's utilities and service system impacts were found to be less than significant and did not require mitigation, this alternative would result in an approximately 25 percent reduction in demand for water, and energy, and an approximately 25 percent reduction in generation of wastewater and solid waste through the 600,000-square-foot reduction in development potential. Therefore, the Reduced Density Alternative would have less impact on utilities and service systems than the proposed project.

5.5.2 - Conclusion

The Reduced Density Alternative would lessen the severity of, but would not avoid, the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project. Additionally, the Reduced Density Alternative would lessen the severity of several of the significant impacts that can be reduced to a level of less than significant with mitigation (e.g., hydrology and water quality, and noise).

The Reduced Density Alternative would advance all of the project objectives, with several advanced to a lesser degree. However, the reduction in square footage would result in fewer positive economic benefits and, thus, would advance the project objectives to a lesser degree. (For example, this alternative would be expected to employ fewer workers than the proposed project.) This includes objectives related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for logistics warehouse uses.

5.6 - Alternative 3—Phase 1 Only Alternative

Phase 1 of the proposed project would be developed, which consists of 1.1 million square feet on 95 acres. Phase 2 would not be pursued, and the remaining 113 acres would remain undeveloped as a wetland preserve.

Phase 1 would have the same layout and boundaries as the proposed project. Two high-cube warehouses totaling 1.1 million square feet would be developed on 95 acres north of Green Island Road and west of Devlin Road. Vehicular access would be taken from both roadways. Phase 2 would remain undeveloped for the foreseeable future.

Table 5-5 summarizes the Phase 1 Only Alternative. The purpose of this alternative is to evaluate the phase of the project most likely to develop in the near-term and also reduce the development footprint and buildout potential to avoid or substantially lessen the severity of significant project impacts.

Table 5-5: Phase 1 Only Alternative

Scenario	Total Acres	Developed Acres	End Use	Square Feet
Phase 1 Only Alternative	95	72	High-Cube Warehouse	1,100,000
Proposed Project	208	163	High-Cube Warehouse	2,400,000
Difference	**(113)**	**(91)**	**–**	**(1,300,000)**
Source: FirstCarbon Solutions (FCS) 2021.				

5.6.1 - Impact Analysis

Aesthetics, Light, and Glare

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. Similar exterior light fixtures would be installed, and MM AES-3 would be implemented. The buildings developed under this alternative would retain a similar appearance to the proposed project's structures; however, 1.3-million-square-foot reduction in warehouses would reduce the amount of development and add 113 acres to the open, natural area of the site.

Therefore, the Phase 1 Only Alternative would reduce the proposed project's less than significant impacts on aesthetics, light, and glare.

Air Quality

The Phase 1 Only Alternative would result in less construction activity and 2,106 fewer daily vehicle trips (refer to Table 5-6), which have an approximately 55 percent reduction in criteria pollutant and TAC emissions. Additionally, this alternative would attract fewer truck trips and, thus, lessen the severity of the significant unavoidable sensitive receptor impact. MM AIR-2, MM AIR-3a, and MM AIR-3b would be implemented under this alternative. Although this alternative would not avoid the proposed project's significant unavoidable air quality impacts, it would lessen the severity by emitting fewer pollutants from operational activities. Therefore, this alternative would have less impact on air quality than the proposed project.

Biological Resources

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. Similar development activities would occur for Phase 1 and, therefore, MM BIO-1a, MM BIO-1b, MM BIO-1c, MM BIO-1d, MM BIO-1e, MM BIO-3a, MM BIO-3b, MM BIO-3c, and MM BIO-4 would be implemented. However, the elimination of Phase 2 would lessen the potential for impacts to biological resources. Therefore, the Phase 1 Only Alternative would less impact on biological resources impacts than the proposed project.

Cultural and Tribal Cultural Resources

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. Similar development activities would occur for Phase 1 and, therefore, MM CUL-1a, MM CUL-1b, MM CUL-2, and MM CUL-3 would be implemented. However, the elimination of Phase 2 would lessen the potential for impacts to cultural resources. Therefore, the Phase 1 Only Alternative would less impact on cultural resources impacts than the proposed project.

Geology, Soils, and Seismicity

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. Similar development activities would occur for Phase 1 and, therefore, MM GEO-1a and MM GEO-1b would be implemented. However, the elimination of Phase 2 would lessen the potential for impacts to geology, soils, and seismicity. Therefore, the Phase 1 Only Alternative would have less impact on geology, soils, and seismicity than the proposed project.

Greenhouse Gas Emissions and Energy

The Phase 1 Only Alternative would result in less construction activity and 2,106 fewer daily vehicle trips (refer to Table 5-6), which have an approximately 55 percent reduction in the severity of GHG emissions. MM GHG-1 and MM GHG-2 would be implemented under this alternative. Although this alternative would not avoid the proposed project's significant unavoidable GHG emission impacts, it

would lessen the severity by emitting fewer emissions from operational activities. Therefore, this alternative would have less impact on GHG emissions than the proposed project.

Hazards and Hazardous Materials

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. As with the proposed project, no hazardous conditions exist on-site, and, therefore, impacts would be less than significant. This alternative would result in a 1.3-million-square-foot reduction in high-cube warehouse development potential and, thus, would reduce the potential for hazardous material releases during construction and operations. Therefore, this alternative would have less impact on hazards and hazardous materials than the proposed project.

Hydrology and Water Quality

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. Similar development activities would occur for Phase 1 and, therefore, MM HYD-1a and MM HYD-1b would be implemented. However, the elimination of Phase 2 would lessen the potential for impacts to hydrology and water quality. Therefore, the Phase 1 Only Alternative would have less impact on hydrology and water quality than the proposed project.

Land Use

The Phase 1 Only Alternative consists of developing 1.1 million square feet of high-cube warehouse uses and associated infrastructure on 95 acres. The remaining 113 acres would remain undeveloped for the foreseeable future. This alternative would develop similar uses to the proposed project, and, therefore, would yield similar conclusions in terms of consistency with the City of American Canyon General Plan, American Canyon Zoning Ordinance, and the Napa County Airport Land Use Compatibility Plan. Thus, MM LU-3 would be implemented to reduce wildlife hazards associated with aviation to a level of less than significant. Therefore, the Phase 1 Only Alternative would have land use impacts similar to the proposed project.

Noise

The Phase 1 Only Alternative would result in less construction activity and 2,106 fewer daily vehicle trips (refer to Table 5-6), which would have corresponding reductions in the severity of construction and operational noise impacts. MM NOI-1 would be implemented under this alternative. Although this alternative would implement mitigation measures similar to the proposed project, the reduction in development potential and vehicle trips would reduce the severity of noise impacts. Therefore, this alternative would have less impact on noise than the proposed project.

Public Services

End uses would be similar to the proposed project. Although the proposed project's public services impacts were found to be less than significant and did not require mitigation, this alternative would result in less demand for fire protection and police protection through the 1.3-million-square-foot

reduction in development potential. Therefore, the Phase 1 Only Alternative would have less impact on public services than the proposed project.

Transportation

Table 5-6 summarizes the daily and peak-hour trip generation associated with the Phase 1 Only Alternative. As shown in the table, this alternative would yield a reduction of 2,106 daily vehicle trips, 130 AM peak-hour vehicle trips, and 143 PM peak-hour vehicle trips. Although the proposed project's transportation impacts were found to be less than significant and did not require mitigation, the substantial reduction in VMT by the Phase 1 Only Alternative would be considered beneficial from a transportation perspective. The Phase 1 Only Alternative would have less transportation impacts than the proposed project.

Table 5-6: Phase 1 Only Alternative Trip Generation Comparison

Scenario	Daily	AM Peak-hour	PM Peak-hour
Phase 1 Only Alternative	1,782	110	121
Proposed Project	3,888	240	264
Difference	**(2,106)**	**(130)**	**(143)**
Source: W-Trans, 2021; FirstCarbon Solutions (FCS) 2021.			

Utilities and Service Systems

End uses would be similar to the proposed project. Although the proposed project's utilities and service system impacts were found to be less than significant and did not require mitigation, this alternative would result in an approximately 55 percent reduction in demand for water, and energy, and an approximately 55 percent reduction in generation of wastewater and solid waste through the 1.3-million-square-foot reduction in development potential. Therefore, the Phase 1 Only Alternative would have less impact on utilities and service systems than the proposed project.

5.6.2 - Conclusion

The Phase 1 Only Alternative would lessen the severity of, but would not avoid, the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project. Additionally, the Phase 1 Only Alternative would lessen the severity of several of the significant impacts that can be reduced to a level of less than significant with mitigation (e.g., biological resources, cultural resources, hydrology and water quality, and noise).

The Phase 1 Only Alternative would advance all of the project objectives, with several advanced to a lesser degree. However, the reduction in square footage would result in fewer positive economic benefits and, thus, would advance the project objectives to a lesser degree. (For example, this alternative would be expected to employ fewer workers than the proposed project.) This includes objectives related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of

American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for logistics warehouse uses.

As a practical matter, the project applicant has a 100-year lease agreement with the property owner, and it would be unlikely that it forgo development on the Phase 2 portion of the project site. Moreover, the project site is the single largest undeveloped site in the City of American Canyon and is zoned for industrial use. Preserving 113 acres the site as a wetland preserve would not represent the highest and best use of the property, particularly since approximately 45 acres of the project site would be assigned for this use.

5.7 - Environmentally Superior Alternative

The qualitative environmental effects of each alternative in relation to the proposed project are summarized in Table 5-7.

Table 5-7: Summary of Alternatives

Environmental Topic Area	Issue(s)	No Project/No Development Alternative	No Project/Existing General Plan Alternative	Reduced Density Alternative	Phase 1 Only Alternative
Aesthetics, Light, and Glare	Scenic Vistas; Visual Character; Light and Glare	Less impact	Similar impact	Less impact	Less impact
Air Quality	Air Quality Plan, Criteria Pollutants, Toxic Air Contaminants	Less impact	Greater Impact	Less impact	Less impact
Biological Resources	Special-status species; Wetlands, Wildlife Movement	Less impact	Similar impact	Similar impact	Less impact
Cultural and Tribal Cultural Resources	Historic Resources, Archaeological Resources; Human Remains; Tribal Cultural Resources	Less impact	Similar impact	Similar impact	Less impact
Geology, Soils, and Seismicity	Seismic Hazards; Erosion; Unstable Geologic Units; Expansive Soils	Less impact	Similar impact	Similar impact	Less impact
Greenhouse Gas Emissions and Energy	Greenhouse Gas Reduction Plans; Energy	Less impact	Greater impact	Less impact	Less impact
Hazards and Hazardous Materials	Routine Use; Risk of Upset; Aviation Hazards; Emergency Response	Less impact	Similar impact	Less impact	Less impact

Environmental Topic Area	Issue(s)	No Project/No Development Alternative	No Project/Existing General Plan Alternative	Reduced Density Alternative	Phase 1 Only Alternative
Hydrology and Water Quality	Water Quality; Groundwater; Drainage	Less impact	Similar impact	Similar impact	Less impact
Land Use	General Plan; Zoning; Airport Land Use Plan Consistency	Less impact	Greater impact	Similar impact	Similar impact
Noise	Noise Level Standards; Vibration; Aviation Noise	Less impact	Greater impact	Less impact	Less impact
Public Services	Fire; Police	Less impact	Greater impact	Less impact	Less impact
Transportation	Circulation System; Vehicle Miles Traveled; Roadway Hazards; Emergency Access	Less impact	Greater impact	Less impact	Less impact
Utilities and Service Systems	Water; Wastewater; Solid Waste	Less impact	Greater impact	Less impact	Less impact
Source: FirstCarbon Solutions (FCS) 2021.					

CEQA Guidelines Section 15126(e)(2) requires an EIR to identify an environmentally superior alternative. If the No Project Alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives.

The No Project/No Development Alternative reduces impacts on all categories and, thus, would be the environmentally superior alternative. Of the three remaining alternatives, the Phase 1 Only Alternative achieves the greatest reduction in impacts both reducing buildout potential and disturbance areas. Therefore, the Phase 1 Only Alternative is the environmentally superior alternative.

5.8 - Alternatives Rejected From Further Consideration

The following alternatives were initially considered, but rejected from further consideration for the reasons described below.

5.8.1 - Phase 2 Only Alternative

A Phase 2 Only Alternative was initially considered as a project alternative. This alternatives analysis evaluated a Phase 1 Only Alternative because it has less acreage and development potential than Phase 2. In addition, development plans are available for Phase 1 whereas Phase 2 is conceptual. Furthermore, the applicant has indicated that Phase 1 would develop first followed by Phase 2.

Hence, evaluating a Phase 2 Only Alternative would be illogical and out-of-sequence and, thus, it was rejected from further consideration.

5.8.2 - Alternative Location

CEQA Guidelines Section 15126.6(f)(2) sets forth considerations to be used in evaluating an alternative location. The section states that the "key question" is whether any of the significant effects of the proposed project would be avoided or substantially lessened by relocating the proposed project. The CEQA Guidelines identify the following factors that may be taken into account when addressing the feasibility of an alternative location:

1. Site suitability
2. Economic viability
3. Availability of infrastructure
4. General Plan consistency
5. Other plans or regulatory limitations
6. Jurisdictional boundaries
7. Whether the project applicant can reasonably acquire, control, or otherwise have access to the alternative site

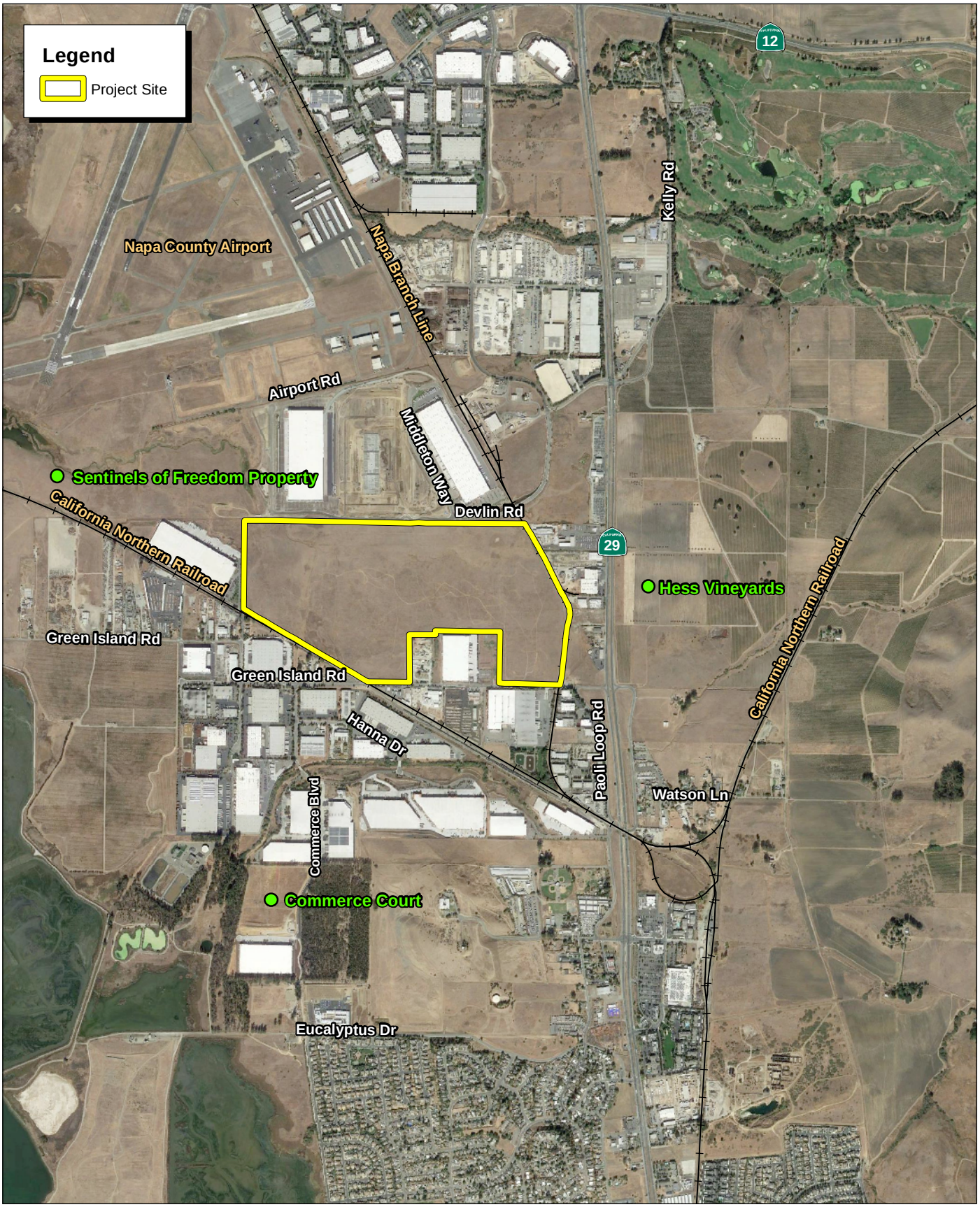
Here, "General Plan consistency" is an important factor. CEQA case law is clear that EIRs for proposed private projects consistent with governing General Plan designations generally need not address alternative sites, given that such existing General Plan designations embody policy decisions already made by governing city councils and boards of supervisors. "[T]he keystone of regional planning is consistency—between the general plan, its internal elements, subordinate ordinances, and all derivative land use decisions." (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 572.) "Case-by-case reconsideration of regional land use policies, in the context of a project-specific EIR, is the very antithesis of that goal." (*Id*. at p. 573.) "[A]n EIR is not ordinarily an occasion for the reconsideration or overhaul of fundamental land use policy." (*Ibid*.)

Table 5-8 evaluates the feasibility of three alternative locations located within 1 mile of the project site in either the City of American Canyon or unincorporated Napa County. The three locations are shown on Exhibit 5-1. As indicated in Table 5-8, none of the three sites would meet CEQA Guidelines criteria for a feasible alternative location.

Table 5-8: Alternative Location Feasibility Analysis

Name	Description	Feasibility Determination
Sentinels of Freedom Property	Approximately 25 acres located west of Napa Logistics Park and south of Napa County Airport in unincorporated Napa County and within the City of American Canyon Sphere of Influence. This site contains undeveloped land, is bisected by No Name Creek, and parts are within a 100-year flood hazard area. This site is designated "Industrial" by the Napa County General Plan and	**Not Feasible:** This site is controlled by the Sentinels of Freedom and is not owned, controlled, or otherwise accessible to the project applicant. The Sentinels of Freedom have conceptually proposed developing two warehouses on the property with vehicular access occurring from either Napa County Airport and the Napa Logistics Park. Additionally, the acreage of this site (25

Name	Description	Feasibility Determination
	zoned "Business/Industrial" by the Napa County Airport Industrial Area Specific Plan.	acres) is 12 percent of the acreage of the project site (208 acres) and, thus, is too small to accommodate the level of development contemplated by the proposed project.
Commerce Court	Approximately 21 acres located near the south end of Commerce Court in the City of American Canyon. The site is undeveloped. This site is designated "Commercial Recreation" by the City of American Canyon General Plan and zoned "Recreation" by the American Canyon Zoning Ordinance. This site is the subject of a development application for two distribution centers (224,000 and 217,000 square feet).	**Not Feasible:** This site is owned by a third party and is not owned, controlled, or otherwise accessible to the project applicant. Additionally, the acreage of this site (21 acres) is 10 percent of the acreage of the project site (208 acres) and, thus, is too small to accommodate the level of development contemplated by the proposed project. Moreover, this site is the subject of an active development application to develop a similar type use as the proposed project and, thus, is not available.
Hess Vineyards	Approximately 100 acres located east of SR-29/S. Kelly Road in unincorporated Napa County. This site contains cultivated agricultural land. This site is designated "Agricultural, Watershed, and Open Space" by the Napa County General Plan and zoned "Agricultural Watershed" by the Napa County Zoning Ordinance.	**Not Feasible:** This site is owned by a third party and is not owned, controlled, or otherwise accessible to the project applicant. Additionally, the acreage of this site (100 acres) is 52 percent of the acreage of the project site (208 acres) and, thus, is too small to accommodate the level of development contemplated by the proposed project. Finally, this property was re-designated from "Industrial" to "Agricultural, Watershed, and Open Space" in 2008, signifying the County's policy direction for this particular property.
Source: FirstCarbon Solutions (FCS) 2021.		



Source: Google Earth Aerial Imagery, 10/2020. County of Napa.

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2,000 1,000 0 2,000 Feet

Exhibit 5-1
Alternative Locations

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CHAPTER 6: OTHER CEQA CONSIDERATIONS

6.1 - Significant Unavoidable Impacts

California Environmental Quality Act (CEQA) Guidelines Section 15126.2(a)(c) requires an Environmental Impact Report (EIR) to identify and focus on the significant environmental effects of the proposed project, including effects that cannot be avoided if the proposed project were implemented.

Based on the analyses contained in this Draft EIR, the City has determined that the proposed project would result in the following significant and unavoidable impacts:

- **Consistency With Air Quality Management Plan:** The proposed project would result in exceedances of regional emissions thresholds and, therefore, be inconsistent with the Bay Area Air Quality Management District regional air quality planning assumptions. Mitigation is proposed requiring the implementation of feasible emissions reduction measures; however, these measures would not reconcile this inconsistency. Therefore, the significance after mitigation is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** The proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or State ambient air quality standard. Mitigation is proposed requiring the implementation of air emissions reduction measures, but it would not fully reduce this impact to a level of less than significant. Therefore, the significance after mitigation is significant and unavoidable.

6.2 - Growth-Inducing Impacts

There are two types of growth-inducing impacts that a project may have: direct and indirect. To assess the potential for growth-inducing impacts, the project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines § 15126.2(e)). CEQA Guidelines, as interpreted by the City, state that a significant growth-inducing impact may result if the project would:

- Induce substantial population growth in an area (for example, by proposing new homes and commercial or industrial businesses beyond the land use density/intensity envisioned in the general plan);
- Substantially alter the planned location, distribution, density, or growth rate of the population of an area; or
- Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list when such infrastructure exceeds the needs of the project and could accommodate future developments.

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community by directly inducing unplanned population growth, or by leading to the construction of additional developments in the same area. Also included in this category are projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they facilitate and serve. Projects that physically remove obstacles to growth, or projects that indirectly induce growth may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

The proposed project does not include residential uses and therefore would not directly induce population growth.

The proposed project would develop approximately 2.4 million square feet of new high-cube warehouse uses on an undeveloped site. The proposed project would employ an estimated 1,200 workers during construction and 3,643 workers when fully operational at buildout. The proposed project's warehouses would likely be built incrementally over a period of years and, thus, jobs would be added in blocks as the project builds out. As such, there would not be an "overnight" influx of new employment opportunities.

The California Employment Development Department estimated the combined Napa-Solano labor force at 273,500 in October 2021. As such, the local labor force is sufficiently large enough to allow the project's employment opportunities to be filled locally such that unplanned growth would not occur.

During the Notice of Preparation (NOP) review period, the County of Napa requested the Draft EIR evaluate whether there is sufficient housing for project employees. At the time of this writing, no prospective employees have been identified and, thus, it would be speculative to make any statements about where they would reside. Nonetheless, the City of American Canyon has more than 2,400 dwelling units in the pipeline (refer to Table 4-1 in Chapter 4, Cumulative Effects). For comparison purposes, American Canyon's population was estimated to be 20,837. Thus, the addition of more than 2,400 dwelling units to the City's housing inventory would more than offset the employment growth attributable to the proposed project.

The proposed project would be served by connections to existing water, wastewater, storm drainage, electricity, and natural gas lines that exist in Green Island Road or Devlin Road. No extension of infrastructure into unserved areas would be required and, therefore, no removal of physical barriers to growth would occur.

As such, the proposed project would not indirectly induce substantial population growth. No impacts would occur.

6.3 - Energy Conservation

Note to Reader: Section 3.6, Greenhouse Gas Emissions and Energy, also addresses energy conservation.

Public Resources Code Section 21100(b)(3) and CEQA Guidelines Section 15126.4 require EIRs to describe, where relevant, the wasteful, inefficient, and unnecessary consumption of energy caused by a project. In 1975, largely in response to the oil crisis of the 1970s, the State Legislature adopted AB 1575, which created the California Energy Commission (CEC). The statutory mission of the CEC is to forecast future energy needs, license thermal power plants of 50 megawatts or larger, develop energy technologies and renewable energy resources, plan for and direct State responses to energy emergencies, and—perhaps most importantly—promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code Section 21100(b)(3) to require EIRs to consider the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F of the CEQA Guidelines. Appendix F assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. Appendix F was substantially revised in 2010 to address greenhouse gas emissions and focus on reducing fossil fuel consumption. For the reasons set forth below, this Draft EIR concludes that the proposed project will not result in the wasteful, inefficient, and unnecessary consumption of energy, will not cause the need for additional natural gas or electrical energy-producing facilities, and, therefore, will not create a significant impact on energy resources.

6.3.1 - Regulatory Setting

Federal and state agencies regulate energy use and consumption through various means and programs. At the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. Generally, federal agencies influence and regulate transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure improvements. At the State level, the California Public Utilities Commission (CPUC) and the CEC are two agencies with authority over different aspects of energy. The CPUC regulates privately owned utilities in the energy, rail, telecommunications, and water fields. The CEC collects and analyzes energy-related data, prepares Statewide energy policy recommendations and plans, promotes and funds energy efficiency programs, and adopts and enforces appliance and building energy efficiency standards. California is exempt under federal law from the normal prohibition against states setting their own fuel economy standards for new on-road motor vehicles. Some of the more relevant federal and State energy-related laws and plans are discussed below.

Title 24, Energy Efficiency Standards

Title 24, which was promulgated by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, provides energy efficiency standards for residential and nonresidential buildings. According to the CEC, since the energy efficiency standards went into effect in 1978, it is estimated that California residential and

nonresidential consumers have reduced their utility bills by at least $15.8 billion. The latest Title 24 energy efficiency standards went into effect on January 1, 2020.

Pursuant to the California Building Standards Code and the Title 24 Energy Efficiency Standards, the City will review the design and construction components of the project's Title 24 compliance when specific building plans are submitted.

6.3.2 - Energy Requirements of the Proposed Project

Short-term construction and long-term operational energy consumption are discussed below.

Short-Term Construction

The United States Environmental Protection Agency (EPA) regulates nonroad diesel engines that power both mobile equipment (bulldozers, scrapers, front-end loaders, etc.) and stationary equipment (generators, pumps, compressors, etc.). The EPA has no formal fuel economy standards for nonroad (e.g., construction) diesel engines but does regulate diesel emissions, which indirectly affects fuel economy. In 1994, EPA adopted the first set of emission standards ("Tier 1") for all new nonroad diesel engines greater than 37 kilowatts (kW) or 50 horsepower. The Tier 1 standards were phased in for different engine sizes between 1996 and 2000, reducing nitrogen oxide (NO_x) emissions from these engines by 30 percent. Subsequently, the EPA adopted more stringent emission standards for NO_X, hydrocarbons, and particulate matter for new nonroad diesel engines. This program included the first set of standards for nonroad diesel engines less than 37 kW. It also phased in more stringent "Tier 2" emission standards from 2001 to 2006 for all engine sizes and added yet more stringent "Tier 3" standards for engines between 37 and 560 kW (50 and 750 horsepower) from 2006 to 2008. These standards further reduced nonroad diesel engine emissions by 60 percent for NO_X and 40 percent for particulate matter (PM) from Tier 1 emission levels. In 2004, the EPA issued the Clean Air Nonroad Diesel Rule. This rule cut emissions from nonroad diesel engines by more than 90 percent, and was phased in between 2008 and 2014. These emission standards are intended to promote advanced clean technologies for nonroad diesel engines that improve fuel combustion, but they also result in slight decreases in fuel economy.

The project site is located within the nine-county San Francisco Bay metropolitan region. Construction equipment is widely available throughout the region and is subject to the aforementioned EPA emissions standards. There are no unusual project characteristics that would necessitate the use of construction equipment that would not meet EPA standards. Therefore, it is expected that construction fuel consumption associated with the project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Long-term Operations

Transportation Energy Demand

Vehicle fuel efficiency is regulated at the federal level. Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards and for revising existing standards. NHTSA indicated that the fuel economy of passenger vehicles averaged 34.2 miles per gallon and light trucks averaged 26.2 miles per gallon. Heavy trucks and other heavy vehicles are not subject to fuel economy standards; however, they average 6.5 miles per gallon.

The proposed project would be well-positioned to serve the North Bay Counties of Napa, Solano, and Sonoma due to its proximity to State Route (SR) 29/SR-12 corridors. All three counties have adopted urban growth boundaries that limit the footprint of urban development. Thus, large footprint land use activities such as logistics centers are limited to very select sites in these three counties, with the Napa Valley Business Park and Green Island Business Park being the primary ones in Napa County.

Building Energy Demand

Marin Clean Energy (MCE) is the electricity provider and Pacific Gas and Electric Company (PG&E) is the natural gas provider to American Canyon.

Electricity

MCE offers its customers three options for energy: Light Green, Deep Green, and Local Sol. The Light Green option relies on 60 percent renewable (biomass/renewable, geothermal, eligible hydroelectric, solar and wind) and the balance from other sources (large hydroelectric, nuclear, open market purchases). Deep Green and Local Sol are 100 percent renewable, with the former 50:50 solar and wind and the latter 100 percent solar.

PG&E delivers electricity for MCE. PG&E operates approximately 18,000 circuit miles of transmission lines, approximately 107,000 circuit miles of distribution lines, 68 transmission switching stations, and 760 distribution substations. PG&E is interconnected with electric power systems in the western Electricity Coordinating Council, which includes 14 western states; Alberta and British Columbia, Canada; and parts of Mexico.

Natural Gas

PG&E provides natural gas to all or part of 39 counties in California comprising most of the northern and central portions of the State, including Solano County. PG&E charges connection and user fees for all new development and sliding use-based rates for natural gas service. PG&E operates approximately 43,300 miles of distribution pipelines and approximately 6,300 miles of backbone and local transmission pipelines, and three underground storage fields. In 2019, PG&E delivered 227 billion cubic feet of natural gas to its 4.5 million natural gas customers.

Energy Consumption

Using consumption figures provided by the United States Energy Information Administration, the proposed project's estimated building electricity and natural gas consumption is summarized in Table 6-1.

Table 6-1: Energy Consumption Estimates

Energy Source	Square Feet	Annual Consumption Rate	Annual Consumption
Electricity	2,400,000	6.6 kWh/square foot	15.8 million kWh
Natural Gas		19.4 cubic feet/square foot	46.6 million cubic feet
Notes: 'Warehouse and storage' energy consumption rate used. Source: United States Energy Information Administration, 2016.			

As shown in the table, the proposed project would demand approximately 15.8 million kWh of electricity and 46.6 million cubic feet of natural gas at buildout. All new buildings would be subject to the latest adopted edition of the California Green Building Code and Title 24 energy efficiency standards, which are among the most stringent in the United States. As such, the proposed project would not result in the unnecessary, wasteful, or inefficient use of energy.

CHAPTER 7: EFFECTS FOUND NOT TO BE SIGNIFICANT

7.1 - Introduction

This chapter, prepared in satisfaction of California Environmental Quality Act (CEQA) Guidelines Section 15128 (Effects Not Found to Be Significant), is based in part on the Notice of Preparation (NOP), dated January 12, 2021, and contained in Appendix A of this Draft Environmental Impact Report (Draft EIR). The NOP was prepared to identify the potentially significant effects of the proposed project and was circulated for public review between January 12, 2021, and February 10, 2021. In the course of this evaluation, certain impacts were found to be less than significant because the proposed project's characteristics would not create such impacts. Consistent with section 15128, this chapter provides a brief description of the reasons why effects were found not to be significant or less than significant, based on the NOP comments or more detailed analysis conducted as part of the EIR preparation process. Note that a number of impacts that are found to be less than significant are addressed in the various EIR topical sections (Sections 3.1 through 3.13) to provide more comprehensive discussion of why impacts are less than significant, in order to better inform decision-makers and the general public.

7.2 - Effects Found not to be Significant

7.2.1 - Aesthetics, Light, and Glare

State Scenic Highways

State Route (SR) 29 is located approximately 750 feet east of the project site. SR-29 is classified as an "Eligible" State Scenic Highway. Because of the project site's distance from SR-29 and the presence of intervening development, vegetation, and topography, the proposed project would have minimal visibility from the highway. Therefore, this precludes any possibility of the proposed project adversely altering views from a State Scenic Highway. No impacts would occur.

7.2.2 - Agriculture and Forest Resources

Important Farmland

The project site supports grazing land use activities. The California Department of Conservation maps the project site as "Farmland of Local Importance," which does not fall under the Important Farmland umbrella (Prime Farmland, Unique Farmland, and Farmland of Statewide Importance) as defined by CEQA Guidelines Appendix G. Two of the three project site's soils (Haire loam, 2 to 9 percent soils; and Haire clay loam, 2 to 9 percent) are not classified as prime soils by the United States Department of Agriculture, a key attribute used by the California Department of Conservation in classifying farmland. No impacts would occur.

Agricultural Zoning or Williamson Act Contracts

The project site is zoned "Industrial" by the American Canyon Zoning Ordinance, a non-agricultural zoning designation. The project site is not encumbered by any active Williamson Act contracts, which precludes the possibility of conflicts in this regard. No impacts would occur.

Forest Zoning

The project site is zoned "Industrial" by the American Canyon Zoning Ordinance, a non-forest zoning designation. No impacts would occur.

Timberland

The project site contains undeveloped land. There are no stands of commercially harvestable trees and, thus, the proposed project would not convert forestland to non-forest use. No impacts would occur.

Pressures to Convert Agricultural or Timberland

The project site is currently within the American Canyon city limits and designated for urban development by the City of American Canyon General Plan (General Plan); thus, it is considered committed to urban use within the foreseeable future. The surrounding land is also within the American Canyon city limits and designated for urban development by the General Plan. Thus, it is also committed to urban use. This condition precludes the possibility of the proposed project creating pressures to convert farmland to non-agricultural use. As noted above, moreover, the project site does not qualify as "Important Farmland" as that term is used by the State of California. No impacts would occur.

7.2.3 - Biological Resources

Conservation Plans

The project site is not within the boundaries of an adopted habitat conservation plan or natural community conservation plan. This condition precludes the possibility of the proposed project conflicting with such a plan. No impacts would occur.

7.2.4 - Geology, Soils, and Seismicity

Septic or Alternative Wastewater Disposal Systems

The proposed project would be served with sanitary sewer service provided by the City of American Canyon. No septic or alternative wastewater disposal system would be employed. This condition precludes the possibility of related impacts. No impacts would occur.

7.2.5 - Hazards and Hazardous Materials

Exposure of Schools to Hazardous Materials

Calvary Baptist Church School, the closest school to the project site, is located 0.65 mile to the south. This distance precludes the possibility of the proposed project exposing schools located within 0.25 mile of the site to hazardous materials or hazardous air emissions. No impact would occur.

Wildland Fires

The project site contains undeveloped land and is surrounded by urban development within the American Canyon city limits. The project site is not located within a "high" or "very high" fire hazard severity zone as identified by the California Department of Forestry and Fire Protection (CAL FIRE). The site also lacks the kind of vegetation associated with wildland fires. For these reasons, the

project site is not susceptible to wildland fires. In addition, the proposed project would have multiple connections to Green Island Road and the future Devlin Road, so that adequate emergency response and evacuation routes would be available in the event of a fire-related emergency. These conditions and circumstances preclude the possibility of the proposed project exposing people or structures to a significant risk of loss, injury, or death involving wildland fires. No impacts would occur.

7.2.6 - Hydrology and Water Quality

100-Year Flood Hazards

The project site is not within a 100-year flood hazard zone. This condition precludes the possibility of the proposed project exposing people or structures to 100-year flood hazards. No impacts would occur.

Levee or Dam Failure

Exhibit 15 of the General Plan indicates that the western portion of the project site is within the dam failure inundation area of Conn Dam, Milliken Dam, and Rector Reservoir. The western portion of the project site is proposed as a wetland preserve and retention basin and, thus, inundation by floodwaters would not pose a risk to public safety. Moreover, dam failure is considered remote and unlikely due to regular monitoring of the structural integrity of these facilities. Additionally, the project site is not protected by any levees, which precludes the potential for inundation by levee failure. No impacts would occur.

Seiches, Tsunamis, or Mudflows

There are no large inland bodies of water such as lakes or reservoirs near the project site, a condition that precludes seiche inundation. The project site is located more than 30 miles from the Pacific Ocean and more than 1 mile from the Napa River, a condition that precludes tsunami inundation. The project site is not located in a volcanically active area or at the base of a mountain range, a condition that precludes mudflow inundation. No impacts would occur.

7.2.7 - Land Use

Division of an Established Community

The project site currently does not contain any occupied dwelling units and is surrounded with a barbed wire fence intended to deter trespassing. Thus, it does not contain any established communities or serve as a linkage between established communities. This condition precludes the division of an established community. No impacts would occur.

7.2.8 - Mineral Resources

Mineral Resources of Statewide or Local Importance

The project site does not support mineral resource extraction operations. Neither the California Department of Conservation nor the General Plan designates the site a location of known mineral deposits. In addition, the California Department of Conservation Geologic Energy Management

Division indicates no existing or plugged gas or oil wells on the project site. This condition precludes the possibility of a loss of mineral resources of Statewide or local importance. No impacts would occur.

7.2.9 - Population and Housing

Growth Inducement

Please refer to Chapter 6, Other CEQA Considerations, Section 6.2 for discussion of growth inducement.

Displacement of Persons or Dwelling Units

The project site does not contain any existing dwelling units. This condition precludes the possibility of displacement of persons or dwelling units. No impacts would occur.

7.2.10 - Public Services

Schools

The proposed project is nonresidential in nature and would not directly induce population growth and, therefore, would not increase demand for schools such that new or expanded facilities would be required. This condition precludes the possibility of related impacts. No impacts would occur.

Parks

The proposed project is nonresidential in nature and would not directly induce population growth and therefore would not increase demand for park facilities such that new or expanded facilities would be required. This condition precludes the possibility of related impacts. No impacts would occur.

Other Public Facilities

The proposed project is nonresidential in nature and would not directly induce population growth and therefore would not increase demand for public facilities, such as libraries, such that new or expanded facilities would be required. This condition precludes the possibility of related impacts. No impacts would occur.

7.2.11 - Recreation

Physical Deterioration of Recreational Facilities

The proposed project is nonresidential in nature and would not directly induce population growth and therefore would not increase the demand for recreational facilities such that new or expanded facilities would be required. This condition precludes the possibility of related impacts. No impacts would occur.

7.2.12 - Wildfire

Emergency Response or Evacuation

The project site contains undeveloped land and is surrounded by urban development within the American Canyon city limits. The project site is not within a State responsibility area or classified as a very high fire hazard severity zone. As such, the project site is not susceptible to wildfires. Regardless, the proposed project would have multiple connections to Green Island Road and the future Devlin Road. As such, adequate emergency response and evacuation routes would be available in the event of an emergency. No impact would occur.

Exposure to Wildfire

The project site contains undeveloped land and is surrounded by urban development within the American Canyon city limits. The project site is not within a State responsibility area or classified as a very high fire hazard severity zone. As such, the project site is not susceptible to wildfires. Thus, persons or structures would not be exposed to wildfire hazards. No impact would occur.

Fire Infrastructure

The project site contains undeveloped land and is surrounded by urban development within the American Canyon city limits. The project site is not within a State responsibility area or classified as a very high fire hazard severity zone. As such, the project site is not susceptible to wildfires. Thus, no wildfire suppression infrastructure would be required. No impact would occur.

Post-Fire Flooding or Landslides

The project site contains flat, undeveloped land and is surrounded by urban development within the American Canyon city limits. The project site is not within a State responsibility area or classified as a very high fire hazard severity zone. As such, the project site is not susceptible to wildfires and, thus, it would not be susceptible to post-fire flooding or landslides. No impact would occur.

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CHAPTER 8: PERSONS AND ORGANIZATIONS CONSULTED/LIST OF PREPARERS

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Public Works Director ..... Erica Ahmann Smithies
Engineer III ..... Edison Bisnar

8.1.2 - Public Agencies

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California Department of Fish and Wildlife

Regional Manager, Bay Delta Region ..... Greg Erickson

Native American Heritage Commission

Analyst ..... Nancy Gonzalez-Lopez

Local Agencies

American Canyon Fire Protection District

Fire Chief ..... Mike Cahill

County of Napa

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Ironworkers Local 378

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Senior Environmental Scientist ..... Gary Deghi
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Appendix A:
Notice of Preparation, Comments

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City of American Canyon
Notice of Preparation and Notice of Public Scoping Meeting
Giovannoni Logistics Center Project

Date: January 12, 2021

To: Public Agencies and Private Parties

From: Brent Cooper, AICP, Community Development Director, City of American Canyon

Subject: Notice of Preparation of an Environmental Impact Report and Public Scoping Meeting

The City of American Canyon will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified herein. The project description, location, and probable environmental effects of the Giovannoni Logistics Center Project are described in the attached materials.

The City of American Canyon is soliciting comments from public agencies, organizations, and members of the public regarding the scope and content of the EIR, and the environmental issues and alternatives to be addressed in the document. Public agencies may need to use the EIR when considering permitting or other approvals that are germane to the agencies' responsibilities in connection with the projects.

Because of time limits mandated by state law, public agencies must submit any comments in response to this notice at the earliest possible date but not later than 30 days after receipt of this notice. The City of American Canyon also will accept comments from other interested parties regarding this notice during this time period. Accordingly, please provide your written response to the address shown below by **5 p.m. Wednesday, February 10, 2021**. If you wish to be placed on the notification list for this project, or if you have any questions or need additional information, please contact the person below.

Brent Cooper, AICP, Community Development Director
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
Phone: (707) 647-4335
Email: bcooper@cityofamericancanyon.org

Public Scoping Meeting

A virtual public scoping meeting will be held at **3 p.m. Tuesday, February 2, 2021**. Refer to the 'Scoping Meeting' portion of this NOP for details. At this meeting, public agencies, organizations, and members of the public will be able to review the proposed project and provide comments on the scope of the environmental review process.

GIOVANNONI LOGISTICS CENTER PROJECT

Project Location

The 208-acre project site is located in the City of American Canyon, Napa County, California; refer to Exhibit 1. The semi-rectangular project site is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Project and Devlin Road (north), the Napa Branch Line (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south); refer to Exhibit 2. The project site is located on the Cuttings Wharf, California, United States Geological Survey 7.5-minute topographic quadrangle, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West).

Existing Conditions

1.1.1 - Land Use Activities

The project site contains undeveloped land. The project site gently slopes from east to west and the elevation ranges from 50 feet to 35 feet above mean sea level. No Name Creek meanders through the northern portion of the project site. Wetlands are located around No Name Creek. The West Napa Fault bisects the project site in a northwest / southeast direction.

1.1.2 - Land Use Designations

The project site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial." The project site is within the boundaries of the Napa County Airport Land Use Compatibility Plan.

Project Description

1.1.3 - Proposed Project

The applicant, Buzz Oates LLC, is proposing to develop a 2.4 million square foot logistics center on approximately 161 acres of the project site. The remaining 47 acres would be preserved as open space. In conjunction with the proposed project, the City of American Canyon would extend Devlin Road through the project site.

The applicant has developed site design-level plans for Phase 1, the 94.7 acre-area east of the Devlin Road extension. This area will support two high cube warehouse buildings totaling 1,069,904 square feet. One of the buildings would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade level roll up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high cube warehouse. Phase 2 would commence once Phase 1 is completed. Accordingly, the environmental review process will evaluate Phase 1 at a project level and Phase 2 at

a program level. The project would employ an estimated 3,643 workers at buildout. Table 1 summarizes the proposed project. Exhibit 3 depicts the preliminary site plan for Phase 1.

Table 1: Giovannoni Logistics Center Project Summary

Phase	Acres	Building / Square Feet	End Use / Characteristics
1 (Project Level)	94.7	A / 627,976	High Cube Warehouse / 36 feet clear height
		B / 469,512	High Cube Warehouse / 36 feet clear height
		Subtotal: 1,097,488	—
2 (Program Level)	113.1	1.3 million	High Cube Warehouse
Total	**208**	**2.4 million**	—

Notes:
Total values are rounded
Source: RMW Architecture Interiors, 2020.

Devlin Road Extension

As a separate City project, Devlin Road would be extended approximately 3,000 lineal feet from Green Island Road to Middleton Way (Napa Logistics Park), closing a gap in the City's roadway network. The extension is contemplated by the City of American Canyon General Plan Circulation Element. The extended roadway would be one lane in each direction. Driveway access to the proposed project would be taken from Devlin Road and Green Island Road.

The Napa Valley Vine Trail is contemplated to follow the Devlin Road extension. The new roadway would reserve room for this facility.

Green Island Road Improvements

As a separate City project, Green Island Road would be improved. The roadway would be widened, and half width improvements would be installed along the project frontage. The new Green Island Road / Devlin Road intersection would provide turn lanes.

Open Space Preservation

The applicant would permanently preserve approximately 47 acres of the project site as open space. This area coincides with the northern portion of the project site where No Name Creek meanders. This would create a contiguous open space area with the adjoining 37-acre Napa Logistics Park wetland preserve.

Storm Drainage

The proposed project would provide 110,766 square feet (2.6 acres) of storm drainage retention onsite including bioswales and basins.

Utilities

Water

The City of American Canyon would provide potable water and recycle water service to the proposed project. Potable and recycled water infrastructure would be installed within the Devlin Road extension. Service laterals would extend from the Devlin Road water lines to project buildings.

Wastewater

The City of American Canyon would provide wastewater collection and treatment service to the proposed project. Sewer infrastructure would be installed within the Devlin Road extension. Service laterals would extend from the Devlin Road sewer line to project buildings.

Electricity and Natural Gas

Marin Clean Energy would procure, and Pacific Gas and Electric Company (PG&E) would deliver electricity to the proposed project. PG&E would procure and deliver natural gas to the proposed project. Electric and natural gas infrastructure would be installed within the Devlin Road extension. Service laterals would extend from the Devlin Road facilities to project buildings.

Required Discretionary Approvals

The proposed project requires the following discretionary approvals from the City of American Canyon:

- Use Permit
- Tentative Parcel Map
- Design Permits
- Lot Line Adjustment

The following parties would act as responsible agencies for the proposed project:

- United States Army Corps of Engineers – Section 404 Permit
- California Department of Fish and Wildlife – Section 1602 Lake and Streambed Alternation Agreement
- San Francisco Bay Regional Water Quality Control Board – Section 401 Water Quality Certification
- Napa Valley Transportation Authority / Napa Valley Vine Trail Coalition – Napa Valley Vine Trail construction

Environmental Review

1.1.4 - Potential Environmental Effects

The EIR will evaluate whether the proposed project may potentially result in one or more significant environmental effects, which will be evaluated in the relevant sections listed below.

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions/Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services
- Transportation
- Utilities and Service Systems

1.1.5 - Effects Found not to be Significant

Unless specific comments are received during the NOP public comment period that indicate a potential for the project to result in significant impacts, the following issues will be addressed in the Effects Found not to be Significant section of the EIR.

Agriculture and Forest Resources

The project site contains undeveloped land and is not used for agricultural land use activities. The California Department of Conservation maps the project site as 'Farmland of Local Importance,' which does not fall under the Important Farmland umbrella. The project site is not encumbered by an active Williamson Act contract. The project site is zoned for industrial use; thus, no conflicts with agricultural or forest zoning would occur. The project site does not contain any stands of commercially harvestable trees and, thus, would not convert forestland to non-forest use. No impacts would occur.

Mineral Resources

The project site contains undeveloped land. No mineral extraction occurs onsite. This precludes the possibility of conflicts in this regard. No impacts would occur.

Population and Housing

The proposed project would develop 2.4 million square feet of light industrial uses on an undeveloped site. No direct residential growth would occur, and no existing dwelling units would be removed. The proposed project would employ an estimated 1,200 workers during construction and 3,643 workers when fully operational at buildout. The California Employment Development Department estimated Napa and Solano County's combined labor force at 274,600 in November 2020. As such, the local labor force is sufficiently large enough to allow the project's employment opportunities to be filled locally such that unplanned growth would not occur. Lastly, the Devlin Road and utility extensions would not remove a barrier to growth because adjoining properties are already served by roadways and wet utilities. No impacts would occur.

Recreation

The proposed project would not involve construction of dwelling units and, thus, would not result in direct population growth. As such, it would not increase use of existing recreational facilities. No impacts would occur.

Wildfire

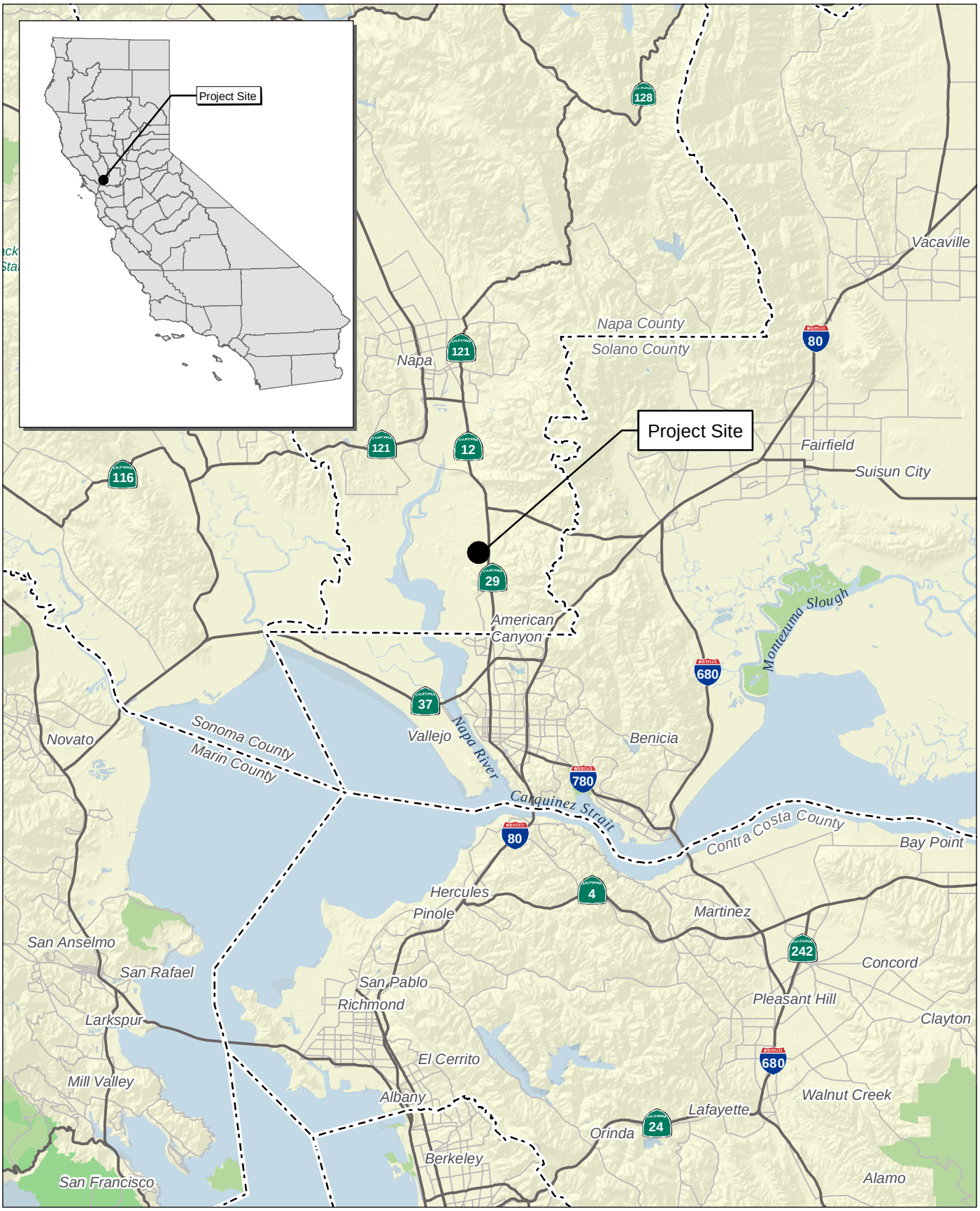
The project site contains undeveloped land. There are no wildlands or other areas susceptible to wildfire within or near of the project site. No impacts would occur.

Scoping Meeting

A virtual public scoping meeting will be held at **3 p.m., Tuesday, February 2, 2021**:

https://zoom.us/join
Meeting ID: 923 4379 6808
Passcode: 866833
Phone: (408) 638-0968

At this meeting, agencies, organizations, and members of the public will be able to review the proposed project and provide comments on the scope of the environmental review process.



Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

FIRSTCARBON SOLUTIONS™

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Miles

Exhibit 1
Regional Location Map

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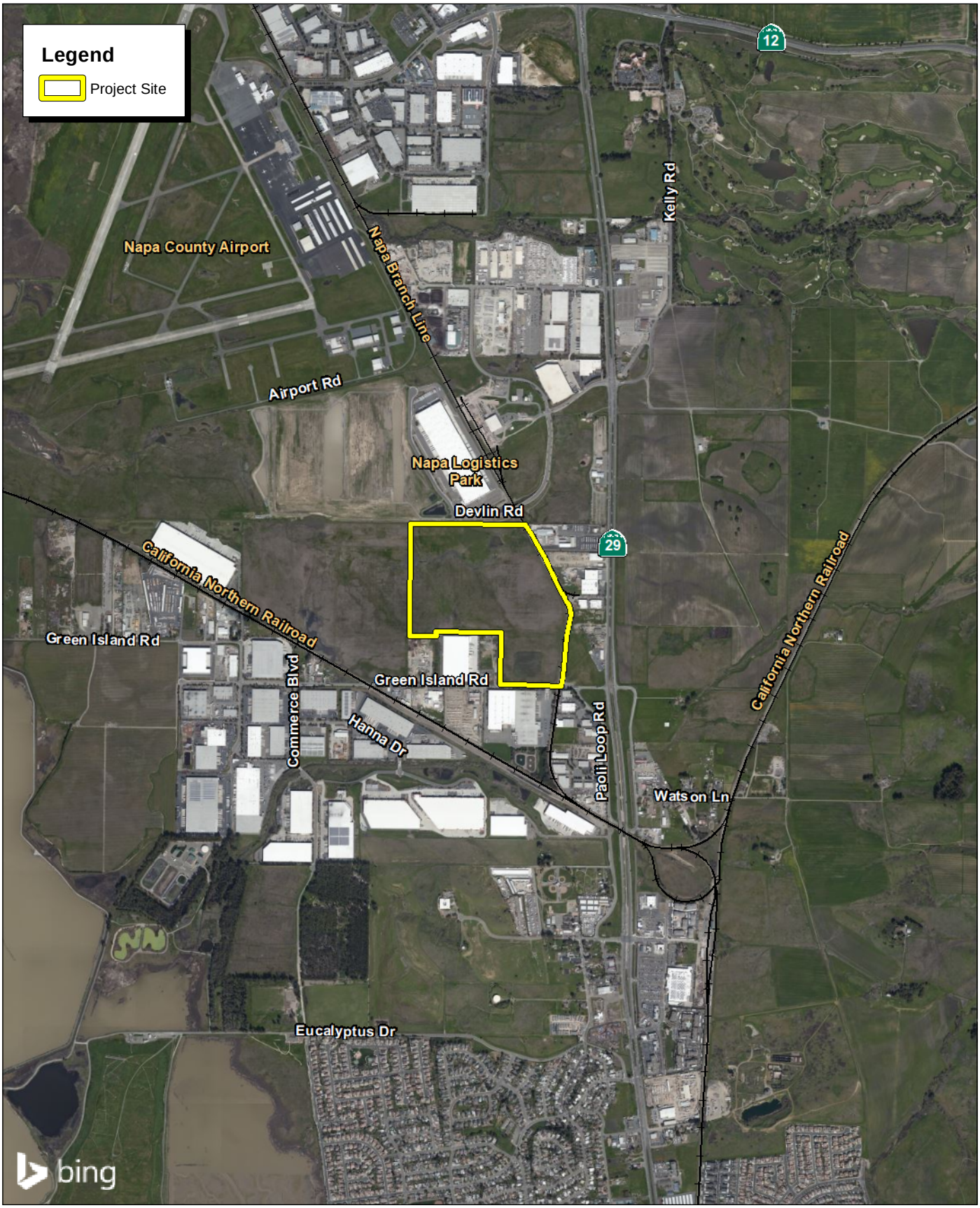

Source: Bing Aerial Imagery. County of Napa.

FIRSTCARBON SOLUTIONS™

2,000 1,000 0 2,000 Feet

Exhibit 2
Local Vicinity Map

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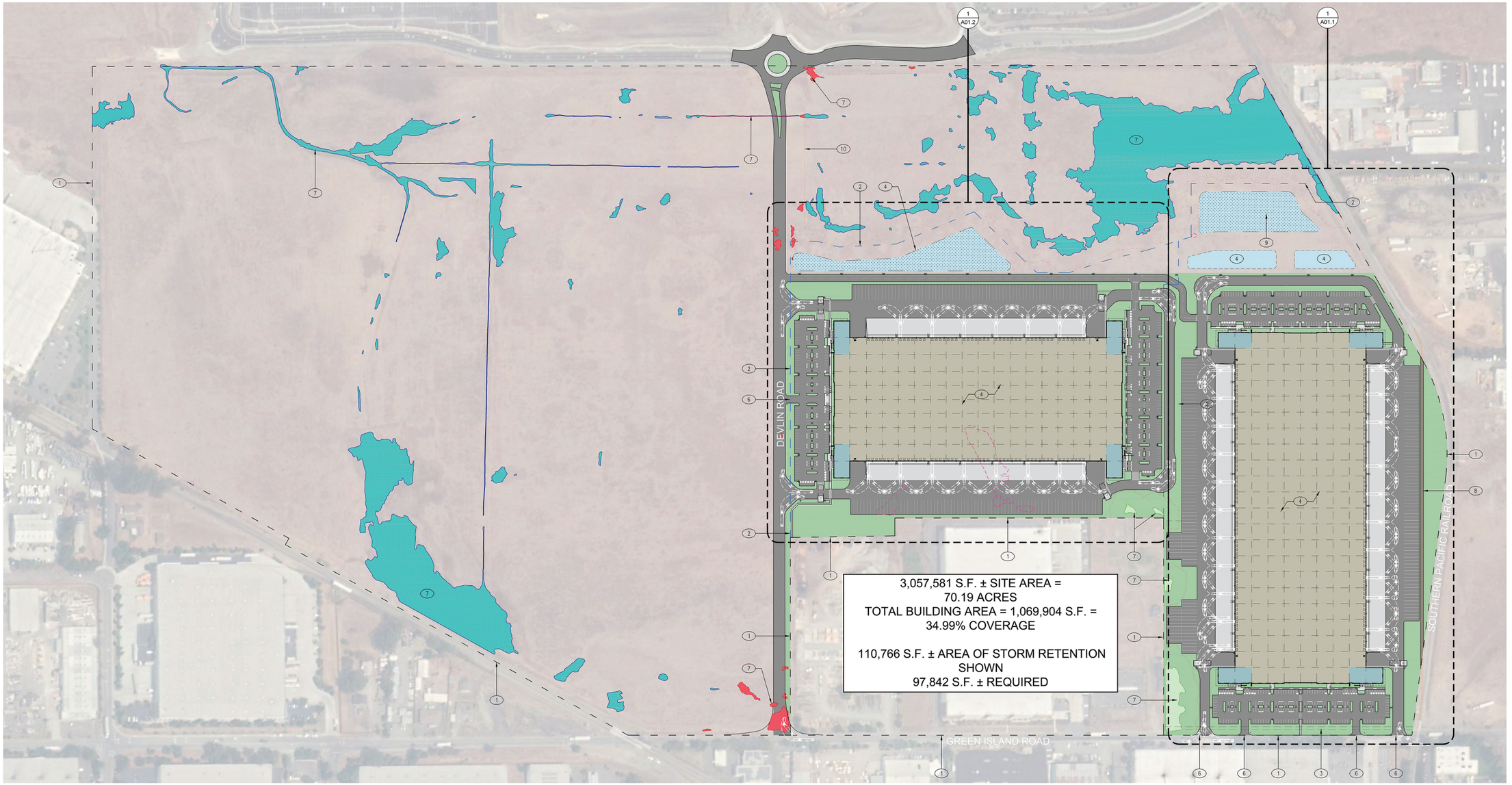

Source: RMW Architecture Interiors, 11/11/2020.

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Exhibit 3
Preliminary Site Plan – Phase 1

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Appendix B:
Air Quality, Energy, Greenhouse Gas Supporting Information

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Appendix B: Air Quality Supporting Information and Modeling Results

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Giovannoni Logistics Project CalEEMod Notes

Note 1. For the 2030 operational models, PG&E's 2030 CO_2 intensity factor is derived from an assumed 2030 power mix based on equal proportions of generation sources in 2019. The only factor that has been uniquely adjusted for 2030 is the change of eligible renewable energy sources total proportion from 33% to 60% to comply with Senate Bill 100's 2030 performance goals. Based on known factors for PG&E's 2019 CO_2 intensity factor, a proximate CO_2 intensity factor of 184 pounds per megawatt-hour delivered was identified for 2030. Please see PG&E Intensity Factors in this Appendix for more information.

Note 2. Land uses and sizes associated with development of the proposed project are drawn from correspondence with the Project Applicant as well as the following site plans:

- cbg Civil Engineers, Lot Line Adjustment Exhibit, Green Island Road Logistics Center, dated October 2, 2020.
- RMW Architectural Interiors, Planning Submittal Drawings for Giovannoni Logistics Center, dated November 11, 2020.
- cbg Civil Engineers, Preliminary Water Demand Calculations, Giovannoni Logistics Center – East, dated November 12, 2020.

Land uses utilized in the models represent the following:

Project Phase 1

Industrial > (Un)refrigerated Warehouse-Rail > 601.383 x 1000sqft = Proposed Building A.

Industrial > (Un)refrigerated Warehouse-No Rail > 469.521 x 1000sqft = Proposed Building B.

Parking > Parking Lot > 860 x Space = 860 parking stalls. Square footage assumed to be balance of site after accounting for all other proposed uses (1,498,504 square feet).

Recreation > City Park > 8.76 x acre = proposed landscaping.

Parking > Other Non-Asphalt Surfaces > 106.707 x 1000sqft = proposed drainage basins. Square footage reduced to zero to ensure this land use does not contribute to emission estimates beyond those generated during earthwork.

Project Phase 2

Industrial > (Un)refrigerated Warehouse-No Rail > 1,329.096 x 1000sqft = proposed Phase 2 building space, based on remainder of proposed 2.4 million square feet after accounting for Phase 1 building space.

Parking > Parking Lot > 1,067 x Space = the assumed parking spaces and square footage (1,859,789 square feet) based on proportional representation of parking spaces and square footage in Phase 1. Phase 1 would include 1,070,904 square feet out of a proposed 2.4 million square feet while Phase 2 would include 1,329,096 square feet out of a proposed 2.4 million square feet. Therefore, Phase 1 would reasonably represent approximately 45 percent of the total project parking spaces and square footage and Phase 2 would

reasonably represent approximately 55 percent of the total project parking spaces and square footage.

Recreational > City Park > 17.29 x acre = Phase 2 landscaping, assumed to be the balance of the site after accounting for all other proposed uses.

It should be noted that the 47.1-acre conservation dedication was not modeled as the Project Applicant confirmed no earthwork or other construction activity would occur in this area.

Note 3. According to telephone correspondence with the Project Applicant, Phase 1 construction is anticipated to begin January 2022 and occur over a total of 10 months, 5 days per week. CalEEMod default construction activity dates and durations were adjusted to reflect this information. Phase 2 is also anticipated to occur over 10 months and is conservatively assumed to occur immediately following completion of Phase 1. Therefore, the construction schedule in the models was adjusted to reflect this. Please see the Construction Schedule Adjustment sheet contained in this Appendix for more information.

Note 4. According to telephone correspondence with the Project Applicant, no Rubber Tired Dozers would be utilized during site preparation activities for either project phase. Therefore, the construction equipment list in the models was adjusted to reflect this.

Note 5. According to the RMW Architectural Interiors, Planning Submittal Drawings for Giovannoni Logistics Center, dated November 11, 2020, an estimated 5,400 cubic yards are anticipated to be imported during Phase 1 grading activities. According to telephone correspondence with the Project Applicant, grading activities for Phase 2 of the project are anticipated to balance on-site.

Note 6. For the construction models, the worker vehicle trip distance was adjusted to reflect the project VMT contained in the W-Trans Traffic Impact Study prepared for the project, 16.24 VMT per person per day. As this VMT would represent all travel to and from the project site for employees, an average of 8.12 miles per vehicle trip was utilized in this analysis.[1]

Note 7. During all construction models, all operational emission sources were reduced to zero to isolate construction emission results.

During all operational models, all construction emission sources were reduced to zero to isolate operational emission results.

Note 8. BAAQMD *Basic Construction Mitigation Measures Recommended For All Proposed Projects* were applied to all construction models, which would be required under MM AIR-2a to ensure that the proposed project would result in a less-than-significant impact related to fugitive dust emissions during construction. This includes watering exposed areas at minimum twice per day and limiting construction vehicle speeds to 15 miles per hour on unpaved roads.

[1] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

As the project exceeds the BAAQMD's significance threshold for ROG emissions during construction, MM AIR-2b would be required to reduce ROG emissions to less than significant levels. MM AIR-2b would require that "Low-VOC" (e.g., Low ROG) architectural coatings and paints be used during project construction which do not exceed 50 grams of VOC content per liter of product.

As the project exceeds the BAAQMD's significance threshold for ROG emissions during operation, MM AIR-2c would be required to reduce ROG emissions to the maximum extent feasible and enforceable. MM AIR-2c would require the use of electric landscaping equipment and the use of "Low-VOC" (e.g., Low ROG) architectural coatings and paints for any reapplication of architectural coatings which do not exceed 50 grams of VOC content per liter of product during project operation.

Note 9. W-Trans prepared a Traffic Impact Study (TIS) for the proposed project that analyzes the trip generation rates for the proposed project.[2] The TIS illustrates that at full buildout (Phases 1 and 2), the proposed project would generate an estimated 528 daily truck trips and 2,832 daily passenger vehicle trips. According to the TIS, passenger vehicles would travel an average of 16.24 VMT per person per day. As this VMT would represent all travel to and from the project site for employees, an average of 8.12 miles per vehicle trip was utilized in this analysis. According to correspondence with the Project Applicant, the anticipated port of product origin for truck trips would be the Port of Oakland, approximately 32.8 miles away. Therefore, trip distances and trip generation rates were adjusted in the project operation models to reflect this information.

According to telephone correspondence with the Project Applicant, trucks to serve the project upon operation are anticipated to have an average gross vehicle weight rating (GVWR) of 35,000 pounds. Therefore, the fleet mix for the proposed project was adjusted to reflect 100 percent of truck trips as classified under the Heavy Heavy-Duty (HHD) vehicle class and 100 percent of passenger vehicle trips as classified under the Light-Duty Auto (LDA), Light-Duty Truck Type 1 (LDT1), Light-Duty Truck Type 2 (LDT2), and Medium-Duty Vehicle (MDV) vehicle classes, according to their respective fleet proportions found in the California Air Resources Board's (ARB) EMFAC2017 database for the first year of full buildout (2023). Please refer to the Fleet Mix Adjustment sheet found in this Appendix for more information.

Phase 1 and Phase 2 operational models contain passenger vehicle activity while emissions associated with trucking activities were separated into their own Phase 1 Trucks and Phase 2 Trucks operational models.

Note 10. According to the Preliminary Water Demand Estimates prepared by cbg Civil Engineers, dated February 23, 2021, Building A (Warehouse-Rail) is estimated to generate an estimated demand of 3,292,665 gallons of indoor water consumption per year and Building B (Warehouse-No Rail) is estimated to generate an estimated demand of 2,565,220 gallons of indoor water consumption per year. According to the RMW Architecture Interiors Preliminary Planting Plan, contained as part of the Planning Submittal Drawings, dated

[2] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

November 11, 2020, the proposed landscaping for all of Phase 1 would generate an estimated demand of 2,786,968 gallons of outdoor water consumption per year. Therefore, the indoor and outdoor water consumption factors in the operational models were adjusted to reflect this information. Model defaults were utilized for anticipated water consumption estimates for Phase 2 of the project.

Note 11. According to telephone correspondence with the Project Applicant, the proposed project may require the use of a back-up generator and fire pump for each proposed building. As at least 3 buildings are proposed, the operational models included the operation of 3 diesel back-up generators and 3 diesel fire pumps. According to BAAQMD's Regulation 2, Rule 5, the BAAQMD limits testing to no more than 50 hours per year. Therefore, in the absence of more detailed information, each stationary source included in the operational models are assumed to be rated for 50 horsepower and operate 48 hours per year with an average 4 hours of operation per day (e.g., one 4-hour maintenance period per month). The models for Phase 1 includes 2 back-up generators and 2 fire pumps and the models for Phase 2 includes 1 back-up generator and 1 fire pump.

Operational Fleet Mix - Napa County
CalEEMod Default Fleet Mix Adjustments

		Transportation Analysis Fleet Mix:[1]	
Trucks	528	ADT	15.71%
Passenger Vehicles	2,832	ADT	84.29%
Total	**3,360**	**ADT**	100%
Phase 1 Building Space	1,070,904	Square Feet	44.62%
Phase 2 Building Space	1,329,096	Square Feet	55.38%
Totals	**2,400,000**		

2022 Project Fleet Mix Adjustments (Phase 1)

Passenger Vehicle Classes	**Fleet Mix Proportion[2]**	**Adjusted Fleet Mix Proportions**
LDA	0.519131	0.5792192
LDT1	0.05785	0.064546002
LDT2	0.17866	0.199339477
MDV	0.140619	0.156895321
Total	*0.89626*	1

2023 Project Fleet Mix Adjustments (Phase 2)

Passenger Vehicle Classes	**Fleet Mix Proportion[2]**	**Adjusted Fleet Mix Proportions**
LDA	0.527728	0.58706958
LDT1	0.057239	0.06367537
LDT2	0.176957	0.196855334
MDV	0.136995	0.152399716
Total	*0.898919*	1

2030 Project Fleet Mix Adjustments

Passenger Vehicle Classes	**Fleet Mix Proportion[2]**	**Adjusted Fleet Mix Proportions**
LDA	0.571798	0.627895434
LDT1	0.054112	0.05942077
LDT2	0.16696	0.183339959
MDV	0.117788	0.129343837
Total	*0.910658*	1

Notes/Sources:

[1] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

[2] California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model (CalEEMod), Version 2020.4.0.35.

CalEEMod Default Construction Schedule (Phase 1)

Activity Name	*Total Days*	*Percent of Total*
Site Preparation	40	3%
Grading	110	8%
Building Construction	1,110	79%
Paving	75	5%
Architectural Coating	75	5%
Total	1,410	100%

Phase 1 Construction Schedule, Adjusted for 10 Months Duration

Activity Name	*Total Days*	*Percent of Total*
Site Preparation	6	3%
Grading	17	8%
Building Construction	168	79%
Paving	11	5%
Architectural Coating	11	5%
Total	214	100%

CalEEMod Default Construction Schedule (Phase 2)

Activity Name	*Total Days*	*Percent of Total*
Site Preparation	60	3%
Grading	155	8%
Building Construction	1,550	78%
Paving	110	6%
Architectural Coating	110	6%
Total	1,985	100%

Phase 2 Construction Schedule, Adjusted for 10 Months Duration

Activity Name	*Total Days*	*Percent of Total*
Site Preparation	6	3%
Grading	17	8%
Building Construction	167	78%
Paving	12	6%
Architectural Coating	12	6%
Total	214	100%

Pacific Gas Electric CO_2 Intensity Factor - 2030 Adjustment

Table 1. PG&E's 2018 Power Content Label

Power Source	Percent of Total Mix
Eligible Renewable	27.4%
Fossil Fuel-Fired	0.0%
Nuclear	41.7%
Large Hydroelectric	30.9%
Other	0.0%
Non-Renewable Total	72.6%
Total	**100%**

Table 2. PG&E's 2018 CO_2 Intensity Factors[2]

Power Source	Individual Intensity Factors (lbs CO_2/MWh)
Eligible Renewable	0
Fossil Fuel-Fired	898
Nuclear	284
Large Hydroelectric	284
Other	N/A
Weighted Average	**206**

Table 3. PG&E's Anticipated 2030 Power Content Label[1]

Power Source	Percent of Total Mix
Eligible Renewable	60%
Fossil Fuel-Fired	12%
Nuclear	16%
Large Hydroelectric	11%
Other	0%
Non-Renewable Total	40%
Total	**100%**

Table 4. PG&E's 2030 CO_2 Intensity Factors[3]

Power Source	Individual Intensity Factors (lbs CO_2/MWh)
Eligible Renewable	0
Fossil Fuel-Fired	898
Nuclear	284
Large Hydroelectric	284
Other	N/A
Weighted Average	**184**

Notes:

[1] Adjustment to 2030 power mix is based on equal proportions of generation sources in 2018. The only factor that has been uniquely adjusted is the change of eligible renewable energy sources total proportion from 27.4% to 60% to comply with Senate Bill 100's 2030 performance goals.

[2] PG&E's total CO_2 emission intensity factor of 206 lbs/MWh and CO2 emission intensity factor specifically for fossil fuel-fired generation sources of 898 lbs/MWh were identified in PG&E's 2020 Corporate Responsibility and Sustainability Report; however, the CO_2 emission intensity factor for other non-renewable sources were unknown. Therefore, the 2019 CO_2 emission intensity factor for all other non-renewable generation sources were identified based on the given overall 206 lbs/MWh and fossil fuel-fired 898 lbs/MWh values and the 2019 power content label using a convex combination equation. PG&E generation sources are identifed in PG&E's Reports as nuclear, hydroelectric, fossil fuel-fired, and elgible renewable. Due to the lack of detailed information, nuclear and hydroelectic source were assumed to be equal, having an unweighted average CO_2 intensity factor of the provided 284 lbs/MWh. Eligible renewable sources were assumed to generate 0 lbs CO2/MWh.

[3] PG&E's 2030 CO_2 emission intensity factor is based on equal proportions of renewable and non-renewable generation sources in 2019, as seen in Table 3. The only factor that was uniquely adjusted was the change of eligible renewable energy sources total proportion from 27.4% to 60% to comply with Senate Bill 100's 2030 performance goals. The CO_2 emission intensity factor is the weighted average using the adjusted renewable generation proportion (see Table 3) and the identified owned source intensity factors for 2019 (see Table 2).

Phase 1 Truck Emissions Summary

Air Pollutant	Daily Mass Emissions (pounds)	Daily Mass Emissions (tons)	Annual Mass Emissions (tons)
Nitrogen Oxides (NO_X)	101.06	0.05	18.44
Particulate Matter, aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$)	1.59	0.00	0.29
Particulate Matter, aerodynamic diameter of 10 microns or less (PM_{10})	3.02	0.00	0.55
Reactive Organic Gases (ROG)	3.06	0.00	0.56
Total Organic Gases (TOG)	3.49	0.00	0.64
Carbon Monoxide (CO)	22.98	0.01	4.19
Sulfur Oxides (SO_X)	0.42	0.00	0.08
Carbon Dioxide Equivalent (CO_2e)	37,484.95	17.00	6,206.06

Note: CO_2e values are expressed in pounds per day and metric tons per year.

Average One-Way Daily Truck Trips:[1]	528
Phase 1 Proportion of Building Space:	44.62%
Phase 1 Truck Population:	118
Assumed Travel Distance (miles):	32.8

Sources:

[1] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Phase 1 Trucking GHG Emissions and Global Warming Potentials

Climate Forcing Pollutants	100-Year Global Warming Potentials[1]	Daily Mobile Emissions (pounds)	Carbon Dioxide Equivalent (CO_2e)
Methane (CH_4)	298	0.14	42.41
Nitrous Oxide (N_2O)	25	5.86	146.56
Carbon Dioxide (CO_2)	1	37,295.98	37,295.98
	Total Daily CO_2e (pounds):		**37,484.95**
	Total Daily CO_2e (metric tons):		**17.00**

Sources:

[1] Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Website: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed November 19, 2020.

[2] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Napa
Calendar Year: 2022, 2023, 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips
Napa	2022	HHDT	Aggregate	Aggregate	Diesel	1062.456744	114944.1524	10519.59168

NOx_RUNEX	NOx_IDLEX	NOx_STREX
3.71079858	58.258309	2.163947368

PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
0.034282869	0.042863994	0	0.008801786	0.025877251

PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW
0.035832989	0.044802113	0	0.035207144	0.060380252

CO2_RUNEX	CO2_IDLEX	CO2_STREX
1512.83886	10480.00175	0

CH4_RUNEX	CH4_IDLEX	CH4_STREX
0.004049099	0.191661502	0

N2O_RUNEX	N2O_IDLEX	N2O_STREX
0.237797201	1.647310332	0

ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
0.087175994	4.12641958	0	0	0	0	0

TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_RESTLOSS	TOG_DIURN
0.099243233	4.697614584	0	0	0	0	0

CO_RUNEX	CO_IDLEX	CO_STREX
0.375497441	55.43817182	0

SOx_RUNEX	SOx_IDLEX	SOx_STREX
0.014292551	0.09900986	0

EMFAC2017 Default Values and Project Values Based on Daily Truck Trips in W-Trans Traffic Impact Study				
	Vehicle Miles Traveled (VMT)	VMT Proportion	Vehicle Population	Vehicle Trips
EMFAC2017 Default County Estimates:	114,944.15	100.00%	1,062	10,520
Project Estimates:	10,366.35	9.02%	118	236

NO_X Emissions Summary	
Daily NO_X Emissions (pounds):	**101.06**
Daily NO_X Emissions (tons):	**0.05**
Grams to Pounds Conversion:	453.592 g/lb

	NOx_RUNEX (gram/mile)	NOx_IDLEX (gram/vehicle)	NOx_STREX (gram/trip)	NOx_RUNEX (grams)	NOx_IDLEX (grams)	NOx_STREX (grams)
	3.71079858	58.258309	2.163947368	38,467.44	6,862.80	509.82
Totals	-	-	-	**38,467.44**	**6,862.80**	**509.82**
		Subtotals (pounds):		84.81	15.13	1.12
		Daily NO_X Emissions (pounds):		**101.06**		

$PM_{2.5}$ Emissions Summary	
Daily $PM_{2.5}$ Emissions (pounds):	**1.59**
Daily $PM_{2.5}$ Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM2.5_RUNEX (grams/mile)	PM2.5_IDLEX (grams/vehicle)	PM2.5_STREX (grams/trip)	PM2.5_PMTW (grams/mile)	PM2.5_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.034282869	0.042863994	0	0.008801786	0.025877251	355.39	5.05	-	91.24	268.25
Totals	-	-	-	-	-	**355.39**	**5.05**	**-**	**91.24**	**268.25**
				Subtotals (pounds):		0.78	0.01	-	0.20	0.59
				Daily $PM_{2.5}$ Emissions (pounds):		**1.59**				

PM_{10} Emissions Summary	
Daily PM_{10} Emissions (pounds):	**3.02**
Daily PM_{10} Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM10_RUNEX (grams/mile)	PM10_IDLEX (grams/vehicle)	PM10_STREX (grams/trip)	PM10_PMTW (grams/mile)	PM10_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.035832989	0.044802113	0	0.035207144	0.060380252	371.46	5.28	-	364.97	625.92
Totals	-	-	-	-	-	**371.46**	**5.28**	**-**	**364.97**	**625.92**
				Subtotals (pounds):		0.82	0.01	-	0.80	1.38
				Daily PM_{10} Emissions (pounds):		**3.02**				

CO_2 Emissions Summary	
Daily CO_2 Emissions (pounds):	**37,295.98**
Daily CO_2 Emissions (metric tons):	**16.92**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CO2_RUNEX (grams/mile)	CO2_IDLEX (grams/vehicle)	CO2_STREX (grams/trip)	CO2_RUNEX (grams)	CO2_IDLEX (grams)	CO2_STREX (grams)
	1512.83886	10480.00175	0	15,682,618.20	1,234,538.34	-
Totals	-	-	-	**15682618.2**	**1234538.337**	**0**
			Subtotals (pounds):	34,574.28	2,721.69	-
			Daily CO_2 Emissions (pounds):	**37,295.98**		

CH_4 Emissions Summary	
Daily CH_4 Emissions (pounds):	**0.14**
Daily CH_4 Emissions (metric tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CH4_RUNEX (grams/mile)	CH4_IDLEX (grams/vehicle)	CH4_STREX (grams/trip)	CH4_RUNEX (grams)	CH4_IDLEX (grams)	CH4_STREX (grams)
	0.004049099	0.191661502	0	41.97	22.58	-
Totals	-	-	-	**41.9743816**	**22.57761761**	**0**
			Subtotals (pounds):	0.09	0.05	-
			Daily CH_4 Emissions (pounds):	**0.14**		

ROG Emissions Summary	
Daily ROG Emissions (pounds):	**3.06**
Daily ROG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	ROG_RUNEX (grams/mile)	ROG_IDLEX (grams/vehicle)	ROG_STREX (grams/trip)	ROG_HOTSOAK (grams/trip)	ROG_RUNLOSS (grams/trip)	ROG_RESTLOSS (grams/vehicle)	ROG_DIURN (grams/vehicle)	ROG_RUNEX (grams)	ROG_IDLEX (grams)	ROG_STREX (grams)	ROG_HOTSOAK (grams)	ROG_RUNLOSS (grams)	ROG_RESTLOSS (grams)	ROG_DIURN (grams)
	0.087175994	4.12641958	0	0	0	0	0	903.70	486.09	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**903.70**	**486.09**	-	-	-	-	-
						Subtotals (pounds):		1.99	1.07	-	-	-	-	-
						Daily ROG Emissions (pounds):		**3.06**						

TOG Emissions Summary	
Daily TOG Emissions (pounds):	**3.49**
Daily TOG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	TOG_RUNEX (grams/mile)	TOG_IDLEX (grams/vehicle)	TOG_STREX (grams/trip)	TOG_HOTSOAK (grams/trip)	TOG_RUNLOSS (grams/trip)	TOG_RESTLOSS (grams/vehicle)	TOG_DIURN (grams/vehicle)	TOG_RUNEX (grams)	TOG_IDLEX (grams)	TOG_STREX (grams)	TOG_HOTSOAK (grams)	TOG_RUNLOSS (grams)	TOG_RESTLOSS (grams)	TOG_DIURN (grams)
	0.099243233	4.697614584	0	0	0	0	0	1,028.79	553.38	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**1,028.79**	**553.38**	-	-	-	-	-
						Subtotals (pounds):		2.27	1.22	-	-	-	-	-
						Daily TOG Emissions (pounds):		**3.49**						

CO Emissions Summary	
Daily CO Emissions (pounds):	**22.98**
Daily CO Emissions (tons):	**0.01**
Grams to Pounds Conversion:	453.592 g/lb

	CO_RUNEX (grams/mile)	CO_IDLEX (grams/vehicle)	CO_STREX (grams/trip)	CO_RUNEX (grams)	CO_IDLEX (grams)	CO_STREX (grams)	
	0.375497441	55.43817182	0	3,892.54	6,530.59	-	
Totals	-	-	-	**3892.538171**	**6530.585596**		**0**
			Subtotals (pounds):	8.58	14.40	-	
			Daily CO Emissions (pounds):	**22.98**			

SO_x Emissions Summary	
Daily SO_x Emissions (pounds):	**0.35**
Daily SO_x Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	SOx_RUNEX (grams/mile)	SOx_IDLEX (grams/vehicle)	SOx_STREX (grams/trip)	SOx_RUNEX (grams)	SOx_IDLEX (grams)	SOx_STREX (grams)	
	0.014292551	0.09900986	0	148.16	11.66	-	
Totals	-	-	-	**148.1616006**	**11.66330607**		**0**
			Subtotals (pounds):	0.33	0.03	-	
			Daily SO_x Emissions (pounds):	**0.35**			

N_2O Emissions Summary	
Daily N_2O Emissions (pounds):	**5.86**
Daily N_2O Emissions (metric tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	N2O_RUNEX (grams/mile)	N2O_IDLEX (grams/vehicle)	N2O_STREX (grams/trip)	N2O_RUNEX (grams)	N2O_IDLEX (grams)	N2O_STREX (grams)	
	0.237797201	1.647310332	0	2,465.09	194.05	-	
Totals	-	-	-	**2465.089188**	**194.0522346**		**0**
			Subtotals (pounds):	5.43	0.43	-	
			Daily N_2O Emissions (pounds):	**5.86**			

Phase 1 Transport Refrigeration Unit Emissions

TRU Assumptions

Phase 1 Truck Population:	118		
Average One-Way Daily Truck Trips:[1]	528		
Phase 1 Proportion of Building Space:	44.62%		
Hours On-site:[2]	4	Hours/Day	2 hours unloading, 2 hours loading.
Hours Off-site:	2	Hours/Day	1 hours to, 1 hours from project site when traveling to/from Port of Oakland.

Emission Factors:[3]

PM10	0.7074	g/hr
PM2.5	0.6508	g/hr
NOx	48.8620	g/hr
CO	71.0800	g/hr
ROG	5.6876	g/hr
SOx	0.0108	g/hr
CO2	1177.8485	g/hr

TRU Emissions Analysis:

Total On-Site Operation:	171,987	Hours/Year
Total Off-Site Operation:	85,994	Hours/Year

Emission Estimates Across Entire Project

	On-Site	Off-Site	Total	Metric
PM10	0.13	0.07	0.20	US Tons/Year
PM2.5	0.12	0.06	0.19	US Tons/Year
NOx	9.26	4.63	13.90	US Tons/Year
CO	13.48	6.74	20.21	US Tons/Year
ROG	1.08	0.54	1.62	US Tons/Year
SOx	0.00	0.00	0.00	US Tons/Year
CO2	223.30	111.65	334.95	Metric Tons/Year

Sources:

1 W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

2 California Air Resources Board (ARB). 2021. Appendix I Health Analyses: Transport Refrigeration Units. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/appi.pdf. Accessed August 17, 2021.

3 California Air Resources Board (ARB). 2021. OFFROAD2017 (v1.0.1) Emissions Inventory, Napa County, Calendar Year 2022, All Adopted Rules - Exhaust, TRU - Instate Trailers, TRU - Instate Truck, TRU - Instate Van, TRU - Instate Genset, TRU - Out-of-State Genset, TRU - Out-of-State Trailer, Aggregated Model Year, 25 & 50 Horsepower, Diesel Fuel Type. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Accessed August 17, 2021.

Phase 2 Truck Emissions Summary

Air Pollutant	Daily Mass Emissions (pounds)	Daily Mass Emissions (tons)	Annual Mass Emissions (tons)
Nitrogen Oxides (NO_X)	99.00	0.05	18.07
Particulate Matter, aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$)	1.65	0.00	0.30
Particulate Matter, aerodynamic diameter of 10 microns or less (PM_{10})	3.41	0.00	0.62
Reactive Organic Gases (ROG)	2.00	0.00	0.37
Total Organic Gases (TOG)	2.28	0.00	0.42
Carbon Monoxide (CO)	25.76	0.01	4.70
Sulfur Oxides (SO_X)	0.42	0.00	0.08
Carbon Dioxide Equivalent (CO_2e)	44,141.86	20.02	7,308.19

Note: CO_2e values are expressed in pounds per day and metric tons per year.

Average One-Way Daily Truck Trips:[1]	528
Phase 2 Proportion of Building Space:	55.38%
Truck Population:	146
Assumed Travel Distance (miles):	32.8

Sources:

[1] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Phase 2 Trucking GHG Emissions and Global Warming Potentials

Climate Forcing Pollutants	100-Year Global Warming Potentials[1]	Daily Mobile Emissions (pounds)	Carbon Dioxide Equivalent (CO_2e)
Methane (CH_4)	298	0.09	27.74
Nitrous Oxide (N_2O)	25	6.91	172.67
Carbon Dioxide (CO_2)	1	43,941.45	43,941.45
	Total Daily CO_2e (pounds):		**44,141.86**
	Total Daily CO_2e (metric tons):		**20.02**

Sources:

[1] Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Website: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed November 19, 2020.

[2] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Napa
Calendar Year: 2022, 2023, 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips
Napa	2023	HHDT	Aggregate	Aggregate	Diesel	1079.072009	117467.5861	10669.54154

NOx_RUNEX	NOx_IDLEX	NOx_STREX
2.828086503	53.28520118	2.501352634

PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
0.023273558	0.029423365	0	0.008807966	0.02589542

PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW
0.024325885	0.030753759	0	0.035231864	0.060422646

CO2_RUNEX	CO2_IDLEX	CO2_STREX
1434.649852	10080.58075	0

CH4_RUNEX	CH4_IDLEX	CH4_STREX
0.001126148	0.189735158	0

N2O_RUNEX	N2O_IDLEX	N2O_STREX
0.225506978	1.584526914	0

ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
0.024245657	4.084945925	0	0	0	0	0

TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_RESTLOSS	TOG_DIURN
0.027601835	4.650399984	0	0	0	0	0

CO_RUNEX	CO_IDLEX	CO_STREX
0.234776774	59.25383204	0

SOx_RUNEX	SOx_IDLEX	SOx_STREX
0.01355386	0.095236329	0

EMFAC2017 Default Values and Project Values Based on Daily Truck Trips in W-Trans Traffic Impact Study				
	Vehicle Miles Traveled (VMT)	VMT Proportion	Vehicle Population	Vehicle Trips
EMFAC2017 Default County Estimates:	117,467.59	100.00%	1,079	10,670
Project Estimates:	12,865.65	10.95%	146	292

NO_X Emissions Summary	
Daily NO_X Emissions (pounds):	**99.00**
Daily NO_X Emissions (tons):	**0.05**
Grams to Pounds Conversion:	453.592 g/lb

	NOx_RUNEX (gram/mile)	NOx_IDLEX (gram/vehicle)	NOx_STREX (gram/trip)	NOx_RUNEX (grams)	NOx_IDLEX (grams)	NOx_STREX (grams)
	2.828086503	53.28520118	2.501352634	36,385.17	7,790.33	731.40
Totals	-	-	-	**36,385.17**	**7,790.33**	**731.40**
		Subtotals (pounds):		80.22	17.17	1.61
		Daily NO_X Emissions (pounds):		**99.00**		

$PM_{2.5}$ Emissions Summary	
Daily $PM_{2.5}$ Emissions (pounds):	**1.65**
Daily $PM_{2.5}$ Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM2.5_RUNEX (grams/mile)	PM2.5_IDLEX (grams/vehicle)	PM2.5_STREX (grams/trip)	PM2.5_PMTW (grams/mile)	PM2.5_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.023273558	0.029423365	0	0.008807966	0.02589542	299.43	4.30	-	113.32	333.16
Totals	-	-	-	-	-	**299.43**	**4.30**	**-**	**113.32**	**333.16**
				Subtotals (pounds):		0.66	0.01	-	0.25	0.73
				Daily $PM_{2.5}$ Emissions (pounds):		**1.65**				

PM_{10} Emissions Summary	
Daily PM_{10} Emissions (pounds):	**3.41**
Daily PM_{10} Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM10_RUNEX (grams/mile)	PM10_IDLEX (grams/vehicle)	PM10_STREX (grams/trip)	PM10_PMTW (grams/mile)	PM10_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.024325885	0.030753759	0	0.035231864	0.060422646	312.97	4.50	-	453.28	777.38
Totals	-	-	-	-	-	**312.97**	**4.50**	**-**	**453.28**	**777.38**
				Subtotals (pounds):		0.69	0.01	-	1.00	1.71
				Daily PM_{10} Emissions (pounds):		**3.41**				

CO_2 Emissions Summary	
Daily CO_2 Emissions (pounds):	**43,941.45**
Daily CO_2 Emissions (metric tons):	**19.93**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CO2_RUNEX (grams/mile)	CO2_IDLEX (grams/vehicle)	CO2_STREX (grams/trip)	CO2_RUNEX (grams)	CO2_IDLEX (grams)	CO2_STREX (grams)
	1434.649852	10080.58075	0	18,457,701.83	1,473,786.55	-
Totals	-	-	-	**18457701.83**	**1473786.551**	**0**
			Subtotals (pounds):	40,692.30	3,249.15	-
			Daily CO_2 Emissions (pounds):	**43,941.45**		

CH_4 Emissions Summary	
Daily CH_4 Emissions (pounds):	**0.09**
Daily CH_4 Emissions (metric tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CH4_RUNEX (grams/mile)	CH4_IDLEX (grams/vehicle)	CH4_STREX (grams/trip)	CH4_RUNEX (grams)	CH4_IDLEX (grams)	CH4_STREX (grams)
	0.001126148	0.189735158	0	14.49	27.74	-
Totals	-	-	-	**14.48862476**	**27.73938637**	**0**
			Subtotals (pounds):	0.03	0.06	-
			Daily CH_4 Emissions (pounds):	**0.09**		

ROG Emissions Summary	
Daily ROG Emissions (pounds):	**2.00**
Daily ROG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	ROG_RUNEX (grams/mile)	ROG_IDLEX (grams/vehicle)	ROG_STREX (grams/trip)	ROG_HOTSOAK (grams/trip)	ROG_RUNLOSS (grams/trip)	ROG_RESTLOSS (grams/vehicle)	ROG_DIURN (grams/vehicle)	ROG_RUNEX (grams)	ROG_IDLEX (grams)	ROG_STREX (grams)	ROG_HOTSOAK (grams)	ROG_RUNLOSS (grams)	ROG_RESTLOSS (grams)	ROG_DIURN (grams)
	0.024245657	4.084945925	0	0	0	0	0	311.94	597.22	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**311.94**	**597.22**	-	-	-	-	-
							Subtotals (pounds):	0.69	1.32	-	-	-	-	-
							Daily ROG Emissions (pounds):	**2.00**						

TOG Emissions Summary	
Daily TOG Emissions (pounds):	**2.28**
Daily TOG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	TOG_RUNEX (grams/mile)	TOG_IDLEX (grams/vehicle)	TOG_STREX (grams/trip)	TOG_HOTSOAK (grams/trip)	TOG_RUNLOSS (grams/trip)	TOG_RESTLOSS (grams/vehicle)	TOG_DIURN (grams/vehicle)	TOG_RUNEX (grams)	TOG_IDLEX (grams)	TOG_STREX (grams)	TOG_HOTSOAK (grams)	TOG_RUNLOSS (grams)	TOG_RESTLOSS (grams)	TOG_DIURN (grams)
	0.027601835	4.650399984	0	0	0	0	0	355.12	679.89	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**355.12**	**679.89**	-	-	-	-	-
							Subtotals (pounds):	0.78	1.50	-	-	-	-	-
							Daily TOG Emissions (pounds):	**2.28**						

CO Emissions Summary	
Daily CO Emissions (pounds):	**25.76**
Daily CO Emissions (tons):	**0.01**
Grams to Pounds Conversion:	453.592 g/lb

	CO_RUNEX (grams/mile)	CO_IDLEX (grams/vehicle)	CO_STREX (grams/trip)	CO_RUNEX (grams)	CO_IDLEX (grams)	CO_STREX (grams)	
	0.234776774	59.25383204	0	3,020.56	8,662.94	-	
Totals	-	-	-	**3020.555635**	**8662.943426**		**0**
			Subtotals (pounds):	6.66	19.10	-	
			Daily CO Emissions (pounds):	**25.76**			

SO_x Emissions Summary	
Daily SO_x Emissions (pounds):	**0.42**
Daily SO_x Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	SOx_RUNEX (grams/mile)	SOx_IDLEX (grams/vehicle)	SOx_STREX (grams/trip)	SOx_RUNEX (grams)	SOx_IDLEX (grams)	SOx_STREX (grams)	
	0.01355386	0.095236329	0	174.38	13.92	-	
Totals	-	-	-	**174.3792148**	**13.92360456**		**0**
			Subtotals (pounds):	0.38	0.03	-	
			Daily SO_x Emissions (pounds):	**0.42**			

N_2O Emissions Summary	
Daily N_2O Emissions (pounds):	**6.91**
Daily N_2O Emissions (metric tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	N2O_RUNEX (grams/mile)	N2O_IDLEX (grams/vehicle)	N2O_STREX (grams/trip)	N2O_RUNEX (grams)	N2O_IDLEX (grams)	N2O_STREX (grams)	
	0.225506978	1.584526914	0	2,901.29	231.66	-	
Totals	-	-	-	**2901.29369**	**231.6587222**		**0**
			Subtotals (pounds):	6.40	0.51	-	
			Daily N_2O Emissions (pounds):	**6.91**			

Phase 2 Transport Refrigeration Unit Emissions

TRU Assumptions

Phase 2 Truck Population:	146		
Average One-Way Daily Truck Trips:[1]	528		
Phase 2 Proportion of Building Space:	55.38%		
Hours On-site:[2]	4	Hours/Day	2 hours unloading, 2 hours loading.
Hours Off-site:	2	Hours/Day	1 hours to, 1 hours from project site when traveling to/from Port of Oakland.

Emission Factors:[3]

PM10	0.6519	g/hr
PM2.5	0.5997	g/hr
NOx	48.8901	g/hr
CO	73.2068	g/hr
ROG	5.9321	g/hr
SOx	0.0108	g/hr
CO2	1177.5548	g/hr

TRU Emissions Analysis:

Total On-Site Operation:	213,453	Hours/Year
Total Off-Site Operation:	106,726	Hours/Year

Emission Estimates Across Entire Project

	On-Site	Off-Site	Total	Metric
PM10	0.15	0.08	0.23	US Tons/Year
PM2.5	0.14	0.07	0.21	US Tons/Year
NOx	11.50	5.75	17.26	US Tons/Year
CO	17.22	8.61	25.84	US Tons/Year
ROG	1.40	0.70	2.09	US Tons/Year
SOx	0.00	0.00	0.00	US Tons/Year
CO2	277.07	138.53	415.60	Metric Tons/Year

Sources:

1 W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

2 California Air Resources Board (ARB). 2021. Appendix I Health Analyses: Transport Refrigeration Units. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/appi.pdf. Accessed August 17, 2021.

3 California Air Resources Board (ARB). 2021. OFFROAD2017 (v1.0.1) Emissions Inventory, Napa County, Calendar Year 2023, All Adopted Rules - Exhaust, TRU - Instate Trailers, TRU - Instate Truck, TRU - Instate Van, TRU - Instate Genset, TRU - Out-of-State Genset, TRU - Out-of-State Trailer, Aggregated Model Year, 25 & 50 Horsepower, Diesel Fuel Type. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Accessed August 17, 2021.

Total 2030 Transport Refrigeration Unit Emissions

TRU Assumptions

Phase 1 Truck Population:	264		
Average One-Way Daily Truck Trips:[1]	528		
Phase 1 Proportion of Building Space:	44.62%		
Phase 2 Proportion of Building Space:	55.38%		
Hours On-site:[2]	4	Hours/Day	2 hours unloading, 2 hours loading.
Hours Off-site:	2	Hours/Day	1 hours to, 1 hours from project site when traveling to/from Port of Oakland.

Emission Factors:[3]

PM10	0.4376	g/hr
PM2.5	0.4026	g/hr
NOx	48.0910	g/hr
CO	76.3297	g/hr
ROG	6.2614	g/hr
SOx	0.0108	g/hr
CO2	1176.2244	g/hr

TRU Emissions Analysis:

Total On-Site Operation:	385,440	Hours/Year
Total Off-Site Operation:	192,720	Hours/Year

Emission Estimates Across Entire Project

	On-Site	Off-Site	Total	Metric
PM10	0.19	0.09	0.28	US Tons/Year
PM2.5	0.17	0.09	0.26	US Tons/Year
NOx	20.43	10.22	30.65	US Tons/Year
CO	32.43	16.22	48.65	US Tons/Year
ROG	2.66	1.33	3.99	US Tons/Year
SOx	0.00	0.00	0.01	US Tons/Year
CO2	499.75	249.87	749.62	Metric Tons/Year

Sources:

1 W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

2 California Air Resources Board (ARB). 2021. Appendix I Health Analyses: Transport Refrigeration Units. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/appi.pdf. Accessed August 17, 2021.

3 California Air Resources Board (ARB). 2021. OFFROAD2017 (v1.0.1) Emissions Inventory, Solano County, Calendar Year 2023, All Adopted Rules - Exhaust, TRU - Instate Trailers, TRU - Instate Truck, TRU - Instate Van, TRU - Instate Genset, TRU - Out-of-State Genset, TRU - Out-of-State Trailer, Aggregated Model Year, 25 & 50 Horsepower, Diesel Fuel Type. Website: https://ww3.arb.ca.gov/board/rulemaking/tru2021/apph.pdf. Accessed August 17, 2021.

2014 Model Year Truck Emissions Summary
(MM AIR-2d)

Air Pollutant	Daily Mass Emissions (pounds)	Daily Mass Emissions (tons)	Annual Mass Emissions (tons)	Phase 1 Annual Emissions (tons)	Phase 2 Annual Emissions (tons)
Nitrogen Oxides (NO_X)	174.94	0.09	31.93	14.25	17.68
Particulate Matter, aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$)	3.04	0.00	0.56	0.25	0.31
Particulate Matter, aerodynamic diameter of 10 microns or less (PM_{10})	6.18	0.00	1.13	0.50	0.62
Reactive Organic Gases (ROG)	3.67	0.00	0.67	0.30	0.37
Total Organic Gases (TOG)	4.18	0.00	0.76	0.34	0.42
Carbon Monoxide (CO)	49.97	0.02	9.12	4.07	5.05
Sulfur Oxides (SO_X)	0.75	0.00	0.14	0.06	0.08
Carbon Dioxide Equivalent (CO_2e)	79,580.15	36.10	13,175.40	5,879.00	7,296.41

Note: CO_2e values are expressed in pounds per day and metric tons per year.

Average One-Way Daily Truck Trips:[1]	528
Truck Population:	264
Assumed Travel Distance (miles):	32.8
Phase 1 Proportion of Building Space:	44.62%
Phase 2 Proportion of Building Space:	55.38%

Sources:

[1] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

GHG Emissions and Global Warming Potentials

Climate Forcing Pollutants	100-Year Global Warming Potentials[1]	Daily Mobile Emissions (pounds)	Carbon Dioxide Equivalent (CO_2e)
Methane (CH_4)	298	0.17	50.86
Nitrous Oxide (N_2O)	25	12.45	311.30
Carbon Dioxide (CO_2)	1	79,217.99	79,217.99
		Total Daily CO_2e (pounds):	**79,580.15**
		Total Daily CO_2e (metric tons):	**36.10**

Sources:

[1] Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Website: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed November 19, 2020.

[2] W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Napa
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips
Napa	2022	HHDT	2014	Aggregate	Diesel	74.89138258	8761.846792	849.1717934

NOx_RUNEX	NOx_IDLEX	NOx_STREX
2.778844551	50.80636429	2.613874323

PM2.5_RUNEX	PM2.5_IDLEX	PM2.5_STREX	PM2.5_PMTW	PM2.5_PMBW
0.025035437	0.017506165	0	0.008675647	0.025506401

PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW
0.026167428	0.018297716	0	0.034702587	0.059514936

CO2_RUNEX	CO2_IDLEX	CO2_STREX
1426.726851	10556.5423	0

CH4_RUNEX	CH4_IDLEX	CH4_STREX
0.001063029	0.199698455	0

N2O_RUNEX	N2O_IDLEX	N2O_STREX
0.224261593	1.65934144	0

ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
0.022886715	4.299452976	0	0	0	0	0

TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSOAK	TOG_RUNLOSS	TOG_RESTLOSS	TOG_DIURN
0.026054783	4.894599933	0	0	0	0	0

CO_RUNEX	CO_IDLEX	CO_STREX
0.253787136	63.52794194	0

SOx_RUNEX	SOx_IDLEX	SOx_STREX
0.013479008	0.099732977	0

EMFAC2017 Default Values and Project Values Based on Daily Truck Trips in W-Trans Traffic Impact Study				
	Vehicle Miles Traveled (VMT)	VMT Proportion	Vehicle Population	Vehicle Trips
EMFAC2017 Default County Estimates:	8,761.85	100.00%	75	849
Project Estimates:	23,232.00	265.15%	264	528

NO_X Emissions Summary	
Daily NO_X Emissions (pounds):	**174.94**
Daily NO_X Emissions (tons):	**0.09**
Grams to Pounds Conversion:	453.592 g/lb

	NOx_RUNEX (gram/mile)	NOx_IDLEX (gram/vehicle)	NOx_STREX (gram/trip)	NOx_RUNEX (grams)	NOx_IDLEX (grams)	NOx_STREX (grams)
	2.778844551	50.80636429	2.613874323	64,558.12	13,412.88	1,380.13
Totals	-	-	-	**64,558.12**	**13,412.88**	**1,380.13**
			Subtotals (pounds):	142.33	29.57	3.04
			Daily NO_X Emissions (pounds):	**174.94**		

$PM_{2.5}$ Emissions Summary	
Daily $PM_{2.5}$ Emissions (pounds):	**3.04**
Daily $PM_{2.5}$ Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM2.5_RUNEX (grams/mile)	PM2.5_IDLEX (grams/vehicle)	PM2.5_STREX (grams/trip)	PM2.5_PMTW (grams/mile)	PM2.5_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.025035437	0.017506165	0	0.008675647	0.025506401	581.62	4.62	-	201.55	592.56
Totals	-	-	-	-	-	**581.62**	**4.62**	**-**	**201.55**	**592.56**
				Subtotals (pounds):		1.28	0.01	-	0.44	1.31
				Daily $PM_{2.5}$ Emissions (pounds):		**3.04**				

PM_{10} Emissions Summary	
Daily PM_{10} Emissions (pounds):	**6.18**
Daily PM_{10} Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	PM10_RUNEX (grams/mile)	PM10_IDLEX (grams/vehicle)	PM10_STREX (grams/trip)	PM10_PMTW (grams/mile)	PM10_PMBW (grams/mile)	PM2.5_RUNEX (grams)	PM2.5_IDLEX (grams)	PM2.5_STREX (grams)	PM2.5_PMTW (grams)	PM2.5_PMBW (grams)
	0.026167428	0.018297716	0	0.034702587	0.059514936	607.92	4.83	-	806.21	1,382.65
Totals	-	-	-	-	-	**607.92**	**4.83**	**-**	**806.21**	**1,382.65**
				Subtotals (pounds):		1.34	0.01	-	1.78	3.05
				Daily PM_{10} Emissions (pounds):		**6.18**				

CO_2 Emissions Summary	
Daily CO_2 Emissions (pounds):	**79,217.99**
Daily CO_2 Emissions (metric tons):	**35.93**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CO2_RUNEX (grams/mile)	CO2_IDLEX (grams/vehicle)	CO2_STREX (grams/trip)	CO2_RUNEX (grams)	CO2_IDLEX (grams)	CO2_STREX (grams)
	1426.726851	10556.5423	0	33,145,718.19	2,786,927.17	-
Totals	-	-	-	**33145718.19**	**2786927.166**	**0**
			Subtotals (pounds):	73,073.86	6,144.13	-
			Daily CO_2 Emissions (pounds):	**79,217.99**		

CH_4 Emissions Summary	
Daily CH_4 Emissions (pounds):	**0.17**
Daily CH_4 Emissions (metric tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	CH4_RUNEX (grams/mile)	CH4_IDLEX (grams/vehicle)	CH4_STREX (grams/trip)	CH4_RUNEX (grams)	CH4_IDLEX (grams)	CH4_STREX (grams)
	0.001063029	0.199698455	0	24.70	52.72	-
Totals	-	-	-	**24.69628157**	**52.72039213**	**0**
			Subtotals (pounds):	0.05	0.12	-
			Daily CH_4 Emissions (pounds):	**0.17**		

ROG Emissions Summary	
Daily ROG Emissions (pounds):	**3.67**
Daily ROG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	ROG_RUNEX (grams/mile)	ROG_IDLEX (grams/vehicle)	ROG_STREX (grams/trip)	ROG_HOTSOAK (grams/trip)	ROG_RUNLOSS (grams/trip)	ROG_RESTLOSS (grams/vehicle)	ROG_DIURN (grams/vehicle)	ROG_RUNEX (grams)	ROG_IDLEX (grams)	ROG_STREX (grams)	ROG_HOTSOAK (grams)	ROG_RUNLOSS (grams)	ROG_RESTLOSS (grams)	ROG_DIURN (grams)
	0.022886715	4.299452976	0	0	0	0	0	531.70	1,135.06	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**531.70**	**1,135.06**	-	-	-	-	-
							Subtotals (pounds):	1.17	2.50	-	-	-	-	-
							Daily ROG Emissions (pounds):	**3.67**						

TOG Emissions Summary	
Daily TOG Emissions (pounds):	**4.18**
Daily TOG Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	TOG_RUNEX (grams/mile)	TOG_IDLEX (grams/vehicle)	TOG_STREX (grams/trip)	TOG_HOTSOAK (grams/trip)	TOG_RUNLOSS (grams/trip)	TOG_RESTLOSS (grams/vehicle)	TOG_DIURN (grams/vehicle)	TOG_RUNEX (grams)	TOG_IDLEX (grams)	TOG_STREX (grams)	TOG_HOTSOAK (grams)	TOG_RUNLOSS (grams)	TOG_RESTLOSS (grams)	TOG_DIURN (grams)
	0.026054783	4.894599933	0	0	0	0	0	605.30	1,292.17	-	-	-	-	-
Totals	-	-	-	-	-	-	-	**605.30**	**1,292.17**	-	-	-	-	-
							Subtotals (pounds):	1.33	2.85	-	-	-	-	-
							Daily TOG Emissions (pounds):	**4.18**						

CO Emissions Summary	
Daily CO Emissions (pounds):	**49.97**
Daily CO Emissions (tons):	**0.02**
Grams to Pounds Conversion:	453.592 g/lb

	CO_RUNEX (grams/mile)	CO_IDLEX (grams/vehicle)	CO_STREX (grams/trip)	CO_RUNEX (grams)	CO_IDLEX (grams)	CO_STREX (grams)	
	0.253787136	63.52794194	0	5,895.98	16,771.38	-	
Totals	-	-	-	**5895.982733**	**16771.37667**		**0**
			Subtotals (pounds):	13.00	36.97	-	
			Daily CO Emissions (pounds):	**49.97**			

SO_x Emissions Summary	
Daily SO_x Emissions (pounds):	**0.75**
Daily SO_x Emissions (tons):	**0.00**
Grams to Pounds Conversion:	453.592 g/lb

	SOx_RUNEX (grams/mile)	SOx_IDLEX (grams/vehicle)	SOx_STREX (grams/trip)	SOx_RUNEX (grams)	SOx_IDLEX (grams)	SOx_STREX (grams)	
	0.013479008	0.099732977	0	313.14	26.33	-	
Totals	-	-	-	**313.1443103**	**26.32950598**		**0**
			Subtotals (pounds):	0.69	0.06	-	
			Daily SO_x Emissions (pounds):	**0.75**			

N_2O Emissions Summary	
Daily N_2O Emissions (pounds):	**12.45**
Daily N_2O Emissions (metric tons):	**0.01**
Grams to Pounds Conversion:	453.592 g/lb
Pounds to Metric Tons Conversion:	2204.62 lbs/MT

	N2O_RUNEX (grams/mile)	N2O_IDLEX (grams/vehicle)	N2O_STREX (grams/trip)	N2O_RUNEX (grams)	N2O_IDLEX (grams)	N2O_STREX (grams)	
	0.224261593	1.65934144	0	5,210.05	438.07	-	
Totals	-	-	-	**5210.045319**	**438.0661403**		**0**
			Subtotals (pounds):	11.49	0.97	-	
			Daily N_2O Emissions (pounds):	**12.45**			

Locomotive Emission Estimations

Line-Haul Locomotive Energy Intensity[1]
(Forecasted for 2020 Performance, All Freight Rail Operations)
260 Btu/Ton-Mile

Maximum Allowable Ton-Miles per Month
500,000 Ton-Miles

Line-Haul Locomotive Energy Intensity
130,000,000 Btu

Line-Haul Locomotive Emission Rates[1]			
(Forecasted for 2020 Performance, Tier Share-Weighted)			
Grams of Pollutant per Million Btu			
NO_X	CO	HC	PM
976	401	81	24

Line-Haul Fuel Use[2]	
929.47	Ton-Miles/Gallon of Locomotive Diesel

Locomotive Diesel Fuel GHG Emission Factors[2]	
Grams per Gallon of Locomotive Diesel	
CO_2	10,150
N_2O	0.26
CH_4	0.8

GHGs to CO_2e Conversion Rates[3]	
CO_2	1
N_2O	25
CH_4	298

Annual Criteria Pollutant Emissions				Annual GHG Emissions			
NO_X	CO	HC	PM ($PM_{2.5}$ Exhaust)	CO_2	N_2O	CH_4	CO_2e
Grams				Grams			Grams
1,522,560	625,560	126,360	37,440	65,521,211	1,678	5,164	67,102,112
Pounds (lbs.)				Pounds (lbs.)			lbs.
3,357	1,379	279	83	144,450	4	11	144,450
Tons				Metric Tons (MT)			MT
1.68	0.69	0.14	0.04	65.52	0.00	0.01	66

Average Daily Criteria Pollutant Emissions				Average Daily GHG Emissions			
NO_X	CO	HC	PM ($PM_{2.5}$ Exhaust)	CO_2	N_2O	CH_4	CO_2e
Grams				Grams			Grams
4,171	1,714	346	103	179,510	5	14	179,510
Pounds (lbs.)				Pounds (lbs.)			lbs.
9	4	1	0	396	0	0	396
Tons				Metric Tons (MT)			MT
0.00	0.00	0.00	0.00	0.18	0.00	0.00	0

Notes:

Conversion rate of 1 pound for every 453.592 grams was utilized in these calculations.

Conversion rate of 1 ton for every 2,000 pounds was utilized in these calculations.

Conversion rate of 1 metric ton for every 2,204.62 pounds was utilized in these calculations.

Sources:

1. United States Department of Transportation, Federal Railroad Administration. 2018. Railroad Energy Intensity and Criteria Air Pollutant Emissions. October.

2. United States Environmental Protection Agency. 2012. Locomotive Emission Inventories for the United States from ERTAC Rail.

3. Intergovernmental Panel on Climate Change (IPCC). 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Website: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed July 27, 2021.

Transport Refrigerated Units - Fugitive Refrigerants

TRU Population:[1]	264	TRUs
Potential System Capacity:[2]	8	kg
Operating Emission Factor:[2]	8%	of total capacity per year

Refrigerant GWP Limit:	None
Typical Refrigerant Used:[3]	R-404A
GWP of Typical Refrigerant:[3]	3,922

Phase 1 Proportion of Building Space:	44.62%
Phase 2 Proportion of Building Space:	55.38%

Operating Emissions

Phase 1:	295.69	MT CO2e/year
Phase 2:	366.98	MT CO2e/year
Total:	662.66	MT CO2e/year

Cold Storage - Fugitive Refrigerants

Potential System Capacity:[2]	10,000	kg
Installation Emission Factor:[2]	1%	of total capacity
Operating Emission Factor:[2]	8%	of total capacity per year

Refrigerant GWP Limit:[4]	150
Typical Refrigerant Used:	N/A
GWP of Typical Refrigerant:	150

Installation Emissions	**Operating Emissions**
15 MT CO2e	120 MT CO2e/year

Note: the 150 GWP limit required under the ARB's Refrigerant Management Program only applies to systems with a capacity of 50 lbs (or 22.7 kg) or greater. Given the size of the proposed project, it is assumed that the systems required for the project would add up to the maximum potential system size of 10,000 kg, falling within the parameters of this requirement.

Sources:

1 W-Trans. 2021. Traffic Impact Study for the Giovannoni Logistics Center. March 11.

2 United Nations Environment Programme. 2018. Cold Chain Technology Brief, Cold Storage and Refrigerated Warehouse. Website: http://www.foodcoldchain.org/wp-content/uploads/2019/03/Cold-Storage-and-Refrigerated-Warehouse.pdf. Accessed September 9, 2021.

3 United Nations Environment Programme. 2015. Fact Sheet 6: Transport Refrigeration. Website: https://ozone.unep.org/sites/default/files/2020-06/FS%206%20Transport%20Refrigeration%20final.pdf. Accessed September 9, 2021.

4 Air Resources Board (ARB). 2021. High-GWP Refrigerants. Website: https://ww2.arb.ca.gov/resources/documents/high-gwp-refrigerants. Accessed September 9, 2021.

Project Construction Emissions

Model File: Giovannoni Logistics Phase 1 Con - AIR-2a - Napa County, Annual
Timestamp: Date: 9/22/2021 7:14 PM
Model File: Giovannoni Logistics Phase 2 Con - AIR-2a - Napa County, Annual
Timestamp: Date: 9/22/2021 7:16 PM

Annual Construction Emissions (tons)

Year	Activity	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	CO_2e (Metric Tons)
	on site	0.00	0.02	0.00	0.00	0.00	0.00	3
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 1 Site Preparation**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3**
	on site	0.03	0.33	0.01	0.05	0.01	0.03	47
	off site	0.00	0.06	0.00	0.01	0.00	0.00	23
2022	**Phase 1 Grading**	**0.03**	**0.39**	**0.01**	**0.06**	**0.01**	**0.03**	**70**
	on site	0.14	1.31	0.07	0.07	0.06	0.06	196
	off site	0.39	2.69	0.03	0.92	0.03	0.27	1,395
	Fugitive Refrigerants (on site)	-	-	-	-	-	-	15
2022	**Phase 1 Building Construction**	**0.54**	**4.00**	**0.10**	**0.29**	**0.09**	**0.34**	**1,606**
	on site	0.05	0.06	0.00	0.00	0.00	0.00	11
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 1 Paving**	**0.05**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**12**
	on site	5.90	0.01	0.00	0.00	0.00	0.00	1
	off site	0.00	0.00	0.00	0.01	0.00	0.00	7
2022	**Phase 1 Architectural Coating**	**5.90**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**8**
	on site	0.00	0.02	0.00	0.00	0.00	0.00	3
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 2 Site Preparation**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3**
	on site	0.03	0.33	0.01	0.05	0.01	0.03	47
	off site	0.00	0.00	0.00	0.00	0.00	0.00	1
2022	**Phase 2 Grading**	**0.03**	**0.33**	**0.01**	**0.05**	**0.01**	**0.03**	**48**
	on site	0.02	0.19	0.01	0.01	0.01	0.01	28
	off site	0.08	0.51	0.01	0.17	0.01	0.05	266
	Fugitive Refrigerants (on site)	-	-	-	-	-	-	15
2022	**Phase 2 Building Construction**	**0.10**	**0.70**	**0.02**	**0.18**	**0.01**	**0.06**	**309**
	on site	0.11	1.03	0.05	0.05	0.05	0.05	167
	off site	0.36	2.40	0.02	1.02	0.02	0.29	1,523
2023	**Phase 2 Building Construction**	**0.47**	**3.42**	**0.07**	**1.07**	**0.06**	**0.34**	**1,690**
	on site	0.06	0.06	0.00	0.00	0.00	0.00	12
	off site	0.00	0.00	-	0.00	-	0.00	0
2023	**Phase 2 Paving**	**0.06**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**13**
	on site	7.32	0.01	0.00	0.00	0.00	0.00	2
	off site	0.01	0.00	0.00	0.01	0.00	0.00	9
2023	**Phase 2 Architectural Coating**	**7.32**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**11**
	Total On Site	**13.67**	**3.37**	**0.16**	**0.24**	**0.15**	**0.18**	**517**
	Total Off Site	**0.84**	**5.67**	**0.05**	**2.14**	**0.05**	**0.62**	**3,225**

*Note: All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-". Fugitive refrigerants are only displayed for cold storage project scenarios in the CEQA analysis.

Project Phase	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	CO_2e (Metric Tons)
on site	6.12	1.73	0.09	0.12	0.08	0.10	258
off site	0.40	2.75	0.03	0.93	0.03	0.28	1,425
Phase 1	**6.52**	**4.48**	**0.12**	**1.05**	**0.11**	**0.37**	**1,684**
on site	7.55	1.64	0.08	0.11	0.07	0.09	258
off site	0.44	2.91	0.02	1.21	0.02	0.35	1,800
Phase 2	**7.99**	**4.55**	**0.10**	**1.32**	**0.09**	**0.43**	**2,058**

Average Daily Construction Emissions (lbs/day)

	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Total Emissions (tons)	14.51	9.03	0.22	2.38	0.21	0.80
Total Emissions (lbs)	29,028.74	18,064.70	437.04	4,757.46	410.70	1,607.54
Average Daily Emissions (lbs/day)[1]	**67.98**	**42.31**	**1.02**	**11.14**	**0.96**	**3.76**
BAAQMD Significance Thresholds	54	54	82	N/A	54	N/A
Project Construction Exceeds Threshold?	**Yes**	**No**	**No**	**N/A**	**No**	**N/A**

Notes:
1. Total emissions (lbs) are divided by the total nonoverlapping construction workdays (427 days).

Project Construction Emissions

Model File: Giovannoni Logistics Phase 1 Con - AIR-2a,b - Napa County, Annual
Timestamp: Date: 9/22/2021 7:21 PM
Model File: Giovannoni Logistics Phase 2 Con - AIR-2a,b - Napa County, Annual
Timestamp: Date: 9/22/2021 7:25 PM

Annual Construction Emissions (tons)

Year	Activity	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	CO_2e (Metric Tons)
	on site	0.00	0.02	0.00	0.00	0.00	0.00	3
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 1 Site Preparation**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3**
	on site	0.03	0.33	0.01	0.05	0.01	0.03	47
	off site	0.00	0.06	0.00	0.01	0.00	0.00	23
2022	**Phase 1 Grading**	**0.03**	**0.39**	**0.01**	**0.06**	**0.01**	**0.03**	**70**
	on site	0.14	1.31	0.07	0.07	0.06	0.06	196
	off site	0.39	2.69	0.03	0.92	0.03	0.27	1,395
	Fugitive Refrigerants (on site)	-	-	-	-	-	-	15
2022	**Phase 1 Building Construction**	**0.54**	**4.00**	**0.10**	**0.98**	**0.09**	**0.34**	**1,606**
	on site	0.05	0.06	0.00	0.00	0.00	0.00	11
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 1 Paving**	**0.05**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**12**
	on site	2.59	0.01	0.00	0.00	0.00	0.00	1
	off site	0.00	0.00	0.00	0.01	0.00	0.00	7
2022	**Phase 1 Architectural Coating**	**2.59**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**8**
	on site	0.00	0.02	0.00	0.00	0.00	0.00	3
	off site	0.00	0.00	-	0.00	-	0.00	0
2022	**Phase 2 Site Preparation**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3**
	on site	0.03	0.33	0.01	0.05	0.01	0.03	47
	off site	0.00	0.00	0.00	0.00	0.00	0.00	1
2022	**Phase 2 Grading**	**0.03**	**0.33**	**0.01**	**0.05**	**0.01**	**0.03**	**48**
	on site	0.02	0.19	0.01	0.01	0.01	0.01	28
	off site	0.08	0.51	0.01	0.17	0.01	0.05	266
	Fugitive Refrigerants (on site)	-	-	-	-	-	-	15
2022	**Phase 2 Building Construction**	**0.10**	**0.70**	**0.02**	**0.18**	**0.01**	**0.06**	**309**
	on site	0.11	1.03	0.05	0.05	0.05	0.05	167
	off site	0.36	2.40	0.02	1.02	0.02	0.29	1,523
2023	**Phase 2 Building Construction**	**0.47**	**3.42**	**0.07**	**1.07**	**0.06**	**0.34**	**1,690**
	on site	0.06	0.06	0.00	0.00	0.00	0.00	12
	off site	0.00	0.00	-	0.00	-	0.00	0
2023	**Phase 2 Paving**	**0.06**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**13**
	on site	3.21	0.01	0.00	0.00	0.00	0.00	2
	off site	0.01	0.00	0.00	0.01	0.00	0.00	9
2023	**Phase 2 Architectural Coating**	**3.22**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**11**
	Total On Site	**6.25**	**3.37**	**0.16**	**0.24**	**0.15**	**0.18**	**517**
	Total Off Site	**0.84**	**5.67**	**0.05**	**2.14**	**0.05**	**0.62**	**3,225**

*Note: All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-". Fugitive refrigerants are only displayed for cold storage project scenarios in the CEQA analysis.

Project Phase	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	CO_2e (Metric Tons)
on site	2.81	1.73	0.09	0.12	0.08	0.10	258
off site	0.40	2.75	0.03	0.93	0.03	0.28	1,425
Phase 1	**3.21**	**4.48**	**0.12**	**1.05**	**0.11**	**0.37**	**1,684**
on site	3.44	1.64	0.08	0.11	0.07	0.09	258
off site	0.44	2.91	0.02	1.21	0.02	0.35	1,800
Phase 2	**3.88**	**4.55**	**0.10**	**1.32**	**0.09**	**0.43**	**2,058**

Average Daily Construction Emissions (lbs/day)

	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Total Emissions (tons)	7.09	9.03	0.22	2.38	0.21	0.80
Total Emissions (lbs)	14,189.54	18,064.70	437.04	4,757.46	410.70	1,607.54
Average Daily Emissions (lbs/day)[1]	**33.23**	**42.31**	**1.02**	**11.14**	**0.96**	**3.76**
BAAQMD Significance Thresholds	54	54	82	N/A	54	N/A
Project Construction Exceeds Threshold?	**No**	**No**	**No**	**N/A**	**No**	**N/A**

Notes:
1. Total emissions (lbs) are divided by the total nonoverlapping construction workdays (427 days).

Unmitigated Operational Emissions Summary
(COLD Storage Scenario)

Phase 1 Operations - Annual Emissions (COLD Storage)

Giovanni Logistics Phase 1 COLD Op - Napa County, Annual

Date: 9/22/2021 8:07 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	4.8742	0.00016	0.00006	0.00006	0.00006	0.00006	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	416	-	416
Energy - Electricity	-	-	-	-	-	-	1,023	-	1,023
Energy - Natural Gas	0.0218	0.1984	0.0151	0.0151	0.0151	0.0151	217	-	217
Mobile - Pass. Vehicles	0.3908	0.4307	0.00738	1.372	0.00681	0.3696	1,145	-	1,145
Mobile - Trucks	0.5592	18.4435	0.5503	0.5503	0.2897	0.2897	6,206	-	6,206
Mobile - Locomotives	ND	1.6783	0.0413	0.0413	0.0413	0.0413	66	-	66
Mobile - TRUs	1.6174	13.8951	0.2012	0.2012	0.1851	0.1851	335	-	335
Stationary	0.0079	0.0257	0.0017	0.0017	0.0017	0.0017	4	-	4
Waste	-	-	-	-	-	-	507	204	302
Water	-	-	-	-	-	-	12	2	10
Annual Total	**7.47**	**34.67**	**0.82**	**2.18**	**0.54**	**0.90**	**9,930**	**206**	**9,720**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Fugitive refrigerants represent high-global warming potential fugitive emissions resulting from the operation of a refrigeration system required for cold storage and transport refrigerated units.

Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Phase 2 Operations - Annual Emissions (COLD Storage)

Giovannoni Logistics Phase 2 COLD Op - Napa County, Annual

Date: 9/22/2021 8:13 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	6.052	0.0002	0.00008	0.00008	0.00008	0.00008	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	487	-	487
Energy - Electricity	-	-	-	-	-	-	1,269	-	1,269
Energy - Natural Gas	0.0271	0.2463	0.0187	0.0187	0.0187	0.0187	270	-	270
Mobile - Pass. Vehicles	0.4434	0.4717	0.00869	1.7024	0.00801	0.4583	1,372	-	1,372
Mobile - Trucks	0.3658	18.0680	0.6229	0.6229	0.3018	0.3018	7,308	-	7,308
Mobile - Locomotives	-	-	-	-	-	-	-	-	-
Mobile - TRUs	2.0937	17.2551	0.2301	0.2301	0.2117	0.2117	416	-	416
Stationary	0.0039	0.0128	0.0009	0.0009	0.0009	0.0009	2	-	2
Waste	-	-	-	-	-	-	629	254	375
Water	-	-	-	-	-	-	580	98	483
Annual Total	**8.99**	**36.05**	**0.88**	**2.57**	**0.54**	**0.99**	**12,333**	**351**	**11,979**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Fugitive refrigerants represent high-global warming potential fugitive emissions resulting from the operation of a refrigeration system required for cold storage and transport refrigerated units.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Total Unmitigated Operational Emissions (Project Phases 1 and 2)

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	10.93	0.00	0.00	0.00	0.00	0.00	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	903	-	903
Energy - Electricity	-	-	-	-	-	-	2,292	-	2,292
Energy - Natural Gas	0.05	0.44	0.03	0.03	0.03	0.03	487	-	487
Mobile - Pass. Vehicles	0.83	0.90	0.02	3.07	0.01	0.83	2,517	-	2,517
Mobile - Trucks	0.92	36.51	1.17	1.17	0.59	0.59	13,514	-	13,514
Mobile - Locomotives	ND	1.68	0.04	0.04	0.04	0.04	66	-	66
Mobile - TRUs	3.71	31.15	0.43	0.43	0.40	0.40	751	-	751
Stationary	0.01	0.04	0.00	0.00	0.00	0.00	6	-	6
Waste	-	-	-	-	-	-	1,136	458	677
Water	-	-	-	-	-	-	592	99	493
Annual Total	**16.46**	**70.73**	**1.70**	**4.76**	**1.08**	**1.89**	**22,262**	**558**	**21,704**
BAAQMD Significance Thresholds - Annual	10	10	N/A	15	N/A	10			
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**			

Total Unmitigated Operational Emissions (Project Phases 1 and 2)

Emissions Source	Average Pounds per Day					
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Average Daily Emissions	**90**	**388**	**9**	**26**	**6**	**10**
BAAQMD Significance Thresholds	54	54	N/A	82	N/A	54
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**

Note: Average daily emissions are identified by multiplying the annual emission tonnage by 2,000 pounds and dividing by the total number of operational days per year (365).

Mitigated Operational Emissions Summary
(COLD Storage Scenario)

Phase 1 Operations - Mitigated Annual Emissions (COLD Storage)

Giovannoni Logistics Phase 1 COLD Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:16 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	4.5422	0.00009	0.00003	0.00003	0.00003	0.00003	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	416	-	416
Energy - Electricity	-	-	-	-	-	-	1,023	-	1,023
Energy - Natural Gas	0.0218	0.1984	0.0151	0.0151	0.0151	0.0151	217	-	217
Mobile - Pass. Vehicles	0.3908	0.4307	0.00738	1.372	0.00681	0.3696	1,145	-	1,145
Mobile - Trucks	0.2992	14.2459	0.5030	0.5030	0.2478	0.2478	5,879	-	5,879
Mobile - Locomotives	ND	1.6783	0.0413	0.0413	0.0413	0.0413	66	-	66
Mobile - TRUs	1.6174	13.8951	0.2012	0.2012	0.1851	0.1851	335	-	335
Stationary	0.0079	0.0257	0.0017	0.0017	0.0017	0.0017	4	-	4
Waste	-	-	-	-	-	-	507	204	302
Water	-	-	-	-	-	-	12	2	10
Annual Total	**6.88**	**30.47**	**0.77**	**2.13**	**0.50**	**0.86**	**9,603**	**206**	**9,393**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Fugitive refrigerants represent high-global warming potential fugitive emissions resulting from the operation of a refrigeration system required for cold storage and transport refrigerated units.

Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Phase 2 Operations - Mitigated Annual Emissions (COLD Storage)

Giovannoni Logistics Phase 2 COLD Op - Napa County, Annual

Date: 9/22/2021 8:13 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	5.6399	0.00011	0.00003	0.00003	0.00003	0.00003	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	487	-	487
Energy - Electricity	-	-	-	-	-	-	1,269	-	1,269
Energy - Natural Gas	0.0271	0.2463	0.0187	0.0187	0.0187	0.0187	270	-	270
Mobile - Pass. Vehicles	0.4434	0.4717	0.00869	1.7024	0.00801	0.4583	1,372	-	1,372
Mobile - Trucks	0.3714	17.6805	0.6242	0.6242	0.3076	0.3076	7,296	-	7,296
Mobile - Locomotives	-	-	-	-	-	-	-	-	-
Mobile - TRUs	2.0937	17.2551	0.2301	0.2301	0.2117	0.2117	416	-	416
Stationary	0.0039	0.0128	0.0009	0.0009	0.0009	0.0009	2	-	2
Waste	-	-	-	-	-	-	629	254	375
Water	-	-	-	-	-	-	580	98	483
Annual Total	**8.58**	**35.67**	**0.88**	**2.58**	**0.55**	**1.00**	**12,321**	**351**	**11,968**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Fugitive refrigerants represent high-global warming potential fugitive emissions resulting from the operation of a refrigeration system required for cold storage and transport refrigerated units.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Total Mitigated Operational Emissions (Project Phases 1 and 2, and Amortized Construction GHG Emissions)

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	10.18	0.00	0.00	0.00	0.00	0.00	0	-	0
Fugitive Refrigerants	-	-	-	-	-	-	903	-	903
Energy - Electricity	-	-	-	-	-	-	2,292	-	2,292
Energy - Natural Gas	0.05	0.44	0.03	0.03	0.03	0.03	487	-	487
Mobile - Pass. Vehicles	0.83	0.90	0.02	3.07	0.01	0.83	2,517	-	2,517
Mobile - Trucks	0.67	31.93	1.13	1.13	0.56	0.56	13,175	-	13,175
Mobile - Locomotives	ND	1.68	0.04	0.04	0.04	0.04	66	-	66
Mobile - TRUs	3.71	31.15	0.43	0.43	0.40	0.40	751	-	751
Stationary	0.01	0.04	0.00	0.00	0.00	0.00	6	-	6
Waste	-	-	-	-	-	-	1,136	458	677
Water	-	-	-	-	-	-	592	99	493
Annual Total	**15.46**	**66.14**	**1.65**	**4.71**	**1.04**	**1.86**	**21,923**	**558**	**21,366**
BAAQMD Significance Thresholds - Annual	10	10	N/A	15	N/A	10			
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**			

Total Mitigated Operational Emissions (Project Phases 1 and 2)

Emissions Source	Average Pounds per Day					
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Average Daily Emissions	**85**	**362**	**9**	**26**	**6**	**10**
BAAQMD Significance Thresholds	54	54	N/A	82	N/A	54
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**

Note: Average daily emissions are identified by multiplying the annual emission tonnage by 2,000 pounds and dividing by the total number of operational days per year (365).

Annual Operational 2030 GHG Emissions Summary (COLD Storage Scenario)

2030 Operations - Phase 1 Annual GHG Emissions (COLD Storage)

Giovannoni Logistics Phase 1 COLD 2030 Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:36 PM

Emissions Source	Metric Tons per Year		
	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	0	-	0
Fugitive Refrigerants	416	-	416
Energy - Electricity	923	-	923
Energy - Natural Gas	217	-	217
Mobile - Pass. Vehicles	878	-	878
Mobile - Trucks	5,879	-	5,879
Mobile - Locomotives	66	-	66
Mobile - TRUs	334	-	334
Stationary	4	-	4
Waste	507	204	302
Water	11	2	10
Annual Total	**9,235**	**206**	**9,025**

Note:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines. All operational emission shown above incorporate implementation of MMs AIR-2c and AIR-2d. Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

2030 Operations - Phase 2 Annual GHG Emissions (COLD Storage)

Giovanni Logistics Phase 2 COLD 2030 Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:46 PM

Emissions Source	Metric Tons per Year		
	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	0	-	0
Fugitive Refrigerants	487	-	487
Energy - Electricity	1,146	-	1,146
Energy - Natural Gas	270	-	270
Mobile - Pass. Vehicles	1,090	-	1,090
Mobile - Trucks	7,296	-	7,296
Mobile - Locomotives	-	-	-
Mobile - TRUs	415	-	415
Stationary	2	-	2
Waste	629	254	375
Water	565	98	467
Annual Total	**11,900**	**351**	**11,546**

Note:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines. All operational emission shown above incorporate implementation of MMs AIR-2c and AIR-2d.

Unmitigated Operational Emissions Summary
(DRY Storage Scenario)

Phase 1 Operations - Annual Emissions (DRY Storage)

Giovanni Logistics Phase 1 DRY Op - Napa County, Annual

Date: 9/22/2021 8:04 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	4.8742	0.00016	0.00006	0.00006	0.00006	0.00006	0	-	0
Energy - Electricity	-	-	-	-	-	-	399	-	399
Energy - Natural Gas	0.0199	0.1806	0.0137	0.0137	0.0137	0.0137	198	-	198
Mobile - Pass. Vehicles	0.3908	0.4307	0.00738	1.372	0.00681	0.3696	1,145	-	1,145
Mobile - Trucks	0.5592	18.4435	0.5503	0.5503	0.2897	0.2897	6,206	-	6,206
Mobile - Locomotives	ND	1.6783	0.0413	0.0413	0.0413	0.0413	66	-	66
Stationary	0.0079	0.0257	0.0017	0.0017	0.0017	0.0017	4	-	4
Waste	-	-	-	-	-	-	507	204	302
Water	-	-	-	-	-	-	12	2	10
Annual Total	**5.85**	**20.76**	**0.61**	**1.98**	**0.35**	**0.72**	**8,536**	**206**	**8,326**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Phase 2 Operations - Annual Emissions (DRY Storage)

Giovannoni Logistics Phase 2 DRY Op - Napa County, Annual

Date: 9/22/2021 8:22 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	6.052	0.0002	0.00008	0.00008	0.00008	0.00008	0	-	0
Energy - Electricity	-	-	-	-	-	-	495	-	495
Energy - Natural Gas	0.0247	0.2241	0.017	0.017	0.017	0.017	245	-	245
Mobile - Pass. Vehicles	0.4434	0.4717	0.00869	1.7024	0.00801	0.4583	1,372	-	1,372
Mobile - Trucks	0.3658	18.0680	0.6229	0.6229	0.3018	0.3018	7,308	-	7,308
Mobile - Locomotives	-	-	-	-	-	-	-	-	-
Stationary	0.0039	0.0128	0.0009	0.0009	0.0009	0.0009	2	-	2
Waste	-	-	-	-	-	-	629	254	375
Water	-	-	-	-	-	-	580	98	483
Annual Total	**6.89**	**18.78**	**0.65**	**2.34**	**0.33**	**0.78**	**10,632**	**351**	**10,279**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Total Unmitigated Operational Emissions (Project Phases 1 and 2, and Amortized Construction GHG Emissions)

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	10.93	0.00	0.00	0.00	0.00	0.00	0	-	0
Energy - Electricity	-	-	-	-	-	-	895	-	895
Energy - Natural Gas	0.04	0.40	0.03	0.03	0.03	0.03	443	-	443
Mobile - Pass. Vehicles	0.83	0.90	0.02	3.07	0.01	0.83	2,517	-	2,517
Mobile - Trucks	0.92	36.51	1.17	1.17	0.59	0.59	13,514	-	13,514
Mobile - Locomotives	ND	1.68	0.04	0.04	0.04	0.04	66	-	66
Stationary	0.01	0.04	0.00	0.00	0.00	0.00	6	-	6
Waste	-	-	-	-	-	-	1,136	458	677
Water	-	-	-	-	-	-	592	99	493
Annual Total	**12.74**	**39.54**	**1.26**	**4.32**	**0.68**	**1.49**	**19,168**	**558**	**18,539**
BAAQMD Significance Thresholds - Annual	10	10	N/A	15	N/A	10			
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**			

Total Unmitigated Operational Emissions (Project Phases 1 and 2)

Emissions Source	Average Pounds per Day					
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Average Daily Emissions	**70**	**217**	**7**	**24**	**4**	**8**
BAAQMD Significance Thresholds	54	54	N/A	82	N/A	54
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**

Note: Average daily emissions are identified by multiplying the annual emission tonnage by 2,000 pounds and dividing by the total number of operational days per year (365).

Mitigated Operational Emissions Summary
(DRY Storage Scenario)

Phase 1 Operations - Mitigated Annual Emissions (DRY Storage)

Giovannoni Logistics Phase 1 DRY Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:26 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	4.5422	0.00009	0.00003	0.00003	0.00003	0.00003	0	-	0
Energy - Electricity	-	-	-	-	-	-	399	-	399
Energy - Natural Gas	0.0199	0.1806	0.0137	0.0137	0.0137	0.0137	198	-	198
Mobile - Pass. Vehicles	0.3908	0.4307	0.00738	1.372	0.00681	0.3696	1,145	-	1,145
Mobile - Trucks	0.2992	14.2459	0.5030	0.5030	0.2478	0.2478	5,879	-	5,879
Mobile - Locomotives	ND	1.6783	0.0413	0.0413	0.0413	0.0413	66	-	66
Stationary	0.0079	0.0257	0.0017	0.0017	0.0017	0.0017	4	-	4
Waste	-	-	-	-	-	-	507	204	302
Water	-	-	-	-	-	-	12	2	10
Annual Total	**5.26**	**16.56**	**0.57**	**1.93**	**0.31**	**0.67**	**8,209**	**206**	**7,999**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Phase 2 Operations - Mitigated Annual Emissions (DRY Storage)

Giovannoni Logistics Phase 2 DRY Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:29 PM

CalEEMod Run: Annual.

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	5.6399	0.00011	0.00003	0.00003	0.00003	0.00003	0	-	0
Energy - Electricity	-	-	-	-	-	-	495	-	495
Energy - Natural Gas	0.0247	0.2241	0.017	0.017	0.017	0.017	245	-	245
Mobile - Pass. Vehicles	0.4434	0.4717	0.00869	1.7024	0.00801	0.4583	1,372	-	1,372
Mobile - Trucks	0.3714	17.6805	0.6242	0.6242	0.3076	0.3076	7,296	-	7,296
Mobile - Locomotives	-	-	-	-	-	-	-	-	-
Stationary	0.0039	0.0128	0.0009	0.0009	0.0009	0.0009	2	-	2
Waste	-	-	-	-	-	-	629	254	375
Water	-	-	-	-	-	-	580	98	483
Annual Total	**6.48**	**18.39**	**0.65**	**2.34**	**0.33**	**0.78**	**10,620**	**351**	**10,267**

Notes:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines.

All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

ND = No Data.

Total Mitigated Operational Emissions (Project Phases 1 and 2, and Amortized Construction GHG Emissions)

Emissions Source	Tons per Year						Metric Tons per Year		
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	10.18	0.00	0.00	0.00	0.00	0.00	0	-	0
Energy - Electricity	-	-	-	-	-	-	895	-	895
Energy - Natural Gas	0.04	0.40	0.03	0.03	0.03	0.03	443	-	443
Mobile - Pass. Vehicles	0.83	0.90	0.02	3.07	0.01	0.83	2,517	-	2,517
Mobile - Trucks	0.67	31.93	1.13	1.13	0.56	0.56	13,175	-	13,175
Mobile - Locomotives	ND	1.68	0.04	0.04	0.04	0.04	66	-	66
Stationary	0.01	0.04	0.00	0.00	0.00	0.00	6	-	6
Waste	-	-	-	-	-	-	1,136	458	677
Water	-	-	-	-	-	-	592	99	493
Annual Total	**11.74**	**34.95**	**1.22**	**4.28**	**0.64**	**1.46**	**18,829**	**558**	**18,200**
BAAQMD Significance Thresholds - Annual	10	10	N/A	15	N/A	10			
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**			

Total Mitigated Operational Emissions (Project Phases 1 and 2)

Emissions Source	Average Pounds per Day					
	ROG	NO_x	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
Average Daily Emissions	**64**	**192**	**7**	**23**	**4**	**8**
BAAQMD Significance Thresholds	54	54	N/A	82	N/A	54
Project Exceeds Annual Threshold?	**Yes**	**Yes**	**N/A**	**No**	**N/A**	**No**

Note: Average daily emissions are identified by multiplying the annual emission tonnage by 2,000 pounds and dividing by the total number of operational days per year (365).

Annual Operational 2030 GHG Emissions Summary (DRY Storage Scenario)

2030 Operations - Phase 1 Annual GHG Emissions (DRY Storage)

Giovannoni Logistics Phase 1 DRY 2030 Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:41 PM

Emissions Source	Metric Tons per Year		
	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	0	-	0
Energy - Electricity	361	-	361
Energy - Natural Gas	198	-	198
Mobile - Pass. Vehicles	878	-	878
Mobile - Trucks	5,879	-	5,879
Mobile - Locomotives	66	-	66
Stationary	4	-	4
Waste	507	204	302
Water	11	2	10
Annual Total	**7,903**	**206**	**7,693**

Note:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines. All operational emission shown above incorporate implementation of MMs AIR-2c and AIR-2d. Rail emissions are based on the assumed use of the future rail connection of no greater than 500,000 ton-miles per month.

2030 Operations - Phase 2 Annual GHG Emissions (DRY Storage)

Giovannoni Logistics Phase 2 DRY 2030 Op - AIR-2c - Napa County, Annual

Date: 9/22/2021 8:50 PM

Emissions Source	Metric Tons per Year		
	Total CO_2e	Bio-CO_2	NBio-CO_2e
Area	0	-	0
Energy - Electricity	447	-	447
Energy - Natural Gas	245	-	245
Mobile - Pass. Vehicles	1,090	-	1,090
Mobile - Trucks	7,296	-	7,296
Mobile - Locomotives	-	-	-
Stationary	2	-	2
Waste	629	254	375
Water	565	98	467
Annual Total	**10,275**	**351**	**9,921**

Note:

All operational emissions were taken from the Mitigated model results to account for BAAQMD and City requirements. For GHG emissions, only non-biogenic CO2e emissions are included in the project's operational GHG emissions and stationary source emissions are omitted from the total GHG emissions shown here, per BAAQMD's 2017 CEQA Air Quality Guidelines. All operational emission shown above incorporate implementation of MMs AIR-2c and AIR-2d.

Construction Trailer - Napa County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction Trailer

Napa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.72	1000sqft	0.02	720.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Table Name	Column Name	Default Value	New Value

Construction Trailer - Napa County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0430	0.4380	0.3966	6.3000e-004	6.0600e-003	0.0243	0.0304	2.7200e-003	0.0224	0.0252	0.0000	55.3052	55.3052	0.0171	1.0000e-005	55.7359
2022	7.4000e-003	0.0325	0.0377	6.0000e-005	3.6000e-004	1.6900e-003	2.0500e-003	9.0000e-005	1.5800e-003	1.6700e-003	0.0000	5.2758	5.2758	1.3800e-003	1.0000e-005	5.3132
Maximum	**0.0430**	**0.4380**	**0.3966**	**6.3000e-004**	**6.0600e-003**	**0.0243**	**0.0304**	**2.7200e-003**	**0.0224**	**0.0252**	**0.0000**	**55.3052**	**55.3052**	**0.0171**	**1.0000e-005**	**55.7359**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0430	0.4380	0.3966	6.3000e-004	6.0600e-003	0.0243	0.0304	2.7200e-003	0.0224	0.0252	0.0000	55.3052	55.3052	0.0171	1.0000e-005	55.7358
2022	7.4000e-003	0.0325	0.0377	6.0000e-005	3.6000e-004	1.6900e-003	2.0500e-003	9.0000e-005	1.5800e-003	1.6700e-003	0.0000	5.2758	5.2758	1.3800e-003	1.0000e-005	5.3132
Maximum	**0.0430**	**0.4380**	**0.3966**	**6.3000e-004**	**6.0600e-003**	**0.0243**	**0.0304**	**2.7200e-003**	**0.0224**	**0.0252**	**0.0000**	**55.3052**	**55.3052**	**0.0171**	**1.0000e-005**	**55.7358**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-3-2021**	**11-2-2021**	0.2894	0.2894
2	**11-3-2021**	**2-2-2022**	0.2256	0.2256
		Highest	0.2894	0.2894

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/3/2021	8/16/2021	5	10	
2	Site Preparation	Site Preparation	8/17/2021	8/17/2021	5	1	
3	Grading	Grading	8/18/2021	8/19/2021	5	2	
4	Building Construction	Building Construction	8/20/2021	1/6/2022	5	100	
5	Paving	Paving	1/7/2022	1/13/2022	5	5	
6	Architectural Coating	Architectural Coating	1/14/2022	1/20/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,080; Non-Residential Outdoor: 360; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.4800e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3267	0.3267	1.0000e-005	1.0000e-005	0.3304
Total	**1.8000e-004**	**1.4000e-004**	**1.4800e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3267**	**0.3267**	**1.0000e-005**	**1.0000e-005**	**0.3304**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.4800e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3267	0.3267	1.0000e-005	1.0000e-005	0.3304
Total	**1.8000e-004**	**1.4000e-004**	**1.4800e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3267**	**0.3267**	**1.0000e-005**	**1.0000e-005**	**0.3304**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0163**	**0.0163**	**0.0000**	**0.0000**	**0.0165**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-004	3.9100e-003	2.0100e-003	0.0000		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	0.4276	0.4276	1.4000e-004	0.0000	0.4310
Total	**3.2000e-004**	**3.9100e-003**	**2.0100e-003**	**0.0000**	**2.7000e-004**	**1.5000e-004**	**4.2000e-004**	**3.0000e-005**	**1.4000e-004**	**1.7000e-004**	**0.0000**	**0.4276**	**0.4276**	**1.4000e-004**	**0.0000**	**0.4310**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0163	0.0163	0.0000	0.0000	0.0165
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0163**	**0.0163**	**0.0000**	**0.0000**	**0.0165**

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3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2900e-003	0.0143	6.3300e-003	1.0000e-005		6.4000e-004	6.4000e-004		5.9000e-004	5.9000e-004	0.0000	1.2384	1.2384	4.0000e-004	0.0000	1.2484
Total	**1.2900e-003**	**0.0143**	**6.3300e-003**	**1.0000e-005**	**5.3100e-003**	**6.4000e-004**	**5.9500e-003**	**2.5700e-003**	**5.9000e-004**	**3.1600e-003**	**0.0000**	**1.2384**	**1.2384**	**4.0000e-004**	**0.0000**	**1.2484**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0523	0.0523	0.0000	0.0000	0.0529
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0523**	**0.0523**	**0.0000**	**0.0000**	**0.0529**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2900e-003	0.0143	6.3300e-003	1.0000e-005		6.4000e-004	6.4000e-004		5.9000e-004	5.9000e-004	0.0000	1.2384	1.2384	4.0000e-004	0.0000	1.2484
Total	**1.2900e-003**	**0.0143**	**6.3300e-003**	**1.0000e-005**	**5.3100e-003**	**6.4000e-004**	**5.9500e-003**	**2.5700e-003**	**5.9000e-004**	**3.1600e-003**	**0.0000**	**1.2384**	**1.2384**	**4.0000e-004**	**0.0000**	**1.2484**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0523	0.0523	0.0000	0.0000	0.0529
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0523**	**0.0523**	**0.0000**	**0.0000**	**0.0529**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0372	0.3833	0.3487	5.5000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	48.0394	48.0394	0.0155	0.0000	48.4278
Total	**0.0372**	**0.3833**	**0.3487**	**5.5000e-004**		**0.0215**	**0.0215**		**0.0198**	**0.0198**	**0.0000**	**48.0394**	**48.0394**	**0.0155**	**0.0000**	**48.4278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0372	0.3833	0.3487	5.5000e-004		0.0215	0.0215		0.0198	0.0198	0.0000	48.0393	48.0393	0.0155	0.0000	48.4278
Total	**0.0372**	**0.3833**	**0.3487**	**5.5000e-004**		**0.0215**	**0.0215**		**0.0198**	**0.0198**	**0.0000**	**48.0393**	**48.0393**	**0.0155**	**0.0000**	**48.4278**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3700e-003	0.0141	0.0143	2.0000e-005		7.4000e-004	7.4000e-004		6.8000e-004	6.8000e-004	0.0000	2.0030	2.0030	6.5000e-004	0.0000	2.0192
Total	**1.3700e-003**	**0.0141**	**0.0143**	**2.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**2.0030**	**2.0030**	**6.5000e-004**	**0.0000**	**2.0192**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3700e-003	0.0141	0.0143	2.0000e-005		7.4000e-004	7.4000e-004		6.8000e-004	6.8000e-004	0.0000	2.0030	2.0030	6.5000e-004	0.0000	2.0192
Total	**1.3700e-003**	**0.0141**	**0.0143**	**2.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.8000e-004**	**6.8000e-004**	**0.0000**	**2.0030**	**2.0030**	**6.5000e-004**	**0.0000**	**2.0192**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6200e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2853	0.2853	1.0000e-005	1.0000e-005	0.2884
Total	**1.5000e-004**	**1.1000e-004**	**1.2200e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2853**	**0.2853**	**1.0000e-005**	**1.0000e-005**	**0.2884**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6200e-003	0.0148	0.0176	3.0000e-005		7.4000e-004	7.4000e-004		6.9000e-004	6.9000e-004	0.0000	2.3492	2.3492	6.8000e-004	0.0000	2.3663
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6200e-003**	**0.0148**	**0.0176**	**3.0000e-005**		**7.4000e-004**	**7.4000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**2.3492**	**2.3492**	**6.8000e-004**	**0.0000**	**2.3663**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.2200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2853	0.2853	1.0000e-005	1.0000e-005	0.2884
Total	**1.5000e-004**	**1.1000e-004**	**1.2200e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2853**	**0.2853**	**1.0000e-005**	**1.0000e-005**	**0.2884**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1000e-004	3.5200e-003	4.5300e-003	1.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**4.2600e-003**	**3.5200e-003**	**4.5300e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1000e-004	3.5200e-003	4.5300e-003	1.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**4.2600e-003**	**3.5200e-003**	**4.5300e-003**	**1.0000e-005**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.1438	1.1438	1.9000e-004	2.0000e-005	1.1551
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.1438	1.1438	1.9000e-004	2.0000e-005	1.1551
NaturalGas Mitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
NaturalGas Unmitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	11664	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
Total		**6.0000e-005**	**5.7000e-004**	**4.8000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.6224**	**0.6224**	**1.0000e-005**	**1.0000e-005**	**0.6261**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	11664	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
Total		**6.0000e-005**	**5.7000e-004**	**4.8000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.6224**	**0.6224**	**1.0000e-005**	**1.0000e-005**	**0.6261**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**3.1900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**3.1900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1301	4.1800e-003	1.0000e-004	0.2645
Unmitigated	0.1301	4.1800e-003	1.0000e-004	0.2645

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.127968 / 0.0784322	0.1301	4.1800e-003	1.0000e-004	0.2645
Total		**0.1301**	**4.1800e-003**	**1.0000e-004**	**0.2645**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.127968 / 0.0784322	0.1301	4.1800e-003	1.0000e-004	0.2645
Total		**0.1301**	**4.1800e-003**	**1.0000e-004**	**0.2645**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1360	8.0400e-003	0.0000	0.3369
Unmitigated	0.1360	8.0400e-003	0.0000	0.3369

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.67	0.1360	8.0400e-003	0.0000	0.3369
Total		**0.1360**	**8.0400e-003**	**0.0000**	**0.3369**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.67	0.1360	8.0400e-003	0.0000	0.3369
Total		**0.1360**	**8.0400e-003**	**0.0000**	**0.3369**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 3
Off-road Equipment - CalEEMod Note 4
Trips and VMT - CalEEMod Note 6
Grading -
Architectural Coating - CalEEMod Note 8
Vehicle Trips - CalEEMod Note 7
Consumer Products - CalEEMod Note 7
Energy Use - CalEEMod Note 7
Water And Wastewater - CalEEMod Note 7
Solid Waste - CalEEMod Note 7
Construction Off-road Equipment Mitigation - CalEEMod Note 8
Fleet Mix - CalEEMod Note 9

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Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	150.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	60.00	6.00
tblConstructionPhase	NumDays	155.00	17.00
tblConstructionPhase	NumDays	1,550.00	167.00
tblConstructionPhase	NumDays	110.00	12.00
tblConstructionPhase	NumDays	110.00	12.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	T24E	0.12	0.00
tblEnergyUse	T24NG	0.72	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblSolidWaste	SolidWasteGenerationRate	1.49	0.00
tblSolidWaste	SolidWasteGenerationRate	1,249.35	0.00
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	307,354,375.00	0.00
tblWater	OutdoorWaterUseRate	20,600,712.54	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1289	1.0507	1.0442	3.6100e-003	0.2483	0.0306	0.2790	0.0775	0.0286	0.1061	0.0000	336.0667	336.0667	0.0305	0.0277	345.0881
2023	3.7523	3.4974	4.3500	0.0177	1.0189	0.0696	1.0885	0.2781	0.0656	0.3437	0.0000	1,664.4502	1,664.4502	0.0847	0.1569	1,713.3202
Maximum	**3.7523**	**3.4974**	**4.3500**	**0.0177**	**1.0189**	**0.0696**	**1.0885**	**0.2781**	**0.0656**	**0.3437**	**0.0000**	**1,664.4502**	**1,664.4502**	**0.0847**	**0.1569**	**1,713.3202**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1289	1.0507	1.0442	3.6100e-003	0.2053	0.0306	0.2359	0.0604	0.0286	0.0890	0.0000	336.0666	336.0666	0.0305	0.0277	345.0880
2023	3.7523	3.4974	4.3500	0.0177	1.0189	0.0696	1.0885	0.2781	0.0656	0.3437	0.0000	1,664.4500	1,664.4500	0.0847	0.1569	1,713.3199
Maximum	**3.7523**	**3.4974**	**4.3500**	**0.0177**	**1.0189**	**0.0696**	**1.0885**	**0.2781**	**0.0656**	**0.3437**	**0.0000**	**1,664.4500**	**1,664.4500**	**0.0847**	**0.1569**	**1,713.3199**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	3.39	0.00	3.15	4.80	0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-27-2022	1-26-2023	1.7159	1.7159
2	1-27-2023	4-26-2023	1.7699	1.7699
3	4-27-2023	7-26-2023	1.6544	1.6544
4	7-27-2023	9-30-2023	3.5238	3.5238
		Highest	3.5238	3.5238

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/27/2022	11/3/2022	5	6	
2	Grading	Grading	11/4/2022	11/28/2022	5	17	
3	Building Construction	Building Construction	11/29/2022	7/19/2023	5	167	
4	Paving	Paving	7/20/2023	8/4/2023	5	12	
5	Architectural Coating	Architectural Coating	8/5/2023	8/22/2023	5	12	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 51

Acres of Paving: 42.69

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,993,646; Non-Residential Outdoor: 664,549; Striped Parking Area: 111,587

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,656.00	646.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	331.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

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3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0782	0.0000	0.0782	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0782**	**0.0139**	**0.0921**	**0.0311**	**0.0128**	**0.0438**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**4.8000e-004**	**3.3000e-004**	**3.7300e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8181**	**0.8181**	**4.0000e-005**	**3.0000e-005**	**0.8277**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0352**	**0.0139**	**0.0491**	**0.0140**	**0.0128**	**0.0268**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**4.8000e-004**	**3.3000e-004**	**3.7300e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8181**	**0.8181**	**4.0000e-005**	**3.0000e-005**	**0.8277**

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3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.1874	0.1964	3.2000e-004		9.7100e-003	9.7100e-003		9.1300e-003	9.1300e-003	0.0000	27.8070	27.8070	6.6600e-003	0.0000	27.9736
Total	**0.0205**	**0.1874**	**0.1964**	**3.2000e-004**		**9.7100e-003**	**9.7100e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**27.8070**	**27.8070**	**6.6600e-003**	**0.0000**	**27.9736**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4738	0.1342	1.6700e-003	0.0508	5.2500e-003	0.0561	0.0147	5.0200e-003	0.0197	0.0000	162.0351	162.0351	3.6000e-003	0.0243	169.3545
Worker	0.0556	0.0389	0.4355	1.0400e-003	0.1181	6.8000e-004	0.1188	0.0314	6.3000e-004	0.0321	0.0000	95.6284	95.6284	4.1500e-003	3.4200e-003	96.7513
Total	**0.0750**	**0.5127**	**0.5697**	**2.7100e-003**	**0.1689**	**5.9300e-003**	**0.1749**	**0.0461**	**5.6500e-003**	**0.0518**	**0.0000**	**257.6634**	**257.6634**	**7.7500e-003**	**0.0277**	**266.1057**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.1874	0.1964	3.2000e-004		9.7100e-003	9.7100e-003		9.1300e-003	9.1300e-003	0.0000	27.8070	27.8070	6.6600e-003	0.0000	27.9735
Total	**0.0205**	**0.1874**	**0.1964**	**3.2000e-004**		**9.7100e-003**	**9.7100e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**27.8070**	**27.8070**	**6.6600e-003**	**0.0000**	**27.9735**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4738	0.1342	1.6700e-003	0.0508	5.2500e-003	0.0561	0.0147	5.0200e-003	0.0197	0.0000	162.0351	162.0351	3.6000e-003	0.0243	169.3545
Worker	0.0556	0.0389	0.4355	1.0400e-003	0.1181	6.8000e-004	0.1188	0.0314	6.3000e-004	0.0321	0.0000	95.6284	95.6284	4.1500e-003	3.4200e-003	96.7513
Total	**0.0750**	**0.5127**	**0.5697**	**2.7100e-003**	**0.1689**	**5.9300e-003**	**0.1749**	**0.0461**	**5.6500e-003**	**0.0518**	**0.0000**	**257.6634**	**257.6634**	**7.7500e-003**	**0.0277**	**266.1057**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1125	1.0285	1.1615	1.9300e-003		0.0500	0.0500		0.0471	0.0471	0.0000	165.7404	165.7404	0.0394	0.0000	166.7261
Total	**0.1125**	**1.0285**	**1.1615**	**1.9300e-003**		**0.0500**	**0.0500**		**0.0471**	**0.0471**	**0.0000**	**165.7404**	**165.7404**	**0.0394**	**0.0000**	**166.7261**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0545	2.1912	0.6552	9.5200e-003	0.3028	0.0122	0.3150	0.0876	0.0117	0.0993	0.0000	923.2896	923.2896	0.0185	0.1377	964.7847
Worker	0.3072	0.2051	2.3930	6.0200e-003	0.7037	3.8200e-003	0.7075	0.1873	3.5200e-003	0.1908	0.0000	552.1905	552.1905	0.0224	0.0189	558.3718
Total	**0.3617**	**2.3963**	**3.0482**	**0.0155**	**1.0065**	**0.0161**	**1.0226**	**0.2748**	**0.0152**	**0.2900**	**0.0000**	**1,475.4801**	**1,475.4801**	**0.0409**	**0.1566**	**1,523.1565**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1125	1.0285	1.1614	1.9300e-003		0.0500	0.0500		0.0471	0.0471	0.0000	165.7402	165.7402	0.0394	0.0000	166.7259
Total	**0.1125**	**1.0285**	**1.1614**	**1.9300e-003**		**0.0500**	**0.0500**		**0.0471**	**0.0471**	**0.0000**	**165.7402**	**165.7402**	**0.0394**	**0.0000**	**166.7259**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0545	2.1912	0.6552	9.5200e-003	0.3028	0.0122	0.3150	0.0876	0.0117	0.0993	0.0000	923.2896	923.2896	0.0185	0.1377	964.7847
Worker	0.3072	0.2051	2.3930	6.0200e-003	0.7037	3.8200e-003	0.7075	0.1873	3.5200e-003	0.1908	0.0000	552.1905	552.1905	0.0224	0.0189	558.3718
Total	**0.3617**	**2.3963**	**3.0482**	**0.0155**	**1.0065**	**0.0161**	**1.0226**	**0.2748**	**0.0152**	**0.2900**	**0.0000**	**1,475.4801**	**1,475.4801**	**0.0409**	**0.1566**	**1,523.1565**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2000e-003	0.0612	0.0875	1.4000e-004		3.0600e-003	3.0600e-003		2.8200e-003	2.8200e-003	0.0000	12.0161	12.0161	3.8900e-003	0.0000	12.1133
Paving	0.0559					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0621**	**0.0612**	**0.0875**	**1.4000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8200e-003**	**2.8200e-003**	**0.0000**	**12.0161**	**12.0161**	**3.8900e-003**	**0.0000**	**12.1133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8200e-003	0.0000	5.3000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4197	0.4197	2.0000e-005	1.0000e-005	0.4244
Total	**2.3000e-004**	**1.6000e-004**	**1.8200e-003**	**0.0000**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4197**	**0.4197**	**2.0000e-005**	**1.0000e-005**	**0.4244**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2000e-003	0.0612	0.0875	1.4000e-004		3.0600e-003	3.0600e-003		2.8200e-003	2.8200e-003	0.0000	12.0161	12.0161	3.8900e-003	0.0000	12.1133
Paving	0.0559					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0621**	**0.0612**	**0.0875**	**1.4000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8200e-003**	**2.8200e-003**	**0.0000**	**12.0161**	**12.0161**	**3.8900e-003**	**0.0000**	**12.1133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8200e-003	0.0000	5.3000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4197	0.4197	2.0000e-005	1.0000e-005	0.4244
Total	**2.3000e-004**	**1.6000e-004**	**1.8200e-003**	**0.0000**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4197**	**0.4197**	**2.0000e-005**	**1.0000e-005**	**0.4244**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2095					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	7.8200e-003	0.0109	2.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**3.2106**	**7.8200e-003**	**0.0109**	**2.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1500e-003	3.4400e-003	0.0401	1.0000e-004	0.0118	6.0000e-005	0.0119	3.1400e-003	6.0000e-005	3.2000e-003	0.0000	9.2619	9.2619	3.8000e-004	3.2000e-004	9.3656
Total	**5.1500e-003**	**3.4400e-003**	**0.0401**	**1.0000e-004**	**0.0118**	**6.0000e-005**	**0.0119**	**3.1400e-003**	**6.0000e-005**	**3.2000e-003**	**0.0000**	**9.2619**	**9.2619**	**3.8000e-004**	**3.2000e-004**	**9.3656**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.2095					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	7.8200e-003	0.0109	2.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**3.2106**	**7.8200e-003**	**0.0109**	**2.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1500e-003	3.4400e-003	0.0401	1.0000e-004	0.0118	6.0000e-005	0.0119	3.1400e-003	6.0000e-005	3.2000e-003	0.0000	9.2619	9.2619	3.8000e-004	3.2000e-004	9.3656
Total	**5.1500e-003**	**3.4400e-003**	**0.0401**	**1.0000e-004**	**0.0118**	**6.0000e-005**	**0.0119**	**3.1400e-003**	**6.0000e-005**	**3.2000e-003**	**0.0000**	**9.2619**	**9.2619**	**3.8000e-004**	**3.2000e-004**	**9.3656**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7339	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Unmitigated	0.7339	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**0.7339**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**0.7339**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Refrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Other Non-Asphalt Surfaces	106.71	1000sqft	2.45	0.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 3
Off-road Equipment - CalEEMod Note 4
Trips and VMT - CalEEMod Note 6
Grading - CalEEMod Note 5
Architectural Coating -
Vehicle Trips - CalEEMod Note 7
Consumer Products -
Energy Use - CalEEMod Note 7
Water And Wastewater - CalEEMod Note 7
Solid Waste - CalEEMod Note 7
Construction Off-road Equipment Mitigation - CalEEMod Note 8
Area Mitigation - CalEEMod Note 8
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 7
Stationary Sources - Process Boilers -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	6.00
tblConstructionPhase	NumDays	110.00	17.00
tblConstructionPhase	NumDays	1,110.00	168.00
tblConstructionPhase	NumDays	75.00	11.00
tblConstructionPhase	NumDays	75.00	11.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	T24E	0.12	0.00
tblEnergyUse	T24E	0.12	0.00
tblEnergyUse	T24NG	0.72	0.00
tblEnergyUse	T24NG	0.72	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.59
tblFleetMix	LDA	0.52	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00

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tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblGrading	MaterialImported	0.00	5,400.00
tblLandUse	LandUseSquareFeet	106,710.00	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.75	0.00
tblSolidWaste	SolidWasteGenerationRate	441.35	0.00
tblSolidWaste	SolidWasteGenerationRate	565.30	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	108,576,500.00	0.00
tblWater	IndoorWaterUseRate	139,069,125.00	0.00
tblWater	OutdoorWaterUseRate	10,437,376.62	0.00

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	6.5244	4.4841	4.7708	0.0175	0.9794	0.1182	1.0975	0.2770	0.1112	0.3882	0.0000	1,636.7419	1,636.7419	0.1080	0.1488	1,683.7907
Maximum	**6.5244**	**4.4841**	**4.7708**	**0.0175**	**0.9794**	**0.1182**	**1.0975**	**0.2770**	**0.1112**	**0.3882**	**0.0000**	**1,636.7419**	**1,636.7419**	**0.1080**	**0.1488**	**1,683.7907**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	6.5244	4.4841	4.7708	0.0175	0.9360	0.1182	1.0542	0.2598	0.1112	0.3711	0.0000	1,636.7416	1,636.7416	0.1080	0.1488	1,683.7904
Maximum	**6.5244**	**4.4841**	**4.7708**	**0.0175**	**0.9360**	**0.1182**	**1.0542**	**0.2598**	**0.1112**	**0.3711**	**0.0000**	**1,636.7416**	**1,636.7416**	**0.1080**	**0.1488**	**1,683.7904**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.43**	**0.00**	**3.95**	**6.18**	**0.00**	**4.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-3-2022**	**4-2-2022**	1.5906	1.5906
2	**4-3-2022**	**7-2-2022**	1.7204	1.7204
3	**7-3-2022**	**9-30-2022**	1.6551	1.6551
		Highest	1.7204	1.7204

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/10/2022	5	6	
2	Grading	Grading	1/11/2022	2/2/2022	5	17	
3	Building Construction	Building Construction	2/3/2022	9/26/2022	5	168	
4	Paving	Paving	9/27/2022	10/11/2022	5	11	
5	Architectural Coating	Architectural Coating	10/12/2022	10/26/2022	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 51

Acres of Paving: 36.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,606,352; Non-Residential Outdoor: 535,451; Striped Parking Area: 89,910

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	675.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,239.00	484.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	248.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

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3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0788	0.0000	0.0788	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0788**	**0.0139**	**0.0927**	**0.0311**	**0.0128**	**0.0439**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6600e-003	0.0615	0.0116	2.2000e-004	5.7000e-003	5.4000e-004	6.2300e-003	1.5700e-003	5.1000e-004	2.0800e-003	0.0000	21.4738	21.4738	7.0000e-004	3.3900e-003	22.5029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**2.1400e-003**	**0.0618**	**0.0153**	**2.3000e-004**	**6.7100e-003**	**5.5000e-004**	**7.2500e-003**	**1.8400e-003**	**5.2000e-004**	**2.3500e-003**	**0.0000**	**22.2919**	**22.2919**	**7.4000e-004**	**3.4200e-003**	**23.3306**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0355	0.0000	0.0355	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0355**	**0.0139**	**0.0494**	**0.0140**	**0.0128**	**0.0268**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6600e-003	0.0615	0.0116	2.2000e-004	5.7000e-003	5.4000e-004	6.2300e-003	1.5700e-003	5.1000e-004	2.0800e-003	0.0000	21.4738	21.4738	7.0000e-004	3.3900e-003	22.5029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**2.1400e-003**	**0.0618**	**0.0153**	**2.3000e-004**	**6.7100e-003**	**5.5000e-004**	**7.2500e-003**	**1.8400e-003**	**5.2000e-004**	**2.3500e-003**	**0.0000**	**22.2919**	**22.2919**	**7.4000e-004**	**3.4200e-003**	**23.3306**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1433	1.3117	1.3745	2.2600e-003		0.0680	0.0680		0.0639	0.0639	0.0000	194.6492	194.6492	0.0466	0.0000	195.8150
Total	**0.1433**	**1.3117**	**1.3745**	**2.2600e-003**		**0.0680**	**0.0680**		**0.0639**	**0.0639**	**0.0000**	**194.6492**	**194.6492**	**0.0466**	**0.0000**	**195.8150**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1019	2.4849	0.7037	8.7700e-003	0.2665	0.0275	0.2940	0.0771	0.0263	0.1034	0.0000	849.8061	849.8061	0.0189	0.1272	888.1935
Worker	0.2912	0.2036	2.2810	5.4600e-003	0.6186	3.5500e-003	0.6221	0.1646	3.2700e-003	0.1679	0.0000	500.8363	500.8363	0.0218	0.0179	506.7172
Total	**0.3931**	**2.6885**	**2.9848**	**0.0142**	**0.8851**	**0.0311**	**0.9161**	**0.2417**	**0.0296**	**0.2713**	**0.0000**	**1,350.6424**	**1,350.6424**	**0.0406**	**0.1451**	**1,394.9106**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1433	1.3117	1.3745	2.2600e-003		0.0680	0.0680		0.0639	0.0639	0.0000	194.6490	194.6490	0.0466	0.0000	195.8148
Total	**0.1433**	**1.3117**	**1.3745**	**2.2600e-003**		**0.0680**	**0.0680**		**0.0639**	**0.0639**	**0.0000**	**194.6490**	**194.6490**	**0.0466**	**0.0000**	**195.8148**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1019	2.4849	0.7037	8.7700e-003	0.2665	0.0275	0.2940	0.0771	0.0263	0.1034	0.0000	849.8061	849.8061	0.0189	0.1272	888.1935
Worker	0.2912	0.2036	2.2810	5.4600e-003	0.6186	3.5500e-003	0.6221	0.1646	3.2700e-003	0.1679	0.0000	500.8363	500.8363	0.0218	0.0179	506.7172
Total	**0.3931**	**2.6885**	**2.9848**	**0.0142**	**0.8851**	**0.0311**	**0.9161**	**0.2417**	**0.0296**	**0.2713**	**0.0000**	**1,350.6424**	**1,350.6424**	**0.0406**	**0.1451**	**1,394.9106**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0700e-003	0.0612	0.0802	1.3000e-004		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	11.0152	11.0152	3.5600e-003	0.0000	11.1042
Paving	0.0451					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0511**	**0.0612**	**0.0802**	**1.3000e-004**		**3.1200e-003**	**3.1200e-003**		**2.8700e-003**	**2.8700e-003**	**0.0000**	**11.0152**	**11.0152**	**3.5600e-003**	**0.0000**	**11.1042**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8100e-003	0.0000	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3970	0.3970	2.0000e-005	1.0000e-005	0.4017
Total	**2.3000e-004**	**1.6000e-004**	**1.8100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3970**	**0.3970**	**2.0000e-005**	**1.0000e-005**	**0.4017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0700e-003	0.0612	0.0802	1.3000e-004		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	11.0151	11.0151	3.5600e-003	0.0000	11.1042
Paving	0.0451					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0511**	**0.0612**	**0.0802**	**1.3000e-004**		**3.1200e-003**	**3.1200e-003**		**2.8700e-003**	**2.8700e-003**	**0.0000**	**11.0151**	**11.0151**	**3.5600e-003**	**0.0000**	**11.1042**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8100e-003	0.0000	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3970	0.3970	2.0000e-005	1.0000e-005	0.4017
Total	**2.3000e-004**	**1.6000e-004**	**1.8100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3970**	**0.3970**	**2.0000e-005**	**1.0000e-005**	**0.4017**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8966					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1200e-003	7.7500e-003	9.9700e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	1.4043	1.4043	9.0000e-005	0.0000	1.4066
Total	**5.8978**	**7.7500e-003**	**9.9700e-003**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.4043**	**1.4043**	**9.0000e-005**	**0.0000**	**1.4066**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8200e-003	2.6700e-003	0.0299	7.0000e-005	8.1100e-003	5.0000e-005	8.1500e-003	2.1600e-003	4.0000e-005	2.2000e-003	0.0000	6.5639	6.5639	2.9000e-004	2.3000e-004	6.6409
Total	**3.8200e-003**	**2.6700e-003**	**0.0299**	**7.0000e-005**	**8.1100e-003**	**5.0000e-005**	**8.1500e-003**	**2.1600e-003**	**4.0000e-005**	**2.2000e-003**	**0.0000**	**6.5639**	**6.5639**	**2.9000e-004**	**2.3000e-004**	**6.6409**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8966					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1200e-003	7.7500e-003	9.9700e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	1.4043	1.4043	9.0000e-005	0.0000	1.4066
Total	**5.8978**	**7.7500e-003**	**9.9700e-003**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.4043**	**1.4043**	**9.0000e-005**	**0.0000**	**1.4066**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8200e-003	2.6700e-003	0.0299	7.0000e-005	8.1100e-003	5.0000e-005	8.1500e-003	2.1600e-003	4.0000e-005	2.2000e-003	0.0000	6.5639	6.5639	2.9000e-004	2.3000e-004	6.6409
Total	**3.8200e-003**	**2.6700e-003**	**0.0299**	**7.0000e-005**	**8.1100e-003**	**5.0000e-005**	**8.1500e-003**	**2.1600e-003**	**4.0000e-005**	**2.2000e-003**	**0.0000**	**6.5639**	**6.5639**	**2.9000e-004**	**2.3000e-004**	**6.6409**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower
Use Electric Leafblower
Use Electric Chainsaw
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	1.0000e-004	0.0109	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0197	0.0197	4.0000e-005	0.0000	0.0207
Unmitigated	4.8743	1.7000e-004	0.0188	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0366	0.0366	1.0000e-004	0.0000	0.0390

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7500e-003	1.7000e-004	0.0188	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0366	0.0366	1.0000e-004	0.0000	0.0390
Total	**4.8743**	**1.7000e-004**	**0.0188**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0366**	**0.0366**	**1.0000e-004**	**0.0000**	**0.0390**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.4000e-004	1.0000e-004	0.0109	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0197	0.0197	4.0000e-005	0.0000	0.0207
Total	**4.5422**	**1.0000e-004**	**0.0109**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0197**	**0.0197**	**4.0000e-005**	**0.0000**	**0.0207**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	4	48	50	0.73	Diesel
Fire Pump	0	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fire Pump - Diesel (50 - 75 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Refrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Architectural Coating -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Water And Wastewater - CalEEMod Note 10
Construction Off-road Equipment Mitigation -
Area Mitigation -
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11
Stationary Sources - Process Boilers -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	40.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18
tblVehicleTrips	WD_TR	2.12	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,228.6278	1,228.6278	0.1680	0.0238	1,239.9244
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2947**	**0.6549**	**4.9923**	**0.0136**	**1.3646**	**0.0243**	**1.3889**	**0.3628**	**0.0237**	**0.3865**	**206.3515**	**2,368.5092**	**2,574.8607**	**12.4916**	**0.0680**	**2,907.4075**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,228.6278	1,228.6278	0.1680	0.0238	1,239.9244
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2947**	**0.6549**	**4.9923**	**0.0136**	**1.3646**	**0.0243**	**1.3889**	**0.3628**	**0.0237**	**0.3865**	**206.3515**	**2,368.5092**	**2,574.8607**	**12.4916**	**0.0680**	**2,907.4075**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Unmitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080

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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Refrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Parking Lot	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Refrigerated Warehouse-No Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,012.6110	1,012.6110	0.1638	0.0199	1,022.6239
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,012.6110	1,012.6110	0.1638	0.0199	1,022.6239
NaturalGas Mitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005
NaturalGas Unmitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.77479e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.7747e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Refrigerated Warehouse-No Rail	4.56843e+006	422.6883	0.0684	8.2900e-003	426.8680
Refrigerated Warehouse-Rail	5.85143e+006	541.3961	0.0876	0.0106	546.7496
Total		**1,012.6110**	**0.1638**	**0.0199**	**1,022.6239**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Refrigerated Warehouse-No Rail	4.56843e+006	422.6883	0.0684	8.2900e-003	426.8680
Refrigerated Warehouse-Rail	5.85143e+006	541.3961	0.0876	0.0106	546.7496
Total		**1,012.6110**	**0.1638**	**0.0199**	**1,022.6239**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Unmitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.6937	0.1915	4.5800e-003	11.8467
Unmitigated	5.6937	0.1915	4.5800e-003	11.8467

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Refrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Refrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

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9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Unrefrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Architectural Coating -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Water And Wastewater - CalEEMod Note 10
Construction Off-road Equipment Mitigation -
Area Mitigation -
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11
Stationary Sources - Process Boilers -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	40.00	0.00
tblConstructionPhase	PhaseEndDate	2/25/2022	1/2/2022
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18
tblVehicleTrips	WD_TR	1.74	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	591.9062	591.9062	0.0677	0.0114	596.9835
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2927**	**0.6371**	**4.9773**	**0.0135**	**1.3646**	**0.0229**	**1.3875**	**0.3628**	**0.0223**	**0.3851**	**206.3515**	**1,731.7876**	**1,938.1391**	**12.3914**	**0.0555**	**2,264.4666**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	591.9062	591.9062	0.0677	0.0114	596.9835
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2927**	**0.6371**	**4.9773**	**0.0135**	**1.3646**	**0.0229**	**1.3875**	**0.3628**	**0.0223**	**0.3851**	**206.3515**	**1,731.7876**	**1,938.1391**	**12.3914**	**0.0555**	**2,264.4666**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Unmitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080

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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Unrefrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Unrefrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Parking Lot	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Unrefrigerated Warehouse-No Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	395.3195	395.3195	0.0640	7.7500e-003	399.2285
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	395.3195	395.3195	0.0640	7.7500e-003	399.2285
NaturalGas Mitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549
NaturalGas Unmitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Unrefrigerated Warehouse-No Rail	1.64332e+006	152.0462	0.0246	2.9800e-003	153.5496
Unrefrigerated Warehouse-Rail	2.10483e+006	194.7468	0.0315	3.8200e-003	196.6725
Total		**395.3195**	**0.0640**	**7.7500e-003**	**399.2285**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Unrefrigerated Warehouse-No Rail	1.64332e+006	152.0462	0.0246	2.9800e-003	153.5496
Unrefrigerated Warehouse-Rail	2.10483e+006	194.7468	0.0315	3.8200e-003	196.6725
Total		**395.3195**	**0.0640**	**7.7500e-003**	**399.2285**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Unmitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.6937	0.1915	4.5800e-003	11.8467
Unmitigated	5.6937	0.1915	4.5800e-003	11.8467

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Construction Off-road Equipment Mitigation -
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

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Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	60.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,524.8521	1,524.8521	0.2085	0.0296	1,538.8723
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5264**	**0.7310**	**5.7180**	**0.0163**	**1.6937**	**0.0284**	**1.7220**	**0.4503**	**0.0277**	**0.4780**	**351.4186**	**3,043.9904**	**3,395.4090**	**25.3077**	**0.3147**	**4,121.8717**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,524.8521	1,524.8521	0.2085	0.0296	1,538.8723
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5264**	**0.7310**	**5.7180**	**0.0163**	**1.6937**	**0.0284**	**1.7220**	**0.4503**	**0.0277**	**0.4780**	**351.4186**	**3,043.9904**	**3,395.4090**	**25.3077**	**0.3147**	**4,121.8717**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Unmitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Parking Lot	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Refrigerated Warehouse-Rail	0.587070	0.063675	0.196855	0.152400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,256.7532	1,256.7532	0.2033	0.0246	1,269.1802
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,256.7532	1,256.7532	0.2033	0.0246	1,269.1802
NaturalGas Mitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
NaturalGas Unmitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Refrigerated Warehouse-Rail	1.29321e+007	1,196.5270	0.1936	0.0235	1,208.3586
Total		**1,256.7532**	**0.2033**	**0.0246**	**1,269.1802**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Refrigerated Warehouse-Rail	1.29321e+007	1,196.5270	0.1936	0.0235	1,208.3586
Total		**1,256.7532**	**0.2033**	**0.0246**	**1,269.1802**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Unmitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	258.0563	10.0411	0.2396	580.4934
Unmitigated	258.0563	10.0411	0.2396	580.4934

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Construction Off-road Equipment Mitigation -
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

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Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	60.00	0.00
tblConstructionPhase	PhaseEndDate	1/18/2023	10/26/2022
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	734.6157	734.6157	0.0841	0.0141	740.9171
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7164	1,356.7164	0.0521	0.0455	1,371.5725
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5239**	**0.7089**	**5.6993**	**0.0162**	**1.6937**	**0.0267**	**1.7203**	**0.4503**	**0.0260**	**0.4763**	**351.4186**	**2,253.7500**	**2,605.1686**	**25.1833**	**0.2992**	**3,323.9124**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	734.6157	734.6157	0.0841	0.0141	740.9171
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7164	1,356.7164	0.0521	0.0455	1,371.5725
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5239**	**0.7089**	**5.6993**	**0.0162**	**1.6937**	**0.0267**	**1.7203**	**0.4503**	**0.0260**	**0.4763**	**351.4186**	**2,253.7500**	**2,605.1686**	**25.1833**	**0.2992**	**3,323.9124**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7164	1,356.7164	0.0521	0.0455	1,371.5725
Unmitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7164	1,356.7164	0.0521	0.0455	1,371.5725

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,568.33	1,568.33	1568.33	4,635,491	4,635,491
Total	1,568.33	1,568.33	1,568.33	4,635,491	4,635,491

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Parking Lot	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Unrefrigerated Warehouse-No Rail	0.587070	0.063675	0.196855	0.152400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	490.6316	490.6316	0.0794	9.6200e-003	495.4830
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	490.6316	490.6316	0.0794	9.6200e-003	495.4830
NaturalGas Mitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
NaturalGas Unmitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Unrefrigerated Warehouse-No Rail	4.65184e+006	430.4054	0.0696	8.4400e-003	434.6614
Total		**490.6316**	**0.0794**	**9.6200e-003**	**495.4830**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Unrefrigerated Warehouse-No Rail	4.65184e+006	430.4054	0.0696	8.4400e-003	434.6614
Total		**490.6316**	**0.0794**	**9.6200e-003**	**495.4830**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Unmitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

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7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	258.0563	10.0411	0.2396	580.4934
Unmitigated	258.0563	10.0411	0.2396	580.4934

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

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8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

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9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 3
Off-road Equipment - CalEEMod Note 4
Trips and VMT - CalEEMod Note 6
Grading -
Vehicle Trips - CalEEMod Note 7
Consumer Products - CalEEMod Note 7
Energy Use - CalEEMod Note 7
Water And Wastewater - CalEEMod Note 7
Solid Waste - CalEEMod Note 7
Construction Off-road Equipment Mitigation - CalEEMod Note 8
Fleet Mix - CalEEMod Note 9

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	60.00	6.00
tblConstructionPhase	NumDays	155.00	17.00
tblConstructionPhase	NumDays	1,550.00	167.00
tblConstructionPhase	NumDays	110.00	12.00
tblConstructionPhase	NumDays	110.00	12.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	T24E	0.12	0.00

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tblEnergyUse	T24NG	0.72	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblSolidWaste	SolidWasteGenerationRate	1.49	0.00
tblSolidWaste	SolidWasteGenerationRate	1,249.35	0.00
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	307,354,375.00	0.00
tblWater	OutdoorWaterUseRate	20,600,712.54	0.00

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1289	1.0507	1.0442	3.6100e-003	0.2483	0.0306	0.2790	0.0775	0.0286	0.1061	0.0000	336.0667	336.0667	0.0305	0.0277	345.0881
2023	7.8611	3.4974	4.3500	0.0177	1.0189	0.0696	1.0885	0.2781	0.0656	0.3437	0.0000	1,664.4502	1,664.4502	0.0847	0.1569	1,713.3202
Maximum	**7.8611**	**3.4974**	**4.3500**	**0.0177**	**1.0189**	**0.0696**	**1.0885**	**0.2781**	**0.0656**	**0.3437**	**0.0000**	**1,664.4502**	**1,664.4502**	**0.0847**	**0.1569**	**1,713.3202**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1289	1.0507	1.0442	3.6100e-003	0.2053	0.0306	0.2359	0.0604	0.0286	0.0890	0.0000	336.0666	336.0666	0.0305	0.0277	345.0880
2023	7.8611	3.4974	4.3500	0.0177	1.0189	0.0696	1.0885	0.2781	0.0656	0.3437	0.0000	1,664.4500	1,664.4500	0.0847	0.1569	1,713.3199
Maximum	**7.8611**	**3.4974**	**4.3500**	**0.0177**	**1.0189**	**0.0696**	**1.0885**	**0.2781**	**0.0656**	**0.3437**	**0.0000**	**1,664.4500**	**1,664.4500**	**0.0847**	**0.1569**	**1,713.3199**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**3.39**	**0.00**	**3.15**	**4.80**	**0.00**	**3.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-27-2022	1-26-2023	1.7159	1.7159
2	1-27-2023	4-26-2023	1.7699	1.7699
3	4-27-2023	7-26-2023	1.6544	1.6544
4	7-27-2023	9-30-2023	7.9261	7.9261
		Highest	7.9261	7.9261

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/27/2022	11/3/2022	5	6	
2	Grading	Grading	11/4/2022	11/28/2022	5	17	
3	Building Construction	Building Construction	11/29/2022	7/19/2023	5	167	
4	Paving	Paving	7/20/2023	8/4/2023	5	12	
5	Architectural Coating	Architectural Coating	8/5/2023	8/22/2023	5	12	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 51

Acres of Paving: 42.69

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,993,646; Non-Residential Outdoor: 664,549; Striped Parking Area: 111,587

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,656.00	646.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	331.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

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3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0782	0.0000	0.0782	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0782**	**0.0139**	**0.0921**	**0.0311**	**0.0128**	**0.0438**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**4.8000e-004**	**3.3000e-004**	**3.7300e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8181**	**0.8181**	**4.0000e-005**	**3.0000e-005**	**0.8277**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0352**	**0.0139**	**0.0491**	**0.0140**	**0.0128**	**0.0268**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**4.8000e-004**	**3.3000e-004**	**3.7300e-003**	**1.0000e-005**	**1.0100e-003**	**1.0000e-005**	**1.0200e-003**	**2.7000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8181**	**0.8181**	**4.0000e-005**	**3.0000e-005**	**0.8277**

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3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.1874	0.1964	3.2000e-004		9.7100e-003	9.7100e-003		9.1300e-003	9.1300e-003	0.0000	27.8070	27.8070	6.6600e-003	0.0000	27.9736
Total	**0.0205**	**0.1874**	**0.1964**	**3.2000e-004**		**9.7100e-003**	**9.7100e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**27.8070**	**27.8070**	**6.6600e-003**	**0.0000**	**27.9736**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4738	0.1342	1.6700e-003	0.0508	5.2500e-003	0.0561	0.0147	5.0200e-003	0.0197	0.0000	162.0351	162.0351	3.6000e-003	0.0243	169.3545
Worker	0.0556	0.0389	0.4355	1.0400e-003	0.1181	6.8000e-004	0.1188	0.0314	6.3000e-004	0.0321	0.0000	95.6284	95.6284	4.1500e-003	3.4200e-003	96.7513
Total	**0.0750**	**0.5127**	**0.5697**	**2.7100e-003**	**0.1689**	**5.9300e-003**	**0.1749**	**0.0461**	**5.6500e-003**	**0.0518**	**0.0000**	**257.6634**	**257.6634**	**7.7500e-003**	**0.0277**	**266.1057**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0205	0.1874	0.1964	3.2000e-004		9.7100e-003	9.7100e-003		9.1300e-003	9.1300e-003	0.0000	27.8070	27.8070	6.6600e-003	0.0000	27.9735
Total	**0.0205**	**0.1874**	**0.1964**	**3.2000e-004**		**9.7100e-003**	**9.7100e-003**		**9.1300e-003**	**9.1300e-003**	**0.0000**	**27.8070**	**27.8070**	**6.6600e-003**	**0.0000**	**27.9735**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4738	0.1342	1.6700e-003	0.0508	5.2500e-003	0.0561	0.0147	5.0200e-003	0.0197	0.0000	162.0351	162.0351	3.6000e-003	0.0243	169.3545
Worker	0.0556	0.0389	0.4355	1.0400e-003	0.1181	6.8000e-004	0.1188	0.0314	6.3000e-004	0.0321	0.0000	95.6284	95.6284	4.1500e-003	3.4200e-003	96.7513
Total	**0.0750**	**0.5127**	**0.5697**	**2.7100e-003**	**0.1689**	**5.9300e-003**	**0.1749**	**0.0461**	**5.6500e-003**	**0.0518**	**0.0000**	**257.6634**	**257.6634**	**7.7500e-003**	**0.0277**	**266.1057**

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3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1125	1.0285	1.1615	1.9300e-003		0.0500	0.0500		0.0471	0.0471	0.0000	165.7404	165.7404	0.0394	0.0000	166.7261
Total	**0.1125**	**1.0285**	**1.1615**	**1.9300e-003**		**0.0500**	**0.0500**		**0.0471**	**0.0471**	**0.0000**	**165.7404**	**165.7404**	**0.0394**	**0.0000**	**166.7261**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0545	2.1912	0.6552	9.5200e-003	0.3028	0.0122	0.3150	0.0876	0.0117	0.0993	0.0000	923.2896	923.2896	0.0185	0.1377	964.7847
Worker	0.3072	0.2051	2.3930	6.0200e-003	0.7037	3.8200e-003	0.7075	0.1873	3.5200e-003	0.1908	0.0000	552.1905	552.1905	0.0224	0.0189	558.3718
Total	**0.3617**	**2.3963**	**3.0482**	**0.0155**	**1.0065**	**0.0161**	**1.0226**	**0.2748**	**0.0152**	**0.2900**	**0.0000**	**1,475.4801**	**1,475.4801**	**0.0409**	**0.1566**	**1,523.1565**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1125	1.0285	1.1614	1.9300e-003		0.0500	0.0500		0.0471	0.0471	0.0000	165.7402	165.7402	0.0394	0.0000	166.7259
Total	**0.1125**	**1.0285**	**1.1614**	**1.9300e-003**		**0.0500**	**0.0500**		**0.0471**	**0.0471**	**0.0000**	**165.7402**	**165.7402**	**0.0394**	**0.0000**	**166.7259**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0545	2.1912	0.6552	9.5200e-003	0.3028	0.0122	0.3150	0.0876	0.0117	0.0993	0.0000	923.2896	923.2896	0.0185	0.1377	964.7847
Worker	0.3072	0.2051	2.3930	6.0200e-003	0.7037	3.8200e-003	0.7075	0.1873	3.5200e-003	0.1908	0.0000	552.1905	552.1905	0.0224	0.0189	558.3718
Total	**0.3617**	**2.3963**	**3.0482**	**0.0155**	**1.0065**	**0.0161**	**1.0226**	**0.2748**	**0.0152**	**0.2900**	**0.0000**	**1,475.4801**	**1,475.4801**	**0.0409**	**0.1566**	**1,523.1565**

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3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2000e-003	0.0612	0.0875	1.4000e-004		3.0600e-003	3.0600e-003		2.8200e-003	2.8200e-003	0.0000	12.0161	12.0161	3.8900e-003	0.0000	12.1133
Paving	0.0559					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0621**	**0.0612**	**0.0875**	**1.4000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8200e-003**	**2.8200e-003**	**0.0000**	**12.0161**	**12.0161**	**3.8900e-003**	**0.0000**	**12.1133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8200e-003	0.0000	5.3000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4197	0.4197	2.0000e-005	1.0000e-005	0.4244
Total	**2.3000e-004**	**1.6000e-004**	**1.8200e-003**	**0.0000**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4197**	**0.4197**	**2.0000e-005**	**1.0000e-005**	**0.4244**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2000e-003	0.0612	0.0875	1.4000e-004		3.0600e-003	3.0600e-003		2.8200e-003	2.8200e-003	0.0000	12.0161	12.0161	3.8900e-003	0.0000	12.1133
Paving	0.0559					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0621**	**0.0612**	**0.0875**	**1.4000e-004**		**3.0600e-003**	**3.0600e-003**		**2.8200e-003**	**2.8200e-003**	**0.0000**	**12.0161**	**12.0161**	**3.8900e-003**	**0.0000**	**12.1133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8200e-003	0.0000	5.3000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4197	0.4197	2.0000e-005	1.0000e-005	0.4244
Total	**2.3000e-004**	**1.6000e-004**	**1.8200e-003**	**0.0000**	**5.3000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4197**	**0.4197**	**2.0000e-005**	**1.0000e-005**	**0.4244**

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3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	7.8200e-003	0.0109	2.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**7.3195**	**7.8200e-003**	**0.0109**	**2.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1500e-003	3.4400e-003	0.0401	1.0000e-004	0.0118	6.0000e-005	0.0119	3.1400e-003	6.0000e-005	3.2000e-003	0.0000	9.2619	9.2619	3.8000e-004	3.2000e-004	9.3656
Total	**5.1500e-003**	**3.4400e-003**	**0.0401**	**1.0000e-004**	**0.0118**	**6.0000e-005**	**0.0119**	**3.1400e-003**	**6.0000e-005**	**3.2000e-003**	**0.0000**	**9.2619**	**9.2619**	**3.8000e-004**	**3.2000e-004**	**9.3656**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	7.3183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	7.8200e-003	0.0109	2.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**7.3195**	**7.8200e-003**	**0.0109**	**2.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1500e-003	3.4400e-003	0.0401	1.0000e-004	0.0118	6.0000e-005	0.0119	3.1400e-003	6.0000e-005	3.2000e-003	0.0000	9.2619	9.2619	3.8000e-004	3.2000e-004	9.3656
Total	**5.1500e-003**	**3.4400e-003**	**0.0401**	**1.0000e-004**	**0.0118**	**6.0000e-005**	**0.0119**	**3.1400e-003**	**6.0000e-005**	**3.2000e-003**	**0.0000**	**9.2619**	**9.2619**	**3.8000e-004**	**3.2000e-004**	**9.3656**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7339	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Unmitigated	0.7339	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**0.7339**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**0.7339**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

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Giovannoni Logistics Phase 1 COLD Op - AIR-2c

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Refrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Architectural Coating -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Water And Wastewater - CalEEMod Note 10
Construction Off-road Equipment Mitigation -
Area Mitigation - CalEEMod Note 8
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11
Stationary Sources - Process Boilers -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	40.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00

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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18
tblVehicleTrips	WD_TR	2.12	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,228.6278	1,228.6278	0.1680	0.0238	1,239.9244
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2947**	**0.6549**	**4.9923**	**0.0136**	**1.3646**	**0.0243**	**1.3889**	**0.3628**	**0.0237**	**0.3865**	**206.3515**	**2,368.5092**	**2,574.8607**	**12.4916**	**0.0680**	**2,907.4075**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.5422	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,228.6278	1,228.6278	0.1680	0.0238	1,239.9244
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**4.9627**	**0.6549**	**4.9848**	**0.0136**	**1.3646**	**0.0242**	**1.3889**	**0.3628**	**0.0237**	**0.3865**	**206.3515**	**2,368.4932**	**2,574.8447**	**12.4916**	**0.0680**	**2,907.3902**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.27**	**0.01**	**0.15**	**0.00**	**0.00**	**0.12**	**0.00**	**0.00**	**0.13**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080
Unmitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3558	1,132.3558	0.0464	0.0396	1,145.3080

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Refrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Parking Lot	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Refrigerated Warehouse-No Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,012.6110	1,012.6110	0.1638	0.0199	1,022.6239
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,012.6110	1,012.6110	0.1638	0.0199	1,022.6239
NaturalGas Mitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005
NaturalGas Unmitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.77479e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.77479e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Refrigerated Warehouse-No Rail	4.56843e+006	422.6883	0.0684	8.2900e-003	426.8680
Refrigerated Warehouse-Rail	5.85143e+006	541.3961	0.0876	0.0106	546.7496
Total		**1,012.6110**	**0.1638**	**0.0199**	**1,022.6239**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Refrigerated Warehouse-No Rail	4.56843e+006	422.6883	0.0684	8.2900e-003	426.8680
Refrigerated Warehouse-Rail	5.85143e+006	541.3961	0.0876	0.0106	546.7496
Total		**1,012.6110**	**0.1638**	**0.0199**	**1,022.6239**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Unmitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Total	**4.5422**	**9.0000e-005**	**0.0104**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0187**	**0.0187**	**4.0000e-005**	**0.0000**	**0.0197**

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7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.6937	0.1915	4.5800e-003	11.8467
Unmitigated	5.6937	0.1915	4.5800e-003	11.8467

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Refrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Refrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Unrefrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - CalEEMod Note 2
Construction Phase - CalEEMod Note 7
Off-road Equipment - CalEEMod Note 7
Trips and VMT -
Grading -
Architectural Coating -
Vehicle Trips - CalEEMod Note 9
Consumer Products -
Energy Use -
Water And Wastewater - CalEEMod Note 10
Construction Off-road Equipment Mitigation -
Area Mitigation - CalEEMod Note 8
Fleet Mix - CalEEMod Note 9
Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11
Stationary Sources - Process Boilers -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	40.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDA	0.52	0.58
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MDV	0.14	0.16
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00

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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18
tblVehicleTrips	WD_TR	1.74	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	591.9062	591.9062	0.0677	0.0114	596.9835
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3545	1,132.3545	0.0464	0.0396	1,145.3067
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**5.2927**	**0.6371**	**4.9773**	**0.0135**	**1.3646**	**0.0229**	**1.3875**	**0.3628**	**0.0223**	**0.3851**	**206.3515**	**1,731.7863**	**1,938.1378**	**12.3914**	**0.0555**	**2,264.4652**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.5422	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	591.9062	591.9062	0.0677	0.0114	596.9835
Mobile	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3545	1,132.3545	0.0464	0.0396	1,145.3067
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.8352	5.6937	0.1915	4.5800e-003	11.8467
Total	**4.9607**	**0.6370**	**4.9698**	**0.0135**	**1.3646**	**0.0229**	**1.3875**	**0.3628**	**0.0223**	**0.3851**	**206.3515**	**1,731.7703**	**1,938.1219**	**12.3913**	**0.0555**	**2,264.4480**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.27**	**0.01**	**0.15**	**0.00**	**0.00**	**0.13**	**0.00**	**0.00**	**0.13**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3545	1,132.3545	0.0464	0.0396	1,145.3067
Unmitigated	0.3908	0.4307	4.7792	0.0123	1.3646	7.3800e-003	1.3720	0.3628	6.8100e-003	0.3696	0.0000	1,132.3545	1,132.3545	0.0464	0.0396	1,145.3067

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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Unrefrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Unrefrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Parking Lot	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Unrefrigerated Warehouse-No Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	395.3195	395.3195	0.0640	7.7500e-003	399.2285
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	395.3195	395.3195	0.0640	7.7500e-003	399.2285
NaturalGas Mitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549
NaturalGas Unmitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Unrefrigerated Warehouse-No Rail	1.64332e+006	152.0462	0.0246	2.9800e-003	153.5496
Unrefrigerated Warehouse-Rail	2.10483e+006	194.7468	0.0315	3.8200e-003	196.6725
Total		**395.3195**	**0.0640**	**7.7500e-003**	**399.2285**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	48.5265	7.8500e-003	9.5000e-004	49.0064
Unrefrigerated Warehouse-No Rail	1.64332e+006	152.0462	0.0246	2.9800e-003	153.5496
Unrefrigerated Warehouse-Rail	2.10483e+006	194.7468	0.0315	3.8200e-003	196.6725
Total		**395.3195**	**0.0640**	**7.7500e-003**	**399.2285**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Unmitigated	4.8742	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6600e-003	1.6000e-004	0.0179	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8742**	**1.6000e-004**	**0.0179**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	9.0000e-005	0.0104	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0197
Total	**4.5422**	**9.0000e-005**	**0.0104**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0187**	**0.0187**	**4.0000e-005**	**0.0000**	**0.0197**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.6937	0.1915	4.5800e-003	11.8467
Unmitigated	5.6937	0.1915	4.5800e-003	11.8467

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.9025	1.5000e-004	2.0000e-005	0.9114
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	2.0981	0.0838	2.0000e-003	4.7886
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.6931	0.1076	2.5700e-003	6.1466
Total		**5.6937**	**0.1915**	**4.5900e-003**	**11.8467**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

Stationary Sources - User Defined -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	60.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,524.8521	1,524.8521	0.2085	0.0296	1,538.8723
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5264**	**0.7310**	**5.7180**	**0.0163**	**1.6937**	**0.0284**	**1.7220**	**0.4503**	**0.0277**	**0.4780**	**351.4186**	**3,043.9904**	**3,395.4090**	**25.3077**	**0.3147**	**4,121.8717**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6399	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,524.8521	1,524.8521	0.2085	0.0296	1,538.8723
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.1143**	**0.7309**	**5.7086**	**0.0163**	**1.6937**	**0.0283**	**1.7220**	**0.4503**	**0.0276**	**0.4779**	**351.4186**	**3,043.9705**	**3,395.3891**	**25.3076**	**0.3147**	**4,121.8502**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.31**	**0.01**	**0.16**	**0.00**	**0.00**	**0.18**	**0.00**	**0.00**	**0.18**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Unmitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Parking Lot	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Refrigerated Warehouse-Rail	0.587070	0.063675	0.196855	0.152400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,256.7532	1,256.7532	0.2033	0.0246	1,269.1802
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,256.7532	1,256.7532	0.2033	0.0246	1,269.1802
NaturalGas Mitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
NaturalGas Unmitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Refrigerated Warehouse-Rail	1.29321e+007	1,196.5270	0.1936	0.0235	1,208.3586
Total		**1,256.7532**	**0.2033**	**0.0246**	**1,269.1802**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Refrigerated Warehouse-Rail	1.29321e+007	1,196.5270	0.1936	0.0235	1,208.3586
Total		**1,256.7532**	**0.2033**	**0.0246**	**1,269.1802**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6399	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Unmitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.7000e-004	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Total	**5.6399**	**1.1000e-004**	**0.0129**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0232**	**0.0232**	**5.0000e-005**	**0.0000**	**0.0244**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	258.0563	10.0411	0.2396	580.4934
Unmitigated	258.0563	10.0411	0.2396	580.4934

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Construction Off-road Equipment Mitigation -

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

Area Mitigation - CalEEMod Note 8

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	60.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.53	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.1680e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.3360e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.7510e-003	0.00
tblFleetMix	SBUS	1.9630e-003	0.00
tblFleetMix	UBUS	6.3500e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	734.6157	734.6157	0.0841	0.0141	740.9171
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.5239**	**0.7089**	**5.6993**	**0.0162**	**1.6937**	**0.0267**	**1.7203**	**0.4503**	**0.0260**	**0.4763**	**351.4186**	**2,253.7540**	**2,605.1726**	**25.1833**	**0.2992**	**3,323.9165**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6399	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	734.6157	734.6157	0.0841	0.0141	740.9171
Mobile	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	160.5470	258.0563	10.0411	0.2396	580.4934
Total	**6.1119**	**0.7088**	**5.6900**	**0.0162**	**1.6937**	**0.0266**	**1.7203**	**0.4503**	**0.0259**	**0.4762**	**351.4186**	**2,253.7342**	**2,605.1528**	**25.1832**	**0.2992**	**3,323.8950**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.32**	**0.01**	**0.16**	**0.00**	**0.00**	**0.19**	**0.00**	**0.00**	**0.19**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766
Unmitigated	0.4434	0.4717	5.4746	0.0148	1.6937	8.6900e-003	1.7024	0.4503	8.0100e-003	0.4583	0.0000	1,356.7204	1,356.7204	0.0521	0.0455	1,371.5766

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Parking Lot	0.527728	0.057239	0.176957	0.136995	0.033875	0.008168	0.012713	0.010801	0.001751	0.000635	0.026841	0.001963	0.004336
Unrefrigerated Warehouse-No Rail	0.587070	0.063675	0.196855	0.152400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	490.6316	490.6316	0.0794	9.6200e-003	495.4830
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	490.6316	490.6316	0.0794	9.6200e-003	495.4830
NaturalGas Mitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
NaturalGas Unmitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Unrefrigerated Warehouse-No Rail	4.65184e+006	430.4054	0.0696	8.4400e-003	434.6614
Total		**490.6316**	**0.0794**	**9.6200e-003**	**495.4830**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	60.2261	9.7400e-003	1.1800e-003	60.8217
Unrefrigerated Warehouse-No Rail	4.65184e+006	430.4054	0.0696	8.4400e-003	434.6614
Total		**490.6316**	**0.0794**	**9.6200e-003**	**495.4830**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6399	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Unmitigated	6.0520	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0500e-003	2.0000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0460
Total	**6.0520**	**2.0000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0460**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.7000e-004	1.1000e-004	0.0129	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Total	**5.6399**	**1.1000e-004**	**0.0129**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0232**	**0.0232**	**5.0000e-005**	**0.0000**	**0.0244**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	258.0563	10.0411	0.2396	580.4934
Unmitigated	258.0563	10.0411	0.2396	580.4934

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.6712	1.0800e-003	1.3000e-004	6.7372
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	251.3851	10.0400	0.2395	573.7562
Total		**258.0563**	**10.0411**	**0.2396**	**580.4934**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Refrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Other Non-Asphalt Surfaces	106.71	1000sqft	2.45	0.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 3

Off-road Equipment - CalEEMod Note 4

Trips and VMT - CalEEMod Note 6

Grading - CalEEMod Note 5

Architectural Coating - CalEEMod Note 8

Vehicle Trips - CalEEMod Note 7

Consumer Products -

Energy Use - CalEEMod Note 7

Water And Wastewater - CalEEMod Note 7

Solid Waste - CalEEMod Note 7

Construction Off-road Equipment Mitigation - CalEEMod Note 8

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 7

Stationary Sources - Process Boilers -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	150.00	50.00
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	6.00
tblConstructionPhase	NumDays	110.00	17.00
tblConstructionPhase	NumDays	1,110.00	168.00
tblConstructionPhase	NumDays	75.00	11.00
tblConstructionPhase	NumDays	75.00	11.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	LightingElect	1.62	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24E	7.99	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	T24E	0.12	0.00
tblEnergyUse	T24E	0.12	0.00
tblEnergyUse	T24NG	0.72	0.00
tblEnergyUse	T24NG	0.72	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.52	0.59
tblFleetMix	LDA	0.52	0.59
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD1	0.04	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	LHD2	8.3450e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MH	4.5230e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	OBUS	1.8150e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	SBUS	1.9730e-003	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblFleetMix	UBUS	6.4000e-004	0.00
tblGrading	MaterialImported	0.00	5,400.00
tblLandUse	LandUseSquareFeet	106,710.00	0.00

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tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.75	0.00
tblSolidWaste	SolidWasteGenerationRate	441.35	0.00
tblSolidWaste	SolidWasteGenerationRate	565.30	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblTripsAndVMT	WorkerTripLength	10.80	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblVehicleTrips	WD_TR	2.12	0.00
tblWater	IndoorWaterUseRate	108,576,500.00	0.00
tblWater	IndoorWaterUseRate	139,069,125.00	0.00
tblWater	OutdoorWaterUseRate	10,437,376.62	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	3.2137	4.4841	4.7708	0.0175	0.9794	0.1182	1.0975	0.2770	0.1112	0.3882	0.0000	1,636.7419	1,636.7419	0.1080	0.1488	1,683.7907
Maximum	**3.2137**	**4.4841**	**4.7708**	**0.0175**	**0.9794**	**0.1182**	**1.0975**	**0.2770**	**0.1112**	**0.3882**	**0.0000**	**1,636.7419**	**1,636.7419**	**0.1080**	**0.1488**	**1,683.7907**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	3.2137	4.4841	4.7708	0.0175	0.9360	0.1182	1.0542	0.2598	0.1112	0.3711	0.0000	1,636.7416	1,636.7416	0.1080	0.1488	1,683.7904
Maximum	**3.2137**	**4.4841**	**4.7708**	**0.0175**	**0.9360**	**0.1182**	**1.0542**	**0.2598**	**0.1112**	**0.3711**	**0.0000**	**1,636.7416**	**1,636.7416**	**0.1080**	**0.1488**	**1,683.7904**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.43**	**0.00**	**3.95**	**6.18**	**0.00**	**4.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-3-2022	4-2-2022	1.5906	1.5906
2	4-3-2022	7-2-2022	1.7204	1.7204
3	7-3-2022	9-30-2022	1.6551	1.6551
		Highest	1.7204	1.7204

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2022	1/10/2022	5	6	
2	Grading	Grading	1/11/2022	2/2/2022	5	17	
3	Building Construction	Building Construction	2/3/2022	9/26/2022	5	168	
4	Paving	Paving	9/27/2022	10/11/2022	5	11	
5	Architectural Coating	Architectural Coating	10/12/2022	10/26/2022	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 51

Acres of Paving: 36.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,606,352; Non-Residential Outdoor: 535,451; Striped Parking Area: 89,910

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	675.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,239.00	484.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	248.00	0.00	0.00	8.12	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9800e-003	0.0201	0.0269	4.0000e-005		1.0800e-003	1.0800e-003		9.9000e-004	9.9000e-004	0.0000	3.2794	3.2794	1.0600e-003	0.0000	3.3059
Total	**1.9800e-003**	**0.0201**	**0.0269**	**4.0000e-005**	**0.0000**	**1.0800e-003**	**1.0800e-003**	**0.0000**	**9.9000e-004**	**9.9000e-004**	**0.0000**	**3.2794**	**3.2794**	**1.0600e-003**	**0.0000**	**3.3059**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.6000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1444	0.1444	1.0000e-005	1.0000e-005	0.1461
Total	**8.0000e-005**	**6.0000e-005**	**6.6000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1444**	**0.1444**	**1.0000e-005**	**1.0000e-005**	**0.1461**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0788	0.0000	0.0788	0.0311	0.0000	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0788**	**0.0139**	**0.0927**	**0.0311**	**0.0128**	**0.0439**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6600e-003	0.0615	0.0116	2.2000e-004	5.7000e-003	5.4000e-004	6.2300e-003	1.5700e-003	5.1000e-004	2.0800e-003	0.0000	21.4738	21.4738	7.0000e-004	3.3900e-003	22.5029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**2.1400e-003**	**0.0618**	**0.0153**	**2.3000e-004**	**6.7100e-003**	**5.5000e-004**	**7.2500e-003**	**1.8400e-003**	**5.2000e-004**	**2.3500e-003**	**0.0000**	**22.2919**	**22.2919**	**7.4000e-004**	**3.4200e-003**	**23.3306**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0355	0.0000	0.0355	0.0140	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0308	0.3302	0.2469	5.3000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	46.3544	46.3544	0.0150	0.0000	46.7292
Total	**0.0308**	**0.3302**	**0.2469**	**5.3000e-004**	**0.0355**	**0.0139**	**0.0494**	**0.0140**	**0.0128**	**0.0268**	**0.0000**	**46.3544**	**46.3544**	**0.0150**	**0.0000**	**46.7292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6600e-003	0.0615	0.0116	2.2000e-004	5.7000e-003	5.4000e-004	6.2300e-003	1.5700e-003	5.1000e-004	2.0800e-003	0.0000	21.4738	21.4738	7.0000e-004	3.3900e-003	22.5029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e-004	3.3000e-004	3.7300e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.7000e-004	0.0000	0.8181	0.8181	4.0000e-005	3.0000e-005	0.8277
Total	**2.1400e-003**	**0.0618**	**0.0153**	**2.3000e-004**	**6.7100e-003**	**5.5000e-004**	**7.2500e-003**	**1.8400e-003**	**5.2000e-004**	**2.3500e-003**	**0.0000**	**22.2919**	**22.2919**	**7.4000e-004**	**3.4200e-003**	**23.3306**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1433	1.3117	1.3745	2.2600e-003		0.0680	0.0680		0.0639	0.0639	0.0000	194.6492	194.6492	0.0466	0.0000	195.8150
Total	**0.1433**	**1.3117**	**1.3745**	**2.2600e-003**		**0.0680**	**0.0680**		**0.0639**	**0.0639**	**0.0000**	**194.6492**	**194.6492**	**0.0466**	**0.0000**	**195.8150**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1019	2.4849	0.7037	8.7700e-003	0.2665	0.0275	0.2940	0.0771	0.0263	0.1034	0.0000	849.8061	849.8061	0.0189	0.1272	888.1935
Worker	0.2912	0.2036	2.2810	5.4600e-003	0.6186	3.5500e-003	0.6221	0.1646	3.2700e-003	0.1679	0.0000	500.8363	500.8363	0.0218	0.0179	506.7172
Total	**0.3931**	**2.6885**	**2.9848**	**0.0142**	**0.8851**	**0.0311**	**0.9161**	**0.2417**	**0.0296**	**0.2713**	**0.0000**	**1,350.6424**	**1,350.6424**	**0.0406**	**0.1451**	**1,394.9106**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1433	1.3117	1.3745	2.2600e-003		0.0680	0.0680		0.0639	0.0639	0.0000	194.6490	194.6490	0.0466	0.0000	195.8148
Total	**0.1433**	**1.3117**	**1.3745**	**2.2600e-003**		**0.0680**	**0.0680**		**0.0639**	**0.0639**	**0.0000**	**194.6490**	**194.6490**	**0.0466**	**0.0000**	**195.8148**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1019	2.4849	0.7037	8.7700e-003	0.2665	0.0275	0.2940	0.0771	0.0263	0.1034	0.0000	849.8061	849.8061	0.0189	0.1272	888.1935
Worker	0.2912	0.2036	2.2810	5.4600e-003	0.6186	3.5500e-003	0.6221	0.1646	3.2700e-003	0.1679	0.0000	500.8363	500.8363	0.0218	0.0179	506.7172
Total	**0.3931**	**2.6885**	**2.9848**	**0.0142**	**0.8851**	**0.0311**	**0.9161**	**0.2417**	**0.0296**	**0.2713**	**0.0000**	**1,350.6424**	**1,350.6424**	**0.0406**	**0.1451**	**1,394.9106**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0700e-003	0.0612	0.0802	1.3000e-004		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	11.0152	11.0152	3.5600e-003	0.0000	11.1042
Paving	0.0451					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0511**	**0.0612**	**0.0802**	**1.3000e-004**		**3.1200e-003**	**3.1200e-003**		**2.8700e-003**	**2.8700e-003**	**0.0000**	**11.0152**	**11.0152**	**3.5600e-003**	**0.0000**	**11.1042**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8100e-003	0.0000	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3970	0.3970	2.0000e-005	1.0000e-005	0.4017
Total	**2.3000e-004**	**1.6000e-004**	**1.8100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3970**	**0.3970**	**2.0000e-005**	**1.0000e-005**	**0.4017**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0700e-003	0.0612	0.0802	1.3000e-004		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	11.0151	11.0151	3.5600e-003	0.0000	11.1042
Paving	0.0451					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0511**	**0.0612**	**0.0802**	**1.3000e-004**		**3.1200e-003**	**3.1200e-003**		**2.8700e-003**	**2.8700e-003**	**0.0000**	**11.0151**	**11.0151**	**3.5600e-003**	**0.0000**	**11.1042**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.8100e-003	0.0000	4.9000e-004	0.0000	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3970	0.3970	2.0000e-005	1.0000e-005	0.4017
Total	**2.3000e-004**	**1.6000e-004**	**1.8100e-003**	**0.0000**	**4.9000e-004**	**0.0000**	**4.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3970**	**0.3970**	**2.0000e-005**	**1.0000e-005**	**0.4017**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1200e-003	7.7500e-003	9.9700e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	1.4043	1.4043	9.0000e-005	0.0000	1.4066
Total	**2.5871**	**7.7500e-003**	**9.9700e-003**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.4043**	**1.4043**	**9.0000e-005**	**0.0000**	**1.4066**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8200e-003	2.6700e-003	0.0299	7.0000e-005	8.1100e-003	5.0000e-005	8.1500e-003	2.1600e-003	4.0000e-005	2.2000e-003	0.0000	6.5639	6.5639	2.9000e-004	2.3000e-004	6.6409
Total	**3.8200e-003**	**2.6700e-003**	**0.0299**	**7.0000e-005**	**8.1100e-003**	**5.0000e-005**	**8.1500e-003**	**2.1600e-003**	**4.0000e-005**	**2.2000e-003**	**0.0000**	**6.5639**	**6.5639**	**2.9000e-004**	**2.3000e-004**	**6.6409**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1200e-003	7.7500e-003	9.9700e-003	2.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	1.4043	1.4043	9.0000e-005	0.0000	1.4066
Total	**2.5871**	**7.7500e-003**	**9.9700e-003**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.4043**	**1.4043**	**9.0000e-005**	**0.0000**	**1.4066**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8200e-003	2.6700e-003	0.0299	7.0000e-005	8.1100e-003	5.0000e-005	8.1500e-003	2.1600e-003	4.0000e-005	2.2000e-003	0.0000	6.5639	6.5639	2.9000e-004	2.3000e-004	6.6409
Total	**3.8200e-003**	**2.6700e-003**	**0.0299**	**7.0000e-005**	**8.1100e-003**	**5.0000e-005**	**8.1500e-003**	**2.1600e-003**	**4.0000e-005**	**2.2000e-003**	**0.0000**	**6.5639**	**6.5639**	**2.9000e-004**	**2.3000e-004**	**6.6409**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	1.0000e-004	0.0109	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0197	0.0197	4.0000e-005	0.0000	0.0207
Unmitigated	4.8743	1.7000e-004	0.0188	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0366	0.0366	1.0000e-004	0.0000	0.0390

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7500e-003	1.7000e-004	0.0188	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	0.0366	0.0366	1.0000e-004	0.0000	0.0390
Total	**4.8743**	**1.7000e-004**	**0.0188**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0366**	**0.0366**	**1.0000e-004**	**0.0000**	**0.0390**

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.4000e-004	1.0000e-004	0.0109	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0197	0.0197	4.0000e-005	0.0000	0.0207
Total	**4.5422**	**1.0000e-004**	**0.0109**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0197**	**0.0197**	**4.0000e-005**	**0.0000**	**0.0207**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	4	48	50	0.73	Diesel
Fire Pump	0	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fire Pump - Diesel (50 - 75 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Refrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	184	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Note 1

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Architectural Coating -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Water And Wastewater - CalEEMod Note 10

Construction Off-road Equipment Mitigation -

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

Stationary Sources - Process Boilers -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	40.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	184
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18
tblVehicleTrips	WD_TR	2.12	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8741	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,129.4418	1,129.4418	0.1680	0.0238	1,140.7384
Mobile	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.4596	5.3180	0.1915	4.5800e-003	11.4710
Total	**5.1137**	**0.4232**	**3.2127**	**0.0107**	**1.3646**	**0.0216**	**1.3862**	**0.3628**	**0.0212**	**0.3840**	**206.3515**	**2,006.6030**	**2,212.9545**	**12.4684**	**0.0535**	**2,540.6139**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.5422	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Energy	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	1,129.4418	1,129.4418	0.1680	0.0238	1,140.7384
Mobile	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.4596	5.3180	0.1915	4.5800e-003	11.4710
Total	**4.7817**	**0.4231**	**3.2053**	**0.0107**	**1.3646**	**0.0216**	**1.3862**	**0.3628**	**0.0212**	**0.3840**	**206.3515**	**2,006.5870**	**2,212.9385**	**12.4684**	**0.0535**	**2,540.5966**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.49**	**0.02**	**0.23**	**0.00**	**0.00**	**0.14**	**0.00**	**0.00**	**0.14**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Unmitigated	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Refrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Parking Lot	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Refrigerated Warehouse-No Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	913.4250	913.4250	0.1638	0.0199	923.4379
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	913.4250	913.4250	0.1638	0.0199	923.4379
NaturalGas Mitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005
NaturalGas Unmitigated	0.0218	0.1984	0.1667	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	216.0168	216.0168	4.1400e-003	3.9600e-003	217.3005

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.77479e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.77479e+006	9.5700e-003	0.0870	0.0731	5.2000e-004		6.6100e-003	6.6100e-003		6.6100e-003	6.6100e-003	0.0000	94.7093	94.7093	1.8200e-003	1.7400e-003	95.2721
Refrigerated Warehouse-Rail	2.27322e+006	0.0123	0.1114	0.0936	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3075	121.3075	2.3300e-003	2.2200e-003	122.0284
Total		**0.0218**	**0.1984**	**0.1667**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**216.0168**	**216.0168**	**4.1500e-003**	**3.9600e-003**	**217.3005**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	43.7733	7.8500e-003	9.5000e-004	44.2532
Refrigerated Warehouse-No Rail	4.56843e+006	381.2857	0.0684	8.2900e-003	385.4653
Refrigerated Warehouse-Rail	5.85143e+006	488.3660	0.0876	0.0106	493.7194
Total		**913.4250**	**0.1638**	**0.0199**	**923.4379**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	43.7733	7.8500e-003	9.5000e-004	44.2532
Refrigerated Warehouse-No Rail	4.56843e+006	381.2857	0.0684	8.2900e-003	385.4653
Refrigerated Warehouse-Rail	5.85143e+006	488.3660	0.0876	0.0106	493.7194
Total		**913.4250**	**0.1638**	**0.0199**	**923.4379**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Unmitigated	4.8741	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6200e-003	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8741**	**1.6000e-004**	**0.0177**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.9000e-004	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Total	**4.5422**	**9.0000e-005**	**0.0103**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0187**	**0.0187**	**4.0000e-005**	**0.0000**	**0.0196**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3180	0.1915	4.5800e-003	11.4710
Unmitigated	5.3180	0.1915	4.5800e-003	11.4710

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.8141	1.5000e-004	2.0000e-005	0.8230
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	1.9723	0.0838	2.0000e-003	4.6629
Refrigerated Warehouse-Rail	3.29267 / 0	2.5316	0.1076	2.5700e-003	5.9851
Total		**5.3180**	**0.1915**	**4.5900e-003**	**11.4710**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.8141	1.5000e-004	2.0000e-005	0.8230
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.56522 / 0	1.9723	0.0838	2.0000e-003	4.6629
Refrigerated Warehouse-Rail	3.29267 / 0	2.5316	0.1076	2.5700e-003	5.9851
Total		**5.3180**	**0.1915**	**4.5900e-003**	**11.4710**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Refrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	469.52	1000sqft	10.78	469,520.00	0
Unrefrigerated Warehouse-Rail	601.38	1000sqft	13.81	601,380.00	0
Parking Lot	860.00	Space	34.40	1,498,504.00	0
City Park	8.76	Acre	8.76	381,585.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	184	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Note 1

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Architectural Coating -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Water And Wastewater - CalEEMod Note 10

Construction Off-road Equipment Mitigation -

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

Stationary Sources - Process Boilers -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	40.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblLandUse	LandUseSquareFeet	344,000.00	1,498,504.00
tblLandUse	LotAcreage	7.74	34.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	184
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18
tblVehicleTrips	WD_TR	1.74	1.18
tblWater	IndoorWaterUseRate	108,576,500.00	2,565,220.00
tblWater	IndoorWaterUseRate	139,069,125.00	3,292,665.00
tblWater	OutdoorWaterUseRate	10,437,376.62	2,786,968.00

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.8741	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	553.1844	553.1844	0.0677	0.0114	558.2616
Mobile	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.4596	5.3180	0.1915	4.5800e-003	11.4710
Total	**5.1117**	**0.4054**	**3.1977**	**0.0106**	**1.3646**	**0.0202**	**1.3849**	**0.3628**	**0.0199**	**0.3827**	**206.3515**	**1,430.3456**	**1,636.6971**	**12.3682**	**0.0411**	**1,958.1371**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.5422	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Energy	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	553.1844	553.1844	0.0677	0.0114	558.2616
Mobile	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Stationary	7.8800e-003	0.0257	0.0286	4.0000e-005		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	3.6557	3.6557	5.1000e-004	0.0000	3.6685
Waste						0.0000	0.0000		0.0000	0.0000	204.4931	0.0000	204.4931	12.0852	0.0000	506.6230
Water						0.0000	0.0000		0.0000	0.0000	1.8584	3.4596	5.3180	0.1915	4.5800e-003	11.4710
Total	**4.7797**	**0.4053**	**3.1903**	**0.0106**	**1.3646**	**0.0202**	**1.3849**	**0.3628**	**0.0198**	**0.3827**	**206.3515**	**1,430.3296**	**1,636.6811**	**12.3681**	**0.0411**	**1,958.1198**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.49**	**0.02**	**0.23**	**0.00**	**0.00**	**0.15**	**0.00**	**0.00**	**0.15**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761
Unmitigated	0.2098	0.1989	2.9997	9.4800e-003	1.3646	4.7200e-003	1.3694	0.3628	4.3400e-003	0.3672	0.0000	870.0113	870.0113	0.0232	0.0251	878.0761

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Unrefrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0
Unrefrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Parking Lot	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Unrefrigerated Warehouse-No Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	356.5977	356.5977	0.0640	7.7500e-003	360.5067
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	356.5977	356.5977	0.0640	7.7500e-003	360.5067
NaturalGas Mitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549
NaturalGas Unmitigated	0.0199	0.1806	0.1517	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	196.5867	196.5867	3.7700e-003	3.6000e-003	197.7549

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.61515e+006	8.7100e-003	0.0792	0.0665	4.8000e-004		6.0200e-003	6.0200e-003		6.0200e-003	6.0200e-003	0.0000	86.1905	86.1905	1.6500e-003	1.5800e-003	86.7027
Unrefrigerated Warehouse-Rail	2.06875e+006	0.0112	0.1014	0.0852	6.1000e-004		7.7100e-003	7.7100e-003		7.7100e-003	7.7100e-003	0.0000	110.3962	110.3962	2.1200e-003	2.0200e-003	111.0523
Total		**0.0199**	**0.1806**	**0.1517**	**1.0900e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**	**0.0000**	**196.5867**	**196.5867**	**3.7700e-003**	**3.6000e-003**	**197.7549**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	43.7733	7.8500e-003	9.5000e-004	44.2532
Unrefrigerated Warehouse-No Rail	1.64332e+006	137.1531	0.0246	2.9800e-003	138.6566
Unrefrigerated Warehouse-Rail	2.10483e+006	175.6712	0.0315	3.8200e-003	177.5969
Total		**356.5977**	**0.0640**	**7.7500e-003**	**360.5067**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	524476	43.7733	7.8500e-003	9.5000e-004	44.2532
Unrefrigerated Warehouse-No Rail	1.64332e+006	137.1531	0.0246	2.9800e-003	138.6566
Unrefrigerated Warehouse-Rail	2.10483e+006	175.6712	0.0315	3.8200e-003	177.5969
Total		**356.5977**	**0.0640**	**7.7500e-003**	**360.5067**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5422	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Unmitigated	4.8741	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5897					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6200e-003	1.6000e-004	0.0177	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0347	0.0347	9.0000e-005	0.0000	0.0369
Total	**4.8741**	**1.6000e-004**	**0.0177**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0347**	**0.0347**	**9.0000e-005**	**0.0000**	**0.0369**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.9000e-004	9.0000e-005	0.0103	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0187	0.0187	4.0000e-005	0.0000	0.0196
Total	**4.5422**	**9.0000e-005**	**0.0103**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0187**	**0.0187**	**4.0000e-005**	**0.0000**	**0.0196**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3180	0.1915	4.5800e-003	11.4710
Unmitigated	5.3180	0.1915	4.5800e-003	11.4710

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.8141	1.5000e-004	2.0000e-005	0.8230
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	1.9723	0.0838	2.0000e-003	4.6629
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.5316	0.1076	2.5700e-003	5.9851
Total		**5.3180**	**0.1915**	**4.5900e-003**	**11.4710**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.78697	0.8141	1.5000e-004	2.0000e-005	0.8230
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2.56522 / 0	1.9723	0.0838	2.0000e-003	4.6629
Unrefrigerated Warehouse-Rail	3.29267 / 0	2.5316	0.1076	2.5700e-003	5.9851
Total		**5.3180**	**0.1915**	**4.5900e-003**	**11.4710**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	204.4931	12.0852	0.0000	506.6230
Unmitigated	204.4931	12.0852	0.0000	506.6230

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.75	0.1522	9.0000e-003	0.0000	0.3772
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	441.35	89.5901	5.2946	0.0000	221.9556
Unrefrigerated Warehouse-Rail	565.3	114.7508	6.7816	0.0000	284.2902
Total		**204.4931**	**12.0852**	**0.0000**	**506.6230**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	4	48	50	0.73	Diesel
Fire Pump	2	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Fire Pump - Diesel (50 - 75 HP)	3.9400e-003	0.0128	0.0143	2.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Total	**7.8800e-003**	**0.0257**	**0.0286**	**4.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**3.6557**	**3.6557**	**5.2000e-004**	**0.0000**	**3.6685**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	184	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Note 1

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

Stationary Sources - User Defined -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	60.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	184
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.12	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	2.12	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	2.12	1.18

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0519	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,401.7521	1,401.7521	0.2085	0.0296	1,415.7723
Mobile	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	144.8213	242.3306	10.0411	0.2396	564.7677
Total	**6.3434**	**0.5062**	**3.9662**	**0.0133**	**1.6937**	**0.0255**	**1.7192**	**0.4503**	**0.0251**	**0.4754**	**351.4186**	**2,628.2202**	**2,979.6388**	**25.2843**	**0.3004**	**3,701.2546**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6399	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Energy	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	1,401.7521	1,401.7521	0.2085	0.0296	1,415.7723
Mobile	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	144.8213	242.3306	10.0411	0.2396	564.7677
Total	**5.9314**	**0.5061**	**3.9569**	**0.0133**	**1.6937**	**0.0255**	**1.7191**	**0.4503**	**0.0250**	**0.4753**	**351.4186**	**2,628.2004**	**2,979.6189**	**25.2842**	**0.3004**	**3,701.2332**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.50**	**0.02**	**0.23**	**0.00**	**0.00**	**0.20**	**0.00**	**0.00**	**0.20**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Unmitigated	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Parking Lot	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Refrigerated Warehouse-Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,133.6532	1,133.6532	0.2033	0.0246	1,146.0803
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,133.6532	1,133.6532	0.2033	0.0246	1,146.0803
NaturalGas Mitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
NaturalGas Unmitigated	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	5.02398e+006	0.0271	0.2463	0.2069	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.0989	268.0989	5.1400e-003	4.9200e-003	269.6920
Total		**0.0271**	**0.2463**	**0.2069**	**1.4800e-003**		**0.0187**	**0.0187**		**0.0187**	**0.0187**	**0.0000**	**268.0989**	**268.0989**	**5.1400e-003**	**4.9200e-003**	**269.6920**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	54.3269	9.7400e-003	1.1800e-003	54.9225
Refrigerated Warehouse-Rail	1.29321e+007	1,079.3263	0.1936	0.0235	1,091.1578
Total		**1,133.6532**	**0.2033**	**0.0246**	**1,146.0803**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	54.3269	9.7400e-003	1.1800e-003	54.9225
Refrigerated Warehouse-Rail	1.29321e+007	1,079.3263	0.1936	0.0235	1,091.1578
Total		**1,133.6532**	**0.2033**	**0.0246**	**1,146.0803**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6399	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Unmitigated	6.0519	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459
Total	**6.0519**	**2.0000e-004**	**0.0221**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0459**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.6000e-004	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Total	**5.6399**	**1.1000e-004**	**0.0128**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0232**	**0.0232**	**5.0000e-005**	**0.0000**	**0.0244**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	242.3306	10.0411	0.2396	564.7677
Unmitigated	242.3306	10.0411	0.2396	564.7677

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.0178	1.0800e-003	1.3000e-004	6.0837
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	236.3129	10.0400	0.2395	558.6840
Total		**242.3306**	**10.0411**	**0.2396**	**564.7677**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.0178	1.0800e-003	1.3000e-004	6.0837
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	307.354 / 0	236.3129	10.0400	0.2395	558.6840
Total		**242.3306**	**10.0411**	**0.2396**	**564.7677**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,329.10	1000sqft	30.51	1,329,096.00	0
Parking Lot	1,067.00	Space	42.69	1,859,789.00	0
City Park	17.29	Acre	17.29	753,152.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.6	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	184	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CalEEMod Note 1

Land Use - CalEEMod Note 2

Construction Phase - CalEEMod Note 7

Off-road Equipment - CalEEMod Note 7

Trips and VMT -

Grading -

Vehicle Trips - CalEEMod Note 9

Consumer Products -

Energy Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - CalEEMod Note 8

Fleet Mix - CalEEMod Note 9

Stationary Sources - Emergency Generators and Fire Pumps - CalEEMod Note 11

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	100	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50
tblConstructionPhase	NumDays	60.00	0.00
tblFleetMix	HHD	0.01	0.00
tblFleetMix	LDA	0.57	0.63
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.17	0.18
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.9330e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	3.2310e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.6620e-003	0.00
tblFleetMix	SBUS	1.7330e-003	0.00
tblFleetMix	UBUS	5.8900e-004	0.00
tblLandUse	LandUseSquareFeet	1,329,100.00	1,329,096.00
tblLandUse	LandUseSquareFeet	426,800.00	1,859,789.00
tblLandUse	LotAcreage	9.60	42.69
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	184
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	48.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CNW_TL	7.30	8.12
tblVehicleTrips	CW_TL	9.50	8.12
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	1.74	1.18
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	1.74	1.18
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	1.74	1.18

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2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.0519	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	686.5580	686.5580	0.0841	0.0141	692.8593
Mobile	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	144.8213	242.3306	10.0411	0.2396	564.7677
Total	**6.3410**	**0.4841**	**3.9476**	**0.0131**	**1.6937**	**0.0238**	**1.7175**	**0.4503**	**0.0234**	**0.4737**	**351.4186**	**1,913.0261**	**2,264.4447**	**25.1599**	**0.2849**	**2,978.3416**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6399	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Energy	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	686.5580	686.5580	0.0841	0.0141	692.8593
Mobile	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Stationary	3.9400e-003	0.0128	0.0143	2.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.8278	1.8278	2.6000e-004	0.0000	1.8342
Waste						0.0000	0.0000		0.0000	0.0000	253.9092	0.0000	253.9092	15.0056	0.0000	629.0493
Water						0.0000	0.0000		0.0000	0.0000	97.5094	144.8213	242.3306	10.0411	0.2396	564.7677
Total	**5.9289**	**0.4840**	**3.9383**	**0.0131**	**1.6937**	**0.0238**	**1.7175**	**0.4503**	**0.0233**	**0.4736**	**351.4186**	**1,913.0062**	**2,264.4248**	**25.1598**	**0.2849**	**2,978.3201**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.50**	**0.02**	**0.24**	**0.00**	**0.00**	**0.21**	**0.00**	**0.00**	**0.21**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852
Unmitigated	0.2604	0.2469	3.7230	0.0118	1.6937	5.8600e-003	1.6995	0.4503	5.3900e-003	0.4557	0.0000	1,079.7759	1,079.7759	0.0287	0.0312	1,089.7852

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	8.12	7.30	8.12	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Parking Lot	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Unrefrigerated Warehouse-No Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	442.5738	442.5738	0.0794	9.6200e-003	447.4253
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	442.5738	442.5738	0.0794	9.6200e-003	447.4253
NaturalGas Mitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
NaturalGas Unmitigated	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.57209e+006	0.0247	0.2241	0.1883	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.9842	243.9842	4.6800e-003	4.4700e-003	245.4340
Total		**0.0247**	**0.2241**	**0.1883**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.9842**	**243.9842**	**4.6800e-003**	**4.4700e-003**	**245.4340**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	54.3269	9.7400e-003	1.1800e-003	54.9225
Unrefrigerated Warehouse-No Rail	4.65184e+006	388.2469	0.0696	8.4400e-003	392.5028
Total		**442.5738**	**0.0794**	**9.6200e-003**	**447.4253**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	650926	54.3269	9.7400e-003	1.1800e-003	54.9225
Unrefrigerated Warehouse-No Rail	4.65184e+006	388.2469	0.0696	8.4400e-003	392.5028
Total		**442.5738**	**0.0794**	**9.6200e-003**	**447.4253**

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6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6399	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Unmitigated	6.0519	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.7318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0221	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0431	0.0431	1.1000e-004	0.0000	0.0459
Total	**6.0519**	**2.0000e-004**	**0.0221**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**1.1000e-004**	**0.0000**	**0.0459**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3210					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.3181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.6000e-004	1.1000e-004	0.0128	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0232	0.0232	5.0000e-005	0.0000	0.0244
Total	**5.6399**	**1.1000e-004**	**0.0128**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0232**	**0.0232**	**5.0000e-005**	**0.0000**	**0.0244**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	242.3306	10.0411	0.2396	564.7677
Unmitigated	242.3306	10.0411	0.2396	564.7677

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.0178	1.0800e-003	1.3000e-004	6.0837
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	236.3129	10.0400	0.2395	558.6840
Total		**242.3306**	**10.0411**	**0.2396**	**564.7677**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 20.6007	6.0178	1.0800e-003	1.3000e-004	6.0837
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	307.354 / 0	236.3129	10.0400	0.2395	558.6840
Total		**242.3306**	**10.0411**	**0.2396**	**564.7677**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.9092	15.0056	0.0000	629.0493
Unmitigated	253.9092	15.0056	0.0000	629.0493

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.49	0.3025	0.0179	0.0000	0.7493
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1249.35	253.6068	14.9877	0.0000	628.3000
Total		**253.9092**	**15.0056**	**0.0000**	**629.0493**

Giovannoni Logistics Phase 2 DRY 2030 Op - AIR-2c - Napa County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	48	50	0.73	Diesel
Fire Pump	1	4	48	50	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel ((50 - 75 HP))	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Fire Pump - Diesel (50 - 75 HP)	1.9700e-003	6.4200e-003	7.1500e-003	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.9139	0.9139	1.3000e-004	0.0000	0.9171
Total	**3.9400e-003**	**0.0128**	**0.0143**	**2.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.8278**	**1.8278**	**2.6000e-004**	**0.0000**	**1.8342**

TRU Emissions

Pollutant
PM10

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457	0.000252233
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973	0.004954917
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115	0.000657169
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05	1.52139E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722	0.000158174
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897	0.002621946
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302	0.000271405

PM10 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)
TRU - Instate Genset TRU	Aggregate	1.32066E-05	0.004820419	4376.940552
TRU - Instate Trailer TRU	Aggregate	0.000630634	0.23018155	209004.8473
TRU - Instate Truck TRU	Aggregate	0.000258749	0.09444353	85754.7254
TRU - Instate Van TRU	Aggregate	5.99023E-06	0.002186434	1985.281942
TRU - Out-of-State Genset TRU	Aggregate	8.29941E-06	0.003029284	2750.59003
TRU - Out-of-State Trailer TRU	Aggregate	0.000175741	0.064145632	58244.23417
TRU - Railcar TRU	Aggregate	1.81915E-05	0.006639899	6029.028553

Pollutant

PM10

TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
976877.5028	0.004480542	31011.98422	31.5
8116838.561	0.025749539	238730.5459	34
905803.8784	0.094672509	64241.40982	14.1
20969.99388	0.094672509	2329.99932	9
615557.108	0.004468456	19541.49549	31.5
5070401.618	0.011487105	149129.4594	34
524851.8856	0.011487105	15436.82017	34

Weighted by Usage 0.022681217 Weighted by Activity

Pollutant

PM10

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr	Fuel Consumption gallons/year	Fuel Rate gallons/hr
0.141137069	51.47819451	0.001659945
0.87548431	596.2302392	0.002497503
1.33488237	81.00120162	0.001260888
0.852052584	1.875234521	0.000804822
0.140756373	32.43781175	0.001659945
0.390561559	372.4512625	0.002497503
0.390561559	38.55350368	0.002497503
Weighted	Total	Weighted
0.707398707	1174.027448	0.002255916

TRU Emissions

Pollutant
PM2.5

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302

PM2.5 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	1.21501E-05	0.004434786
TRU - Instate Trailer TRU	Aggregate	0.000580184	0.211767026
TRU - Instate Truck TRU	Aggregate	0.000238049	0.086888048
TRU - Instate Van TRU	Aggregate	5.51101E-06	0.002011519
TRU - Out-of-State Genset TRU	Aggregate	7.63546E-06	0.002786941
TRU - Out-of-State Trailer TRU	Aggregate	0.000161682	0.059013982
TRU - Railcar TRU	Aggregate	1.67362E-05	0.006108707

Pollutant

PM2.5

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
4026.785308	976877.5028	0.004122099	31011.98422	31.5
192284.4596	8116838.561	0.023689575	238730.5459	34
78894.34736	905803.8784	0.087098708	64241.40982	14.1
1826.459387	20969.99388	0.087098709	2329.99932	9
2530.542827	615557.108	0.00411098	19541.49549	31.5
53584.69543	5070401.618	0.010568136	149129.4594	34
5546.706268	524851.8856	0.010568136	15436.82017	34
	Weighted by Usage	0.02086672		Weighted by Activity

Pollutant
PM2.5

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr
0.129846103
0.805445565
1.228091781
0.783888378
0.129495863
0.359316634
0.359316634
Weighted 0.650806811

TRU Emissions

Pollutant
NOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate

NOx Emissions

Vehicle Category	Horsepower
TRU - Instate Genset TRU	Aggregate
TRU - Instate Trailer TRU	Aggregate
TRU - Instate Truck TRU	Aggregate
TRU - Instate Van TRU	Aggregate
TRU - Out-of-State Genset TRU	Aggregate
TRU - Out-of-State Trailer TRU	Aggregate
TRU - Railcar TRU	Aggregate

Pollutant

NOx

Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd
Diesel	0.000208457	0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05
Diesel	0.004094973	0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634
Diesel	0.000543115	0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749
Diesel	1.25735E-05	1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06
Diesel	0.000130722	0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06
Diesel	0.002166897	0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741
Diesel	0.000224302	0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05

Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)
0.002949748	1.076658156	977605.6054	976877.5028	1.000745337	31011.98422
0.039868714	14.5520806	13213289.19	8116838.561	1.627886164	238730.5459
0.00637774	2.327875009	2113710.508	905803.8784	2.333518942	64241.40982
0.000147649	0.053891936	48933.87794	20969.99388	2.333518942	2329.99932
0.001857468	0.677975652	615601.8923	615557.108	1.000072754	19541.49549
0.023131297	8.44292335	7666174.402	5070401.618	1.511946189	149129.4594
0.002394387	0.873951331	793547.8081	524851.8856	1.511946189	15436.82017
			Weighted by Usage	1.566655931	

Pollutant

NOx

PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
1.21501E-05	7.48568E-07	6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
0.000580184	8.61965E-06	7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
0.000238049	1.17142E-06	1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
5.51101E-06	2.71193E-08	2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
7.63546E-06	4.71712E-07	4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
0.000161682	5.39623E-06	4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
1.67362E-05	5.58579E-07	4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Horsepower (HP)	Emission Rate grams/hr
31.5	31.5234781
34	55.34812956
14.1	32.90261709
9	21.00167048
31.5	31.50229175
34	51.40617041
34	51.40617041
	Weighted
Weighted by Activity	**48.86203358**

TRU Emissions

Pollutant
CO

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302

CO Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.00397402	1.450517148
TRU - Instate Trailer TRU	Aggregate	0.061007729	22.2678209
TRU - Instate Truck TRU	Aggregate	0.005317827	1.941006813
TRU - Instate Van TRU	Aggregate	0.000123111	0.044935666
TRU - Out-of-State Genset TRU	Aggregate	0.002498076	0.911797789
TRU - Out-of-State Trailer TRU	Aggregate	0.035064922	12.7986964
TRU - Railcar TRU	Aggregate	0.003629671	1.324829953

Pollutant

CO

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
1317069.57	976877.5028	1.348244346	31011.98422	31.5
20219181.38	8116838.561	2.49101682	238730.5459	34
1762434.186	905803.8784	1.945712784	64241.40982	14.1
40801.58518	20969.99388	1.945712784	2329.99932	9
827912.3921	615557.108	1.344980638	19541.49549	31.5
11621216.33	5070401.618	2.291971564	149129.4594	34
1202945.597	524851.8856	2.291971564	15436.82017	34
	Weighted by Usage	2.279026313		Weighted by Activity

Pollutant
CO

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr
42.46969691
84.69457187
27.43455026
17.51141506
42.36689011
77.92703318
77.92703318
Weighted 71.0799723

TRU Emissions

Pollutant
ROG

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302

ROG Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.000252233	0.092065067
TRU - Instate Trailer TRU	Aggregate	0.004954917	1.808544616
TRU - Instate Truck TRU	Aggregate	0.000657169	0.239866639
TRU - Instate Van TRU	Aggregate	1.52139E-05	0.005553081
TRU - Out-of-State Genset TRU	Aggregate	0.000158174	0.057733347
TRU - Out-of-State Trailer TRU	Aggregate	0.002621946	0.957010119
TRU - Railcar TRU	Aggregate	0.000271405	0.099062876

Pollutant

ROG

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
83595.08058	976877.5028	0.08557376	31011.98422	31.5
1642158.512	8116838.561	0.202315039	238730.5459	34
217798.9084	905803.8784	0.240448196	64241.40982	14.1
5042.197197	20969.99388	0.240448196	2329.99932	9
52421.87892	615557.108	0.085161682	19541.49549	31.5
868965.1877	5070401.618	0.171379952	149129.4594	34
89949.09114	524851.8856	0.171379952	15436.82017	34
	Weighted by Usage	0.182359439		Weighted by Activity

Pollutant
ROG

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr
2.695573427
6.878711332
3.390319563
2.164033763
2.682592995
5.826918379
5.826918379
Weighted 5.687562172

TRU Emissions

Pollutant

SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	7.48568E-07	0.000273227
TRU - Instate Trailer TRU	Aggregate	8.61965E-06	0.00314617
TRU - Instate Truck TRU	Aggregate	1.17142E-06	0.000427569
TRU - Instate Van TRU	Aggregate	2.71193E-08	9.89853E-06
TRU - Out-of-State Genset TRU	Aggregate	4.71712E-07	0.000172175
TRU - Out-of-State Trailer TRU	Aggregate	5.39623E-06	0.001969623
TRU - Railcar TRU	Aggregate	5.58579E-07	0.000203881

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
248.0905657	976877.5028	0.000253963	31011.98422	31.5
2856.722749	8116838.561	0.00035195	238730.5459	34
388.2330525	905803.8784	0.000428606	64241.40982	14.1
8.98786694	20969.99388	0.000428606	2329.99932	9
156.3349082	615557.108	0.000253973	19541.49549	31.5
1788.41766	5070401.618	0.000352717	149129.4594	34
185.1242667	524851.8856	0.000352717	15436.82017	34
	Weighted by Usage	0.000346978		Weighted by Activity

Pollutant
SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr
0.007999829
0.011966306
0.006043346
0.003857455
0.008000151
0.011992383
0.011992383
Weighted
0.010821822

TRU Emissions

Pollutant
SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2022	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000208457
Napa	2022	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004094973
Napa	2022	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000543115
Napa	2022	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.25735E-05
Napa	2022	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000130722
Napa	2022	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.002166897
Napa	2022	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000224302

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.081098192	29.60084007
TRU - Instate Trailer TRU	Aggregate	0.939294683	342.8425593
TRU - Instate Truck TRU	Aggregate	0.127608419	46.57707282
TRU - Instate Van TRU	Aggregate	0.002954224	1.078291841
TRU - Out-of-State Genset TRU	Aggregate	0.051102178	18.65229515
TRU - Out-of-State Trailer TRU	Aggregate	0.586755699	214.16583
TRU - Railcar TRU	Aggregate	0.060736774	22.16892234

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000252233	0.000300178	0.00397402	0.002949748	0.081098192	1.32066E-05	1.21501E-05	7.48568E-07
0.004954917	0.00589676	0.061007729	0.039868714	0.939294683	0.000630634	0.000580184	8.61965E-06
0.000657169	0.000782085	0.005317827	0.00637774	0.127608419	0.000258749	0.000238049	1.17142E-06
1.52139E-05	1.81058E-05	0.000123111	0.000147649	0.002954224	5.99023E-06	5.51101E-06	2.71193E-08
0.000158174	0.00018824	0.002498076	0.001857468	0.051102178	8.29941E-06	7.63546E-06	4.71712E-07
0.002621946	0.003120332	0.035064922	0.023131297	0.586755699	0.000175741	0.000161682	5.39623E-06
0.000271405	0.000322995	0.003629671	0.002394387	0.060736774	1.81915E-05	1.67362E-05	5.58579E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
26877562.78	976877.5028	27.51374937	31011.98422	31.5
311301043.8	8116838.561	38.35249913	238730.5459	34
42291982.12	905803.8784	46.68999894	64241.40982	14.1
979088.9919	20969.99388	46.68999894	2329.99932	9
16936284	615557.108	27.51374937	19541.49549	31.5
194462573.6	5070401.618	38.35249913	149129.4594	34
20129381.49	524851.8856	38.35249913	15436.82017	34
	Weighted by Usage	37.76517569		Weighted by Activity

Pollutant
SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.66352E-07	51.47819451	31011.98422	39.72225341	976877.5028
7.71782E-06	596.2302392	238730.5459	180.1899116	8116838.561
1.04851E-06	81.00120162	64241.40982	47.20162367	905803.8784
2.42737E-08	1.875234521	2329.99932	1.711975988	20969.99388
4.19887E-07	32.43781175	19541.49549	158.0465477	615557.108
4.82114E-06	372.4512625	149129.4594	710.7368253	5070401.618
4.9905E-07	38.55350368	15436.82017	47.87650084	524851.8856

Emission Rate grams/hr
866.6831053
1303.98497
658.328985
420.2099904
866.6831053
1303.98497
1303.98497
Weighted 1177.848464

TRU Emissions

Pollutant
PM10

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433	0.000267934
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344	0.005328047
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592	0.000669847
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05	1.55074E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314	0.00016857
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398	0.002799916
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527	0.000289827

PM10 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)
TRU - Instate Genset TRU	Aggregate	1.3884E-05	0.005067657	4601.432458
TRU - Instate Trailer TRU	Aggregate	0.000580012	0.211704265	192227.4723
TRU - Instate Truck TRU	Aggregate	0.00026125	0.095356267	86583.49051
TRU - Instate Van TRU	Aggregate	6.04812E-06	0.002207564	2004.468434
TRU - Out-of-State Genset TRU	Aggregate	8.74097E-06	0.003190454	2896.932578
TRU - Out-of-State Trailer TRU	Aggregate	0.000161647	0.059001115	53573.01283
TRU - Railcar TRU	Aggregate	1.67325E-05	0.006107376	5545.496969

Pollutant

PM10

TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
1013346.658	0.004540828	32169.73519	31.5
8287270.465	0.023195511	243743.249	34
924823.3375	0.093621654	65590.30763	14.1
21410.30767	0.093621655	2378.923075	9
638537.3157	0.004536826	20271.0259	31.5
5201404.689	0.01029972	152982.4909	34
538412.3911	0.01029972	15835.65856	34

Weighted by Usage 0.020897926 Weighted by Activity

Pollutant

PM10

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr	Fuel Consumption gallons/year	Fuel Rate gallons/hr
0.143036069	53.39999768	0.001659945
0.78864737	608.7494798	0.002497503
1.320065321	82.70201024	0.001260888
0.842594893	1.914609431	0.000804822
0.142910013	33.64879225	0.001659945
0.350190486	382.07422	0.002497503
0.350190486	39.54960374	0.002497503
Weighted	Total	Weighted
0.651877967	1202.038713	0.002255353

TRU Emissions

Pollutant
PM2.5

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527

PM2.5 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	1.27733E-05	0.004662244
TRU - Instate Trailer TRU	Aggregate	0.000533611	0.194767923
TRU - Instate Truck TRU	Aggregate	0.00024035	0.087727766
TRU - Instate Van TRU	Aggregate	5.56427E-06	0.002030959
TRU - Out-of-State Genset TRU	Aggregate	8.04169E-06	0.002935218
TRU - Out-of-State Trailer TRU	Aggregate	0.000148715	0.054281026
TRU - Railcar TRU	Aggregate	1.53939E-05	0.005618785

Pollutant

PM2.5

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
4233.317861	1013346.658	0.004177561	32169.73519	31.5
176849.2745	8287270.465	0.02133987	243743.249	34
79656.81127	924823.3375	0.086131922	65590.30763	14.1
1844.11096	21410.30767	0.086131922	2378.923075	9
2665.177971	638537.3157	0.00417388	20271.0259	31.5
49287.17181	5201404.689	0.009475743	152982.4909	34
5101.857211	538412.3911	0.009475743	15835.65856	34
	Weighted by Usage	0.019226092		Weighted by Activity

Pollutant
PM2.5

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr
0.131593183
0.725555581
1.214460096
0.775187302
0.131477212
0.322175247
0.322175247
Weighted 0.599727729

TRU Emissions

Pollutant
NOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate

NOx Emissions

Vehicle Category	Horsepower
TRU - Instate Genset TRU	Aggregate
TRU - Instate Trailer TRU	Aggregate
TRU - Instate Truck TRU	Aggregate
TRU - Instate Van TRU	Aggregate
TRU - Out-of-State Genset TRU	Aggregate
TRU - Out-of-State Trailer TRU	Aggregate
TRU - Railcar TRU	Aggregate

Pollutant

NOx

Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd
Diesel	0.000221433	0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05
Diesel	0.004403344	0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012
Diesel	0.000553592	0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125
Diesel	1.28161E-05	1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06
Diesel	0.000139314	0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06
Diesel	0.00231398	0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647
Diesel	0.000239527	0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05

Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)
0.003070126	1.120596167	1017501.32	1013346.658	1.004099941	32169.73519
0.040799026	14.89164462	13521613.31	8287270.465	1.631612407	243743.249
0.006500719	2.372762376	2154468.238	924823.3375	2.329599774	65590.30763
0.000150496	0.05493111	49877.4479	21410.30767	2.329599774	2378.923075
0.001934141	0.705961607	641013.139	638537.3157	1.003877335	20271.0259
0.023713261	8.65534022	7859048.92	5201404.689	1.510947405	152982.4909
0.002454628	0.895939213	813512.8053	538412.3911	1.510947405	15835.65856

Weighted by Usage 1.56732112

Pollutant
NOx

PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
1.27733E-05	7.76359E-07	6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
0.000533611	8.79396E-06	7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
0.00024035	1.19605E-06	1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
5.56427E-06	2.76893E-08	2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
8.04169E-06	4.89211E-07	4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
0.000148715	5.53292E-06	4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
1.53939E-05	5.72728E-07	5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Horsepower (HP)	Emission Rate grams/hr
31.5	31.62914814
34	55.47482185
14.1	32.84735681
9	20.96639796
31.5	31.62213606
34	51.37221178
34	51.37221178
	Weighted
Weighted by Activity	**48.89011993**

TRU Emissions

Pollutant
CO

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527

CO Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.004172152	1.522835404
TRU - Instate Trailer TRU	Aggregate	0.064716334	23.62146174
TRU - Instate Truck TRU	Aggregate	0.00542842	1.981373405
TRU - Instate Van TRU	Aggregate	0.000125672	0.045870181
TRU - Out-of-State Genset TRU	Aggregate	0.002626905	0.958820478
TRU - Out-of-State Trailer TRU	Aggregate	0.036843906	13.44802573
TRU - Railcar TRU	Aggregate	0.003813819	1.392043904

Pollutant

CO

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
1382734.547	1013346.658	1.364522728	32169.73519	31.5
21448287.26	8287270.465	2.58810031	243743.249	34
1799087.052	924823.3375	1.945330507	65590.30763	14.1
41650.12467	21410.30767	1.945330507	2378.923075	9
870608.9941	638537.3157	1.363442625	20271.0259	31.5
12210807.37	5201404.689	2.347598023	152982.4909	34
1263975.865	538412.3911	2.347598023	15835.65856	34
	Weighted by Usage	2.346867351		Weighted by Activity

Pollutant
CO

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr
42.98246595
87.99541054
27.42916015
17.50797456
42.9484427
79.81833278
79.81833278
Weighted 73.20683985

TRU Emissions

Pollutant
ROG

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527

ROG Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.000267934	0.097795857
TRU - Instate Trailer TRU	Aggregate	0.005328047	1.94473699
TRU - Instate Truck TRU	Aggregate	0.000669847	0.244494119
TRU - Instate Van TRU	Aggregate	1.55074E-05	0.00566021
TRU - Out-of-State Genset TRU	Aggregate	0.00016857	0.061527928
TRU - Out-of-State Trailer TRU	Aggregate	0.002799916	1.021969458
TRU - Railcar TRU	Aggregate	0.000289827	0.105787004

Pollutant

ROG

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
88798.6377	1013346.658	0.087629082	32169.73519	31.5
1765821.187	8287270.465	0.213076331	243743.249	34
222000.6604	924823.3375	0.24004656	65590.30763	14.1
5139.470696	21410.30767	0.24004656	2378.923075	9
55867.35879	638537.3157	0.087492708	20271.0259	31.5
927948.2678	5201404.689	0.178403397	152982.4909	34
96054.59977	538412.3911	0.178403397	15835.65856	34
	Weighted by Usage	0.190170897		Weighted by Activity

Pollutant
ROG

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr
2.760316092
7.244595261
3.38465649
2.160419036
2.756020296
6.065715511
6.065715511
Weighted 5.932082359

TRU Emissions

Pollutant

SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	7.76359E-07	0.000283371
TRU - Instate Trailer TRU	Aggregate	8.79396E-06	0.003209796
TRU - Instate Truck TRU	Aggregate	1.19605E-06	0.000436557
TRU - Instate Van TRU	Aggregate	2.76893E-08	1.01066E-05
TRU - Out-of-State Genset TRU	Aggregate	4.89211E-07	0.000178562
TRU - Out-of-State Trailer TRU	Aggregate	5.53292E-06	0.002019514
TRU - Railcar TRU	Aggregate	5.72728E-07	0.000209046

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
257.3007367	1013346.658	0.000253912	32169.73519	31.5
2914.49517	8287270.465	0.000351683	243743.249	34
396.3941177	924823.3375	0.000428616	65590.30763	14.1
9.176801313	21410.30767	0.000428616	2378.923075	9
162.1343577	638537.3157	0.000253915	20271.0259	31.5
1833.718945	5201404.689	0.000352543	152982.4909	34
189.8135332	538412.3911	0.000352543	15835.65856	34
	Weighted by Usage	0.000346644		Weighted by Activity

Pollutant
SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr
0.007998224
0.011957234
0.006043486
0.003857544
0.00799833
0.011986463
0.011986463
Weighted 0.010813026

TRU Emissions

Pollutant

SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2023	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000221433
Napa	2023	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.004403344
Napa	2023	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.000553592
Napa	2023	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.28161E-05
Napa	2023	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.000139314
Napa	2023	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00231398
Napa	2023	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000239527

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.08412578	30.70590968
TRU - Instate Trailer TRU	Aggregate	0.959017359	350.0413362
TRU - Instate Truck TRU	Aggregate	0.130287854	47.55506679
TRU - Instate Van TRU	Aggregate	0.003016255	1.100933086
TRU - Out-of-State Genset TRU	Aggregate	0.053009944	19.34862959
TRU - Out-of-State Trailer TRU	Aggregate	0.601915602	219.6991947
TRU - Railcar TRU	Aggregate	0.062306019	22.74169687

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000267934	0.000318863	0.004172152	0.003070126	0.08412578	1.3884E-05	1.27733E-05	7.76359E-07
0.005328047	0.006340816	0.064716334	0.040799026	0.959017359	0.000580012	0.000533611	8.79396E-06
0.000669847	0.000797173	0.00542842	0.006500719	0.130287854	0.00026125	0.00024035	1.19605E-06
1.55074E-05	1.84551E-05	0.000125672	0.000150496	0.003016255	6.04812E-06	5.56427E-06	2.76893E-08
0.00016857	0.000200612	0.002626905	0.001934141	0.053009944	8.74097E-06	8.04169E-06	4.89211E-07
0.002799916	0.003332132	0.036843906	0.023713261	0.601915602	0.000161647	0.000148715	5.53292E-06
0.000289827	0.000344919	0.003813819	0.002454628	0.062306019	1.67325E-05	1.53939E-05	5.72728E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
27880965.99	1013346.658	27.51374937	32169.73519	31.5
317837533.3	8287270.465	38.35249913	243743.249	34
43180000.65	924823.3375	46.68999894	65590.30763	14.1
999647.2424	21410.30767	46.68999894	2378.923075	9
17568555.67	638537.3157	27.51374937	20271.0259	31.5
199486868.8	5201404.689	38.35249913	152982.4909	34
20649460.76	538412.3911	38.35249913	15835.65856	34
	Weighted by Usage	37.75009248		Weighted by Activity

Pollutant
SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
6.91229E-07	53.39999768	32169.73519	41.2051794	1013346.658
7.87987E-06	608.7494798	243743.249	183.9734179	8287270.465
1.07052E-06	82.70201024	65590.30763	48.19273154	924823.3375
2.47834E-08	1.914609431	2378.923075	1.747922906	21410.30767
4.35562E-07	33.64879225	20271.0259	163.9468004	638537.3157
4.94571E-06	382.07422	152982.4909	729.1000072	5201404.689
5.11944E-07	39.54960374	15835.65856	49.11347754	538412.3911

Emission Rate grams/hr
866.6831053
1303.98497
658.328985
420.2099904
866.6831053
1303.98497
1303.98497
Weighted 1177.554826

TRU Emissions

Pollutant
PM10

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799	0.000309517
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956	0.006421417
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235	0.000740943
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05	1.71533E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148	0.000195391
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787	0.003203922
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089	0.000331647

PM10 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)
TRU - Instate Genset TRU	Aggregate	1.60532E-05	0.005859417	5320.350553
TRU - Instate Trailer TRU	Aggregate	0.000313892	0.11457066	104030.1589
TRU - Instate Truck TRU	Aggregate	0.000281073	0.102591762	93153.32025
TRU - Instate Van TRU	Aggregate	6.50704E-06	0.002375071	2156.564574
TRU - Out-of-State Genset TRU	Aggregate	1.0126E-05	0.003695993	3355.961208
TRU - Out-of-State Trailer TRU	Aggregate	0.000141803	0.051758162	46996.41105
TRU - Railcar TRU	Aggregate	1.46785E-05	0.005357637	4864.733963

Pollutant

PM10

TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
1173065.277	0.004535426	37240.16754	31.5
9196511.918	0.011311915	270485.6447	34
1026290.729	0.09076699	72786.57652	14.1
23759.34881	0.09076699	2639.927646	9
739180.3656	0.004540111	23466.04335	31.5
5769829.842	0.008145199	169700.8777	34
597251.717	0.008145199	17566.22697	34

Weighted by Usage 0.014027802 Weighted by Activity

Pollutant

PM10

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr	Fuel Consumption gallons/year	Fuel Rate gallons/hr
0.142865913	61.81663756	0.001659945
0.384605102	675.5386915	0.002497503
1.279814558	91.77569696	0.001260888
0.816902909	2.124671631	0.000804822
0.143013509	38.95234616	0.001659945
0.276936759	423.8284402	0.002497503
0.276936759	43.87170342	0.002497503
Weighted	Total	Weighted
0.437588586	1337.908187	0.002252805

TRU Emissions

Pollutant
PM2.5

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089

PM2.5 Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	1.47689E-05	0.005390664
TRU - Instate Trailer TRU	Aggregate	0.000288781	0.105405007
TRU - Instate Truck TRU	Aggregate	0.000258587	0.094384421
TRU - Instate Van TRU	Aggregate	5.98648E-06	0.002185065
TRU - Out-of-State Genset TRU	Aggregate	9.31593E-06	0.003400313
TRU - Out-of-State Trailer TRU	Aggregate	0.000130459	0.047617509
TRU - Railcar TRU	Aggregate	1.35042E-05	0.004929026

Pollutant
PM2.5

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
4894.722509	1173065.277	0.004172592	37240.16754	31.5
95707.74616	9196511.918	0.010406962	270485.6447	34
85701.05463	1026290.729	0.083505631	72786.57652	14.1
1984.039408	23759.34881	0.083505631	2639.927646	9
3087.484311	739180.3656	0.004176902	23466.04335	31.5
43236.69817	5769829.842	0.007493583	169700.8777	34
4475.555246	597251.717	0.007493583	17566.22697	34
	Weighted by Usage	0.012905578		Weighted by Activity

Pollutant

PM2.5

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr
0.13143664
0.353836694
1.177429393
0.751550677
0.131572428
0.254781818
0.254781818
Weighted
0.402581499

TRU Emissions

Pollutant
NOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate

NOx Emissions

Vehicle Category	Horsepower
TRU - Instate Genset TRU	Aggregate
TRU - Instate Trailer TRU	Aggregate
TRU - Instate Truck TRU	Aggregate
TRU - Instate Van TRU	Aggregate
TRU - Out-of-State Genset TRU	Aggregate
TRU - Out-of-State Trailer TRU	Aggregate
TRU - Railcar TRU	Aggregate

Pollutant

NOx

Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd
Diesel	0.000255799	0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05
Diesel	0.005306956	0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892
Diesel	0.00061235	0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073
Diesel	1.41763E-05	1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06
Diesel	0.00016148	0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05
Diesel	0.00264787	0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803
Diesel	0.000274089	0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05

Emissions (t/d)	Emissions (t/yr)	Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)
0.003552967	1.296832813	1177524.194	1173065.277	1.003801081	37240.16754
0.044196996	16.1319037	14647768.56	9196511.918	1.592752631	270485.6447
0.007190526	2.624542148	2383084.27	1026290.729	2.322036245	72786.57652
0.000166466	0.060759988	55170.06909	23759.34881	2.322036245	2639.927646
0.002239402	0.817381869	742182.7373	739180.3656	1.004061758	23466.04335
0.026125677	9.535872153	8658571.914	5769829.842	1.500663304	169700.8777
0.002704344	0.987085611	896273.735	597251.717	1.500663304	17566.22697

Weighted by Usage 1.54165747

Pollutant

NOx

PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
1.47689E-05	8.9874E-07	8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
0.000288781	9.74618E-06	8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
0.000258587	1.32733E-06	1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
5.98648E-06	3.07287E-08	2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
9.31593E-06	5.66312E-07	5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
0.000130459	6.13514E-06	5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
1.35042E-05	6.35066E-07	5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Horsepower (HP)	Emission Rate grams/hr
31.5	31.61973406
34	54.15358946
14.1	32.74071105
9	20.8983262
31.5	31.62794537
34	51.02255234
34	51.02255234
	Weighted
Weighted by Activity	**48.09104985**

TRU Emissions

Pollutant
CO

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089

CO Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.004824619	1.760985782
TRU - Instate Trailer TRU	Aggregate	0.076791157	28.02877215
TRU - Instate Truck TRU	Aggregate	0.006022711	2.198289401
TRU - Instate Van TRU	Aggregate	0.00013943	0.050891939
TRU - Out-of-State Genset TRU	Aggregate	0.003042945	1.110674793
TRU - Out-of-State Trailer TRU	Aggregate	0.041646668	15.20103383
TRU - Railcar TRU	Aggregate	0.004310967	1.573502824

Pollutant

CO

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
1598975.09	1173065.277	1.363074264	37240.16754	31.5
25450125.11	9196511.918	2.767367165	270485.6447	34
1996046.776	1026290.729	1.94491358	72786.57652	14.1
46209.88016	23759.34881	1.94491358	2639.927646	9
1008492.712	739180.3656	1.364339151	23466.04335	31.5
13802538.71	5769829.842	2.39219164	169700.8777	34
1428740.565	597251.717	2.39219164	17566.22697	34
	Weighted by Usage	2.446907048		Weighted by Activity

Pollutant
CO

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr
42.93683932
94.0904836
27.42328148
17.50422222
42.97668324
81.33451577
81.33451577
Weighted 76.3297497

TRU Emissions

Pollutant
ROG

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089

ROG Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.000309517	0.112973677
TRU - Instate Trailer TRU	Aggregate	0.006421417	2.343817315
TRU - Instate Truck TRU	Aggregate	0.000740943	0.270444185
TRU - Instate Van TRU	Aggregate	1.71533E-05	0.006260972
TRU - Out-of-State Genset TRU	Aggregate	0.000195391	0.071317802
TRU - Out-of-State Trailer TRU	Aggregate	0.003203922	1.169431567
TRU - Railcar TRU	Aggregate	0.000331647	0.121051232

Pollutant

ROG

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
102580.0984	1173065.277	0.087446198	37240.16754	31.5
2128186.122	9196511.918	0.231412316	270485.6447	34
245563.3201	1026290.729	0.239272667	72786.57652	14.1
5684.962762	23759.34881	0.239272667	2639.927646	9
64756.56383	739180.3656	0.087605904	23466.04335	31.5
1061843.863	5769829.842	0.184033826	169700.8777	34
109914.5187	597251.717	0.184033826	17566.22697	34
	Weighted by Usage	0.2007207		Weighted by Activity

Pollutant

ROG

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr
2.754555234
7.868018744
3.373744608
2.153454005
2.759585962
6.257150094
6.257150094
Weighted 6.261357908

TRU Emissions

Pollutant

SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	8.9874E-07	0.00032804
TRU - Instate Trailer TRU	Aggregate	9.74618E-06	0.003557356
TRU - Instate Truck TRU	Aggregate	1.32733E-06	0.000484476
TRU - Instate Van TRU	Aggregate	3.07287E-08	1.1216E-05
TRU - Out-of-State Genset TRU	Aggregate	5.66312E-07	0.000206704
TRU - Out-of-State Trailer TRU	Aggregate	6.13514E-06	0.002239326
TRU - Railcar TRU	Aggregate	6.35066E-07	0.000231799

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
297.8605077	1173065.277	0.000253916	37240.16754	31.5
3230.079427	9196511.918	0.000351229	270485.6447	34
439.9043611	1026290.729	0.000428635	72786.57652	14.1
10.18409391	23759.34881	0.000428635	2639.927646	9
187.6870877	739180.3656	0.000253912	23466.04335	31.5
2033.307814	5769829.842	0.000352403	169700.8777	34
210.4735524	597251.717	0.000352403	17566.22697	34
	Weighted by Usage	0.000345975		Weighted by Activity

Pollutant

SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr
0.007998366
0.011941778
0.006043757
0.003857717
0.007998242
0.011981717
0.011981717
Weighted 0.01079248

TRU Emissions

Pollutant
SOx

OFFROAD 2017

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd
Napa	2030	TRU - Instate Genset TRU	Aggregate	Aggregate	Diesel	0.000255799
Napa	2030	TRU - Instate Trailer TRU	Aggregate	Aggregate	Diesel	0.005306956
Napa	2030	TRU - Instate Truck TRU	Aggregate	Aggregate	Diesel	0.00061235
Napa	2030	TRU - Instate Van TRU	Aggregate	Aggregate	Diesel	1.41763E-05
Napa	2030	TRU - Out-of-State Genset TRU	Aggregate	Aggregate	Diesel	0.00016148
Napa	2030	TRU - Out-of-State Trailer TRU	Aggregate	Aggregate	Diesel	0.00264787
Napa	2030	TRU - Railcar TRU	Aggregate	Aggregate	Diesel	0.000274089

SOx Emissions

Vehicle Category	Horsepower	Emissions (t/d)	Emissions (t/yr)
TRU - Instate Genset TRU	Aggregate	0.097385264	35.54562119
TRU - Instate Trailer TRU	Aggregate	1.064236363	388.4462724
TRU - Instate Truck TRU	Aggregate	0.144582442	52.77259145
TRU - Instate Van TRU	Aggregate	0.003347185	1.221722435
TRU - Out-of-State Genset TRU	Aggregate	0.061365106	22.39826357
TRU - Out-of-State Trailer TRU	Aggregate	0.66769475	243.7085837
TRU - Railcar TRU	Aggregate	0.069115008	25.22697792

Pollutant

SOx

ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd
0.000309517	0.000368351	0.004824619	0.003552967	0.097385264	1.60532E-05	1.47689E-05	8.9874E-07
0.006421417	0.007642017	0.076791157	0.044196996	1.064236363	0.000313892	0.000288781	9.74618E-06
0.000740943	0.000881783	0.006022711	0.007190526	0.144582442	0.000281073	0.000258587	1.32733E-06
1.71533E-05	2.04139E-05	0.00013943	0.000166466	0.003347185	6.50704E-06	5.98648E-06	3.07287E-08
0.000195391	0.000232532	0.003042945	0.002239402	0.061365106	1.0126E-05	9.31593E-06	5.66312E-07
0.003203922	0.003812932	0.041646668	0.026125677	0.66769475	0.000141803	0.000130459	6.13514E-06
0.000331647	0.000394688	0.004310967	0.002704344	0.069115008	1.46785E-05	1.35042E-05	6.35066E-07

Emissions (grams/year)	Usage (hp-hr/yr)	Emission Factor (grams/hp-hr)	Activity (hrs/year)	Horsepower (HP)
32275424.04	1173065.277	27.51374937	37240.16754	31.5
352709215.3	9196511.918	38.35249913	270485.6447	34
47917513.04	1026290.729	46.68999894	72786.57652	14.1
1109323.971	23759.34881	46.68999894	2639.927646	9
20337623.32	739180.3656	27.51374937	23466.04335	31.5
221287394	5769829.842	38.35249913	169700.8777	34
22906095.95	597251.717	38.35249913	17566.22697	34
	Weighted by Usage	37.70629211		Weighted by Activity

Pollutant
SOx

NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
8.00177E-07	61.81663756	37240.16754	47.69973316	1173065.277
8.74442E-06	675.5386915	270485.6447	204.1581408	9196511.918
1.18798E-06	91.77569696	72786.57652	53.48021787	1026290.729
2.75025E-08	2.124671631	2639.927646	1.939697021	23759.34881
5.04213E-07	38.95234616	23466.04335	189.787273	739180.3656
5.48619E-06	423.8284402	169700.8777	808.7782494	5769829.842
5.67891E-07	43.87170342	17566.22697	54.48074611	597251.717

Emission Rate grams/hr
866.6831053
1303.98497
658.328985
420.2099904
866.6831053
1303.98497
1303.98497
Weighted 1176.224426

Giovannoni Logistics Project Phase 1 Energy Use Summary

Summary of Energy Use During Construction		(Annually)
Construction vehicle fuel	115,596	gallons (gasoline, diesel)
Construction equipment fuel	25,955	gallons (diesel)
Total construction fuel	141,550	gallons (gasoline, diesel)
Construction office electricity	10,025	kilowatt hours

Summary of Energy Use During Operations		(Annually)
Operational Vehicle Fuel	573,717	gallons (gasoline, diesel)
Operational TRU Fuel (Cold Storage)	583	gallons (diesel)
Operational Natural Gas (Cold Storage)	4,040,000	kilo-British Thermal Units
Operational Natural Gas (Dry Storage)	3,690,000	kilo-British Thermal Units
Operational Electricity (Cold Storage)	10,944,476	kilowatt hours
Operational Electricity (Dry Storage)	4,264,476	kilowatt hours

Construction Vehicle Fuel Calculations

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: NAPA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN. Note 'day' in the unit is operation day.

										Calculations	
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel Consumption (1000 gallons/day)	FE (mi/gallon)	VMT*FE
NAPA	2022	HHDT	Aggregated	Aggregated	GAS	0.6653144	82.07735867	13.31161	0.020478	4.008153753	328.9786731
NAPA	2022	HHDT	Aggregated	Aggregated	DSL	1062.4567	114944.1524	10519.59	18.17725	6.323518533	726851.4777
NAPA	2022	LDA	Aggregated	Aggregated	GAS	51277.051	2089425.021	239641.2	64.14162	32.57518504	68063406.66
NAPA	2022	LDA	Aggregated	Aggregated	DSL	671.73758	27012.95009	3098.394	0.546509	49.4281528	1335200.224
NAPA	2022	LDT1	Aggregated	Aggregated	GAS	5864.7757	205083.2093	26344.52	7.55199	27.15618078	5569276.708
NAPA	2022	LDT1	Aggregated	Aggregated	DSL	4.3660162	68.00148501	14.41585	0.00284	23.94661919	1628.405666
NAPA	2022	LDT2	Aggregated	Aggregated	GAS	17947.743	659088.6205	82492.71	26.31316	25.04787225	16508767.57
NAPA	2022	LDT2	Aggregated	Aggregated	DSL	128.74848	5387.480935	622.9501	0.150076	35.89836127	193401.7369
NAPA	2022	LHDT1	Aggregated	Aggregated	GAS	1736.2798	57289.54713	25867.98	6.920156	8.278649862	474280.1014
NAPA	2022	LHDT1	Aggregated	Aggregated	DSL	1854.5856	63800.89039	23328.35	3.618832	17.63024356	1124825.237
NAPA	2022	LHDT2	Aggregated	Aggregated	GAS	234.05538	7776.125056	3487.076	1.072124	7.253012139	56400.32943
NAPA	2022	LHDT2	Aggregated	Aggregated	DSL	616.85411	21994.56919	7759.249	1.396182	15.75336516	346488.48
NAPA	2022	MHDT	Aggregated	Aggregated	GAS	137.03811	7160.996753	2741.858	1.484311	4.824458909	34547.93458
NAPA	2022	MHDT	Aggregated	Aggregated	DSL	1234.1726	66974.61726	11910.6	7.179038	9.329191657	624819.0406

Worker
Sum of VMT*FE (Column BI) 91671681.3
Total VMT 2986065.283
Weighted Average FE 30.69982489

Vendor
Sum of VMT*FE (Column BI) 3388541.579
Total VMT 340022.9755
Weighted Average FE 9.965625336

Haul
Sum of VMT*FE (Column BI) 727180.4564
Total VMT 115026.2297
Weighted Average FE 6.321866396

Project Construction Assumptions

On-site Construction
Source: AQ/GHG Appendix, CalEEMod Output
Giovannoni Logistics Phase 1 Con - AIR-2a - Napa County, Annual
Date: 9/22/2021 7:14 PM

Construction Schedule	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
	Site Preparation	Site Preparation	1/3/2022	1/10/2022	5	6
	Grading	Grading	1/11/2022	2/2/2022	5	17
	Building Construction	Building Construction	2/3/2022	9/26/2022	5	168
	Paving	Paving	9/27/2022	10/11/2022	5	11
	Architectural Coating	Architectural Coating	10/12/2022	10/26/2022	5	11

Trips and VMT	Phase Name	Trips per Day			Total Trips					Trips per Phase			VMT per Phase			Fuel Consumption (gallons)		
		Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Vendor Ve	Num Days	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trips	Vendor Trips	Hauling Trips	Worker Trips	Vendor Trips	Hauling Trips
	Site Preparation	10	0	0	8.12	7.3	20	HDT_Mix	6	60	0	0	487	0	0	15.87	0.00	0.00
	Grading	20	0	675	8.12	7.3	20	HDT_Mix	17	340	0	675	2,761	0	13,500	89.93	0.00	106.77
	Building Construction	1,239	484	0	8.12	7.3	20	HDT_Mix	168	208,152	81,312	0	1,690,194	593,578	0	55,055.50	59,562.50	0.00
	Paving	15	0	0	8.12	7.3	20	HDT_Mix	11	165	0	0	1,340	0	0	43.64	0.00	0.00
	Architectural Coating	248	0	0	8.12	7.3	20	HDT_Mix	11	2,728	0	0	22,151	0	0	721.55	0.00	0.00

On-site Total Construction VMT (miles)
2,324,011

On-Site Total Fuel Consumption (gallons)
115,596

Construction Equipment Fuel Calculation

On-site

Source: AQ/GHG Appendix, CalEEMod Output

Giovannoni Logistics Phase 1 Con - AIR-2a - Napa County, Annual

Date: 9/22/2021 7:14 PM

Construction Schedule	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
	Site Preparation	Site Preparation	1/3/2022	1/10/2022	5	6
	Grading	Grading	1/11/2022	2/2/2022	5	17
	Building Construction	Building Construction	2/3/2022	9/26/2022	5	168
	Paving	Paving	9/27/2022	10/11/2022	5	11
	Architectural Coating	Architectural Coating	10/12/2022	10/26/2022	5	11

Construction Equipment	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of Days	HP Hours	Diesel Fuel Usage
	Site Preparation	Rubber Tired Dozers	0	8	247	0.4	6	0.00	0.00
	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	6	6,890.88	344.54
	Grading	Excavators	2	8	158	0.38	17	16,330.88	816.54
	Grading	Graders	1	8	187	0.41	17	10,427.12	521.36
	Grading	Rubber Tired Dozers	1	8	247	0.4	17	13,436.80	671.84
	Grading	Scrapers	2	8	367	0.48	17	47,915.52	2,395.78
	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	17	9,762.08	488.10
	Building Construction	Cranes	1	7	231	0.29	168	78,780.24	3,939.01
	Building Construction	Forklifts	3	8	89	0.2	168	71,769.60	3,588.48
	Building Construction	Generator Sets	1	8	84	0.74	168	83,543.04	4,177.15
	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	168	126,619.92	6,331.00
	Building Construction	Welders	1	8	46	0.45	168	27,820.80	1,391.04
	Paving	Pavers	2	8	130	0.42	11	9,609.60	480.48
	Paving	Paving Equipment	2	8	132	0.36	11	8,363.52	418.18
	Paving	Rollers	2	8	80	0.38	11	5,350.40	267.52
	Architectural Coating	Air Compressors	1	6	78	0.48	11	2,471.04	123.55

Construction Equipment Fuel Consumption **25,954.57 gallons**

Notes:

Equipment assumptions are provided in the CalEEMod output files.

Fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

South Coast Air Quality Management District. 1993. Air Quality Handbook, Table A9-3E.

Website: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook. Accessed July 22, 2021.

Construction Office Electricity Calculation

Energy Appendix: CalEEMod Typical Construction Trailer

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

kWh/yr = kilowatt hours per year

Energy by Land Use - Electricity

Annual	12,362	kWh/yr
Total Over Construction	**10,025**	**kWh**

Total Construction Schedule

Start	1/3/2022
End	10/26/2022
Total Calendar Days	296
Years	0.81

Proposed Operation Fuel Calculation

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: NAPA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given *Calculations*

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
NAPA	2022	LDA	Aggregated	Aggregated	GAS	51277.0506	2089425.02	64.14161633	32.57519	68063406.66
NAPA	2022	LDA	Aggregated	Aggregated	DSL	671.737577	27012.9501	0.546509399	49.42815	1335200.224
NAPA	2022	LDT1	Aggregated	Aggregated	GAS	5864.77572	205083.209	7.551990134	27.15618	5569276.708
NAPA	2022	LDT1	Aggregated	Aggregated	DSL	4.36601623	68.001485	0.002839711	23.94662	1628.405666
NAPA	2022	LDT2	Aggregated	Aggregated	GAS	17947.743	659088.621	26.31315802	25.04787	16508767.57
NAPA	2022	LDT2	Aggregated	Aggregated	DSL	128.748478	5387.48094	0.150075957	35.89836	193401.7369
NAPA	2022	MDV	Aggregated	Aggregated	GAS	13914.3395	467746.642	23.04170225	20.3	9495258.575
NAPA	2022	MDV	Aggregated	Aggregated	DSL	359.28556	14286.1462	0.529548532	26.97797	385411.2719

	Vehicles	
Sum of VMT*FE	**101552351.2**	
Total VMT	**3468098.071**	
Weighted Average FE	**29.28185682**	**miles/gallon**

Total VMT
Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 COLD Op - Napa County, Annual
Date: 9/22/2021 8:07 PM

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	554.03	554.03	554.03	1,637,546	1,637,546
Refrigerated Warehouse-Rail	709.63	709.63	709.63	2,097,434	2,097,434
Total	1,263.66	1,263.66	1,263.66	3,734,981	3,734,981

	Annual VMT (miles)	Fuel Consumption	
Total VMT	3,734,981	**127,553**	**gallons per year**

Proposed Operation Fuel Calculation

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: NAPA
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given *Calculations*

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
NAPA	2022	HHDT	Aggregated	Aggregated	GAS	0.66531442	82.0773587	0.020477597	4.008154	328.9786731
NAPA	2022	HHDT	Aggregated	Aggregated	DSL	1062.45674	114944.152	18.17724606	6.323519	726851.4777

	Vehicles	
Sum of VMT*FE	**727180.4564**	
Total VMT	**115026.2297**	
Weighted Average FE	**6.321866396**	**miles/gallon**

Truck VMT & Fuel

Average One-Way Daily Truck Trips:	528
Phase 1 Proportion of Building Space:	44.62%
Assumed Travel Distance (miles):	32.8

	Annual VMT (miles)	Fuel Consumption	
Total VMT	2,820,590	**446,164**	**gallons per year**

TRU Fuel Consumption

Source: AQ/GHG Appendix, TRU Emission Rates

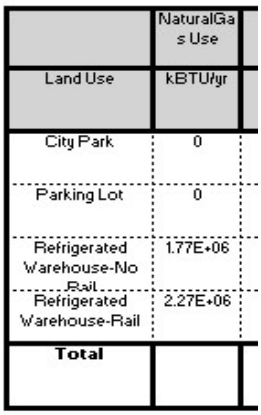
Fuel Rate (Gallons/Hour):	0.002255916	
Running Time (Hours/Day):	6	
TRU Population:	118	
Annual Fuel Consumption:	**583**	**gallons**

Phase 1 Operation Natural Gas Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 COLD Op - Napa County, Annual
Date: 9/22/2021 8:07 PM

	Natural Gas Use
Refrigerated Warehouse-No Rail	1,770,000
Refrigerated Warehouse-Rail	2,270,000
Total Cold Storage	**4,040,000 kBTU/yr**

kBTU/yr = kilo-British Thermal Units/year



Land Use	NaturalGas Use kBTU/yr
City Park	0
Parking Lot	0
Refrigerated Warehouse-No Rail	1.77E+06
Refrigerated Warehouse-Rail	2.27E+06
Total	

Operation Natural Gas Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 DRY Op - Napa County, Annual
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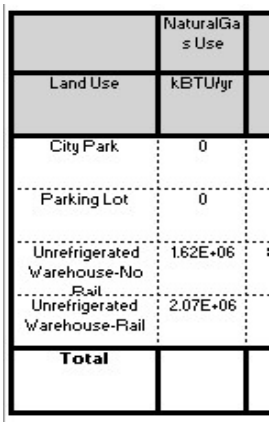
	Natural Gas Use
Unrefrigerated Warehouse-No Rail	1,620,000
Unrefrigerated Warehouse-Rail	2,070,000
Total Dry Storage	**3,690,000 kBTU/yr**



Land Use	NaturalGas Use kBTU/yr
City Park	0
Parking Lot	0
Unrefrigerated Warehouse-No Rail	1.62E+06
Unrefrigerated Warehouse-Rail	2.07E+06
Total	

Phase 1 Operation Electricity Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 COLD Op - Napa County, Annual
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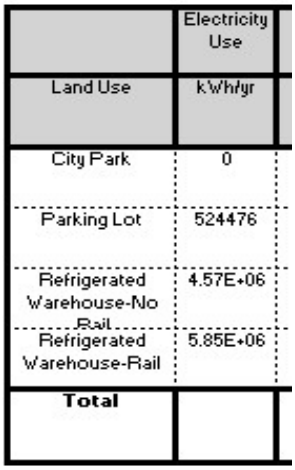
Cold Storage	Electricity Use
Land Use	(kWh/yr)
Parking Lot	524,476
Refrigerated Warehouse - No Rail	4,570,000
Refrigerated Warehouse - Rail	5,850,000
Total Cold Storage	**10,944,476 kWh/yr**

kWh/yr = kilowatt hours per year

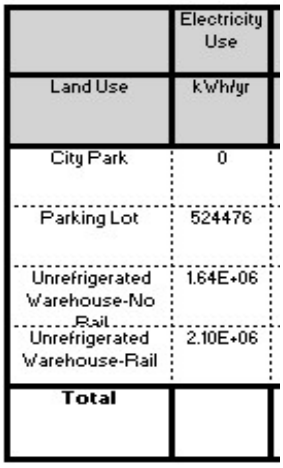


	Electricity Use
Land Use	kWh/yr
City Park	0
Parking Lot	524476
Refrigerated Warehouse-No Rail	4.57E+06
Refrigerated Warehouse-Rail	5.85E+06
Total	

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 DRY Op - Napa County, Annual
Date: 9/22/2021 8:04 PM

Dry Storage	Electricity Use
Land Use	(kWh/yr)
Parking Lot	524,476
Unrefrigerated Warehouse - No Rail	1,640,000
Unrefrigerated Warehouse - Rail	2,100,000
Total Dry Storage	**4,264,476 kWh/yr**

kWh/yr = kilowatt hours per year



	Electricity Use
Land Use	kWh/yr
City Park	0
Parking Lot	524476
Unrefrigerated Warehouse-No Rail	1.64E+06
Unrefrigerated Warehouse-Rail	2.10E+06
Total	

Giovannoni Logistics Project Phase 2 Energy Use Summary

Summary of Energy Use During Construction		(Annually)
Construction vehicle fuel	221,932	gallons (gasoline, diesel)
Construction equipment fuel	25,956	gallons (diesel)
Total construction fuel	247,888	gallons (gasoline, diesel)
Construction office electricity	10,127	kilowatt hours

Summary of Energy Use During Operations		(Annually)
Operational Vehicle Fuel	678,793	gallons (gasoline, diesel)
Operational TRU Fuel (Cold Storage)	721	gallons (diesel)
Operational Natural Gas (Cold Storage)	5,020,000	kilo-British Thermal Units
Operational Natural Gas (Dry Storage)	4,570,000	kilo-British Thermal Units
Operational Electricity (Cold Storage)	13,550,926	kilowatt hours
Operational Electricity (Dry Storage)	5,300,926	kilowatt hours

Construction Vehicle Fuel Calculations

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: NAPA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

										Calculations	
Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel_Consumption (1000 gallons/day)	FE (mi/gallon)	VMT*FE
NAPA	2023	HHDT	Aggregated	Aggregated	GAS	0.6374109	78.04076592	12.75332	0.019051	4.096462696	319.6910864
NAPA	2023	HHDT	Aggregated	Aggregated	DSL	1079.072	117467.5861	10669.54	17.62474	6.664927081	782912.8955
NAPA	2023	LDA	Aggregated	Aggregated	GAS	52428.912	2128641.003	245226.2	63.55707	33.49180765	71292035.03
NAPA	2023	LDA	Aggregated	Aggregated	DSL	692.42862	27557.38935	3192.934	0.544204	50.63795835	1395449.934
NAPA	2023	LDT1	Aggregated	Aggregated	GAS	5844.3023	204101.6305	26298.22	7.326229	27.85902991	5686073.43
NAPA	2023	LDT1	Aggregated	Aggregated	DSL	3.9964184	61.49733826	13.10545	0.002535	24.25929506	1491.882074
NAPA	2023	LDT2	Aggregated	Aggregated	GAS	17888.425	652557.8063	82181.62	25.21987	25.87474485	16884766.74
NAPA	2023	LDT2	Aggregated	Aggregated	DSL	135.93812	5583.022249	654.6094	0.151834	36.77051425	205290.5991
NAPA	2023	LHDT1	Aggregated	Aggregated	GAS	1673.1731	55004.70228	24927.79	6.582208	8.356572865	459650.8025
NAPA	2023	LHDT1	Aggregated	Aggregated	DSL	1811.3152	61534.82208	22784.07	3.455674	17.80689508	1095744.121
NAPA	2023	LHDT2	Aggregated	Aggregated	GAS	227.98639	7559.706339	3396.658	1.031895	7.326045053	55382.74923
NAPA	2023	LHDT2	Aggregated	Aggregated	DSL	612.17988	21493.99423	7700.453	1.350458	15.91607943	342100.1196
NAPA	2023	MHDT	Aggregated	Aggregated	GAS	133.55913	7182.453749	2672.251	1.465464	4.901147842	35202.26769
NAPA	2023	MHDT	Aggregated	Aggregated	DSL	1174.0778	65345.61771	11171.14	6.715842	9.730071087	635817.5056
										Worker	
										Sum of VMT*FE (Column BI)	**95465107.61**
										Total VMT	**3018502.349**
										Weighted Average FE	**31.62664679**
										Vendor	
										Sum of VMT*FE (Column BI)	**3407130.152**
										Total VMT	**335666.9232**
										Weighted Average FE	**10.15033033**
										Haul	
										Sum of VMT*FE (Column BI)	**783232.5865**
										Total VMT	**117545.6268**
										Weighted Average FE	**6.663221829**

Project Construction Assumptions

On-site Construction

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Project Phase 2 - AIR-2a - Napa County, Annual
Date: 7/14/2021 1:23 PM

Construction Schedule	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
	Site Preparation	Site Preparation	10/27/2022	11/3/2022	5	6
	Grading	Grading	11/4/2022	11/28/2022	5	17
	Building Construction	Building Construction	11/29/2022	7/19/2023	5	167
	Paving	Paving	7/20/2023	8/4/2023	5	12
	Architectural Coating	Architectural Coating	8/5/2023	8/22/2023	5	12

Trips and VMT	Phase Name	Trips per Day	Total Trips						Trips per Phase			VMT per Phase			Fuel Consumption (gallons)		
		Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Vendor Ve	Num Days	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trips	Vendor Trips	Hauling Trips	Worker Trips	Vendor Trips	Hauling Trips
	Site Preparation	10	0	0	16.24	7.3	20	HDT_Mix	6	60	0	0	974	0	0	30.81	0.00	0.00
	Grading	20	0	0	16.24	7.3	20	HDT_Mix	17	340	0	0	5,522	0	0	174.59	0.00	0.00
	Building Construction	1656	646	0	16.24	7.3	20	HDT_Mix	167	276,552	107,882	0	4,491,204	787,539	0	142,006.98	77,587.48	0.00
	Paving	15	0	0	16.24	7.3	20	HDT_Mix	12	180	0	0	2,923	0	0	92.43	0.00	0.00
	Architectural Coating	331	0	0	16.24	7.3	20	HDT_Mix	12	3,972	0	0	64,505	0	0	2,039.59	0.00	0.00

On-site Total Construction VMT (miles)
5,352,668

On-Site Total Fuel Consumption (gallons)
221,932

Construction Equipment Fuel Calculation

On-site

Source: AQ/GHG Appendix, CalEEMod Output

Giovanni Logistics Project Phase 2 - AIR-2a - Consturction Only - Napa County, Annual

Date: 7/14/2021 1:23 PM

Construction Schedule	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
	Site Preparation	Site Preparation	10/27/2022	11/3/2022	5	6
	Grading	Grading	11/4/2022	11/28/2022	5	17
	Building Construction	Building Construction	11/29/2022	7/19/2023	5	167
	Paving	Paving	7/20/2023	8/4/2023	5	12
	Architectural Coating	Architectural Coating	8/5/2023	8/22/2023	5	12

Construction Equipment	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of Days	HP Hours	Diesel Fuel Usage
	Site Preparation	Rubber Tired Dozers	0	7	247	0.4	6	0.00	0.00
	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	6	6,890.88	344.54
	Grading	Excavators	2	8	158	0.38	17	16,330.88	816.54
	Grading	Graders	1	8	187	0.41	17	10,427.12	521.36
	Grading	Rubber Tired Dozers	1	8	247	0.4	17	13,436.80	671.84
	Grading	Scrapers	2	8	367	0.48	17	47,915.52	2,395.78
	Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	17	9,762.08	488.10
	Building Construction	Cranes	1	7	231	0.29	167	78,311.31	3,915.57
	Building Construction	Forklifts	3	8	89	0.2	167	71,342.40	3,567.12
	Building Construction	Generator Sets	1	8	84	0.74	167	83,045.76	4,152.29
	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	167	125,866.23	6,293.31
	Building Construction	Welders	1	8	46	0.45	167	27,655.20	1,382.76
	Paving	Pavers	2	8	130	0.42	12	10,483.20	524.16
	Paving	Paving Equipment	2	8	132	0.36	12	9,123.84	456.19
	Paving	Rollers	2	8	80	0.38	12	5,836.80	291.84
	Architectural Coating	Air Compressors	1	6	78	0.48	12	2,695.68	134.78

Construction Equipment Fuel Consumption **25,956.19 gallons**

Notes:

Equipment assumptions are provided in the CalEEMod output files.

Fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

South Coast Air Quality Management District. 1993. Air Quality Handbook, Table A9-3E.

Website: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook. Accessed July 22, 2021.

Construction Office Electricity Calculation

Energy Appendix: CalEEMod Typical Construction Trailer

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

kWh/yr = kilowatt hours per year

Energy by Land Use - Electricity

Annual	12,362	kWh/yr
Total Over Construction	**10,127**	**kWh**

Total Construction Schedule	
Start	10/27/2022
End	8/22/2023
Total Calendar Days	299
Years	0.82

Proposed Operation Fuel Calculation

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: NAPA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given *Calculations*

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
NAPA	2023	LDA	Aggregated	Aggregated	GAS	52428.91211	2128641.003	63.5570652	33.49181	71292035.03
NAPA	2023	LDA	Aggregated	Aggregated	DSL	692.4286197	27557.38935	0.544204195	50.63796	1395449.934
NAPA	2023	LDT1	Aggregated	Aggregated	GAS	5844.30225	204101.6305	7.326228916	27.85903	5686073.43
NAPA	2023	LDT1	Aggregated	Aggregated	DSL	3.996418353	61.49733826	0.002535001	24.2593	1491.882074
NAPA	2023	LDT2	Aggregated	Aggregated	GAS	17888.42526	652557.8063	25.21987406	25.87474	16884766.74
NAPA	2023	LDT2	Aggregated	Aggregated	DSL	135.9381232	5583.022249	0.151834217	36.77051	205290.5991
NAPA	2023	MDV	Aggregated	Aggregated	GAS	13629.96011	455237.6235	21.75932362	20.9215	9524252.567
NAPA	2023	MDV	Aggregated	Aggregated	DSL	369.6548935	14402.664	0.521479992	27.61882	397784.6389

Vehicles	
Sum of VMT*FE	**105387144.8**
Total VMT	**3488142.636**
Weighted Average FE	**30.21296885 miles/gallon**

Total VMT

Source: AQ/GHG Appendix, CalEEMod Output
Giovannoni Logistics Phase 2 COLD Op - Napa County, Annual
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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-Rail	1,568.34	1,568.34	1568.34	4,635,505	4,635,505
Total	1,568.34	1,568.34	1,568.34	4,635,505	4,635,505

	Annual VMT (miles)	Fuel Consumption	
Total VMT	4,635,505	**153,428**	**gallons per year**

Proposed Operation Fuel Calculation

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 22, 2021.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: NAPA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given *Calculations*

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
NAPA	2023	HHDT	Aggregated	Aggregated	GAS	0.637410885	78.04076592	0.019050769	4.096463	319.6910864
NAPA	2023	HHDT	Aggregated	Aggregated	DSL	1079.072009	117467.5861	17.62473687	6.664927	782912.8955

	Vehicles	
Sum of VMT*FE	**783232.5865**	
Total VMT	**117545.6268**	
Weighted Average FE	**6.663221829**	**miles/gallon**

Truck VMT & Fuel

Average One-Way Daily Truck Trips:	528
Phase 2 Proportion of Building Space:	55.38%
Assumed Travel Distance (miles):	32.8

	Annual VMT (miles)	Fuel Consumption	
Total VMT	3,500,626	**525,365**	**gallons per year**

TRU Fuel Consumption

Source: AQ/GHG Appendix, TRU Emission Rates

Fuel Rate (Gallons/Hour):	0.002255353	
Running Time (Hours/Day):	6	
TRU Population:	146	
Annual Fuel Consumption:	**721**	**gallons**

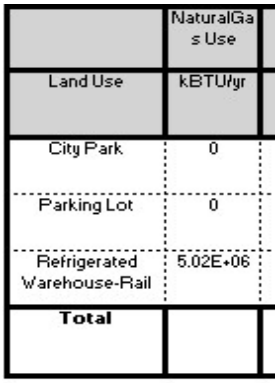
Phase 2 Operation Natural Gas Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovannoni Logistics Phase 2 COLD Op - Napa County, Annual
Date: 9/22/2021 8:13 PM

	Natural Gas Use
Refrigerated Warehouse-No Rail	5,020,000

Total Cold Storage **5,020,000 kBTU/yr**

kBTU/yr = kilo-British Thermal Units/year



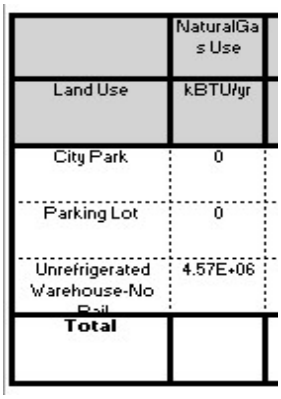
Land Use	NaturalGas Use kBTU/yr
City Park	0
Parking Lot	0
Refrigerated Warehouse-Rail	5.02E+06
Total	

Operation Natural Gas Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovannoni Logistics Phase 2 DRY Op - Napa County, Annual
Date: 9/22/2021 8:22 PM

	Natural Gas Use
Unrefrigerated Warehouse-No Rail	4,570,000

Total Dry Storage **4,570,000 kBTU/yr**



Land Use	NaturalGas Use kBTU/yr
City Park	0
Parking Lot	0
Unrefrigerated Warehouse-No Rail	4.57E+06
Total	

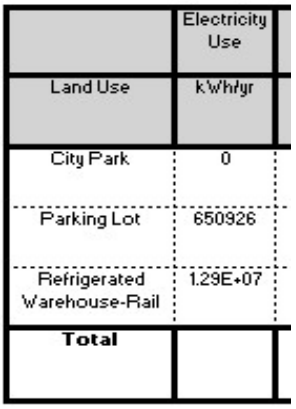
Phase 2 Operation Electricity Use

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 COLD Op - Napa County, Annual
Date: 9/22/2021 8:07 PM

Cold Storage	Electricity Use
Land Use	(kWh/yr)
Parking Lot	650,926
Refrigerated Warehouse - No Rail	12,900,000

Total Cold Storage **13,550,926 kWh/yr**

kWh/yr = kilowatt hours per year



	Electricity Use
Land Use	kWh/yr
City Park	0
Parking Lot	650926
Refrigerated Warehouse-Rail	1.29E+07
Total	

Source: AQ/GHG Appendix, CalEEMod Output
Giovanni Logistics Phase 1 DRY Op - Napa County, Annual
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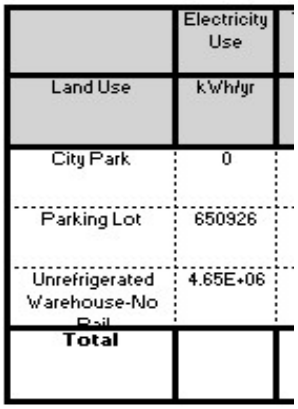
Dry Storage	Electricity Use
Land Use	(kWh/yr)
Parking Lot	650,926
Unrefrigerated Warehouse - No Rail	4,650,000

Total Dry Storage **5,300,926 kWh/yr**

kWh/yr = kilowatt hours per year



	Electricity Use
Land Use	kWh/yr
City Park	0
Parking Lot	650926
Unrefrigerated Warehouse-No Rail	4.65E+06
Total	

Model Assumptions and Methodology

The BAAQMD has developed a set of guidelines[1] that recommends using the American Meteorological Society and Environmental Protection Agency Regulatory Model (AERMOD) air dispersion model to estimate emission concentrations for use in identifying the cancer risk and hazard index associated with sensitive receptor exposure to project construction emissions. The following modeling parameters were employed using AERMOD, Version 21112, to estimate diesel particulate matter (DPM) emission concentrations that were used in the associated cancer risk and hazard calculations.

AERMOD Modeling Parameters

1. Sensitive receptors (e.g., schools, daycare facilities, hospitals, care facilities, residences) in the immediate project vicinity are represented in the model with discrete cartesian receptors. The closest sensitive receptors to the project site, in all directions, include the following:
   - One single-family residence approximately 200 feet southwest of the project site (834 Green Island Road).
   - One single-family residence approximately 315 feet southwest of the project site (850 Green Island Road).
   - One single-family residence approximately 250 feet southwest of the project site (876 Green Island Road).
   - One single-family residence approximately 220 feet southwest of the project site (1190 Green Island Road).
   - One single-family residence approximately 690 feet southwest of the project site (1300 Green Island Road).
   - One single-family residence approximately 1,045 feet southwest of the project site (unknown street address along Green Island Road).
   - One single-family residence approximately 3,150 feet west of the project site (1808 Green Island Road).
   - Two single-family residences approximately 2,510 feet south of the project site (300 & 310 Hess Road).
   - Single-family residential neighborhoods beginning approximately 3,870 feet south of the project site.
   - Calvary Baptist Christian Academy approximately 4,040 feet south of the project site.
   - Multi-family residences approximately 3,690 feet southeast of the project site (110-800 Reliant Way).
   - Several single-family residences approximately 2,180 feet southeast of the project site (along Watson Lane).

[1] Bay Area Air Quality Management District (BAAQMD). 2020. BAAQMD Health Risk Assessment Modeling Protocol. December. Website: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol_august_2020-pdf.pdf?la=en. Accessed April 13, 2021.

- One single-family residence approximately 1,790 feet east of the project site (unknown street address along Paoli Loop Road).
- One single-family residence approximately 1,860 feet northeast of the project site (5775 Broadway).

2. A nested cartesian grid was placed in AERMOD with the following spacing parameters:
   - 20 meters spacing within the project site and up to 200 meters from the project site;
   - 50 meters spacing between 200 and 500 meters from the project site; and
   - 250 meters spacing between 500 and 2,000 meters from the project site.
   - 500 meters spacing between 2,000 and 5,000 meters from the project site.
3. AERMOD's non-default regulatory dispersion option was selected. Among the dispersion control options available, the Fast All Sources option was selected.
4. The Urban dispersion coefficient was used as greater than 50 percent of the surrounding three kilometers is developed.
5. The UTM coordinates used to initially locate the project site are 10 S, 564,796 meters easting, 4,227,956 meters northing.
6. Emissions were characterized in the model using various area sources to represent different activities. The following describes the emission sources utilized in the model for each model scenario.

   Project Scenario 1 (Phase 1 Construction)
   - On-site construction activities are represented with one polygon area source across the entire Phase 1 project site.
   - Off-site construction hauling and vendor truck operation for Phase 1 is represented with line volume sources along Green Island Road, Devlin Road (existing), and Highway 29.

   Project Scenario 2 (Phase 1 Operation & Phase 2 Construction)
   - On-site construction activities are represented with one polygon area source across the entire Phase 2 project site.
   - Off-site construction hauling and vendor truck operation for Phase 2 is represented with line volume sources along Green Island Road, Devlin Road (existing and new), and Highway 29.
   - On-site operational activities are represented with one polygon area source across the entire Phase 1 project site.
   - Off-site operational trucking fleet operation for Phase 1 is represented with line volume sources along Green Island Road, Devlin Road (existing and new), and Highway 29.
   - Off-site operational rail operation for Phase 1 is represented with one line volume source along the California Northern Railroad railway that connects to the project site.

   Project Scenario 3 (Phase 1 & Phase 2 Operation)
   - On-site operational activities are represented with one polygon area source across the entire project site.

- Off-site operational trucking fleet operation for the entire project is represented with line volume sources along Green Island Road, Devlin Road (existing and new), and Highway 29.

Off-site emissions were adjusted to only account for off-site emissions that would occur within 1,000 feet of the project site (see Off-Site $PM_{2.5}$ Exhaust Adjustment Sheet of this Appendix). As shown therein, each line volume source was assigned an emission rate equal to its proportion of the off-site emissions based on the length of the respective line volume source divided by the combined length of all line volume source(s).

7. Meteorological data from the Napa County Airport Air Monitoring Station, Station ID 93227. This station was selected as it is the closest monitoring station to the project site, and it resembles physical site characteristics and elevation generally representative of the project site. The Napa County Airport Air Monitoring Station provides preprocessed meteorological data for 2009. The model used all years of available meteorological data.

Estimation of Diesel Particulate Matter Emissions

Construction Diesel Particulate Matter (DPM) emissions—represented as $PM_{2.5}$ exhaust—were estimated using CalEEMod, Version 2020.4.0. Construction of Phase 1 of the project is expected to begin in January 2022 and conclude 10 months later. Construction of Phase 2 of the project is expected to begin immediately following completion of Phase 1 construction and conclude 10 months later in 2023. Construction emissions for both project phases were assumed to be distributed over the project area with a working schedule of 8 hours per day, 5 days per week.

Due to the phased nature of the project, the HRA analyzes the proposed project's Phase 1 construction DPM emissions for the first year, Phase 1 operational and Phase 2 construction DPM emissions for the second year, and Phase 1 and 2 operational DPM emissions for the remainder of the 30-year exposure duration, consistent with the BAAQMD's Health Risk Assessment Guidelines.[2] The HRA also analyzes the proposed project's Phase 1 construction DPM emissions for the first year, Phase 1 operational and Phase 2 construction DPM emissions for the second year, and Phase 1 and 2 operational DPM emissions of school receptor exposure at the Calvary Baptist Christian Academy and the proposed project's operational DPM emission concentrations for the remainder of the 13-year exposure duration for a K-12 school, consistent with the BAAQMD's Health Risk Assessment Guidelines.

To reduce NO_X and GHG emissions to less than significant levels, the proposed project would be required to implement MM AIR-2d, which would require that the trucking fleet utilized during operation of both Project Phases is 2014 model year or newer. As a result, all "Operational DPM" emission estimates displayed below in Table 1 incorporate implementation of MM AIR-2d. Because the proposed project could accommodate the construction and operation of 2.4 million square feet of cold storage space and the subsequent operation of TRUs in addition to truck and passenger vehicle activities, the HRA herein analyzes the cold storage project scenario as a conservative assessment.

[2] Bay Area Air Quality Management District (BAAQMD). 2016. BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines. December. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en. Accessed September 16, 2021.

Table 1: Project DPM Construction Emissions

Scenario	On-site DPM Project Site (tons/year)	Off-site DPM Road/Rail Segments (tons/year)	Total Local DPM Emissions (tons/year)
Impact Scenario 1 (Construction of Project Phase 1)			
Phase 1 Construction DPM	0.08101	0.03016	0.11117
Impact Scenario 2 (Operation of Project Phase 1 and Construction of Project Phase 2)			
Phase 1 Operational DPM[1]	0.16679	0.72038	0.88717
Phase 2 Construction DPM	0.07044	0.02092	0.09136
Impact Scenario 3 (Operation of Project Phase 1 and Operation of Project Phase 2)			
Phase 1 Operational DPM[1]	0.16679	0.72038	0.88717
Phase 2 Operational DPM[1]	0.19362	0.83642	1.03004

[1] Includes implementation of Mitigation Measure AIR-4 (2014 model year or newer trucking fleet).
Source: CalEEMod Output and Construction Health Risk Assessment Calculations; see Appendix B.

To assess potential health risk impacts to off-site sensitive receptors, the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) air dispersion model was used to estimate the DPM emission concentrations at nearby sensitive receptors within 1,000 feet of the project site.

Estimation of Cancer Risks

The BAAQMD has developed a set of guidelines for estimating cancer risks resulting from exposure to toxic air contaminants (TAC).[3,4] These guidelines require the use of Hotspots Analysis and Reporting Program (HARP2) software to identify the cancer risk associated with DPM generated during construction activities. The HARP2 risk scenario inputs used to calculate cancer risk during project construction are as follows:

Residential Receptors

1. Analysis Type: Cancer Risk
2. Receptor Type: Individual Resident
3. Scenario 1 Exposure Duration: User Defined (Tier 2) – 1 Year, 3rd Trimester Start Age
4. Scenario 2 Exposure Duration: User Defined (Tier 2) – 1 Year, Age 1 Start Age
5. Scenario 3 Exposure Duration: User Defined (Tier 2) – 28 Years, Age 2 Start Age
6. Intake Rate Percentile: Risk Management Policy (RMP) - *Inhalation Only*
7. Selected: “Apply Molecular Weight Adjustment Factor” factor

[3] Bay Area Air Quality Management District (BAAQMD). 2016. BAAQMD Air Toxics NSR Program Health Risk Assessment Guidelines. December. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en. Accessed June 22, 2021.

[4] Bay Area Air Quality Management District (BAAQMD). 2020. BAAQMD Health Risk Assessment Modeling Protocol. December. Website: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en. Accessed June 22, 2021.

8. Pathways to Evaluate: Inhalation Only
9. Selected: “Apply fraction of time at residence to age bins less than 16 years”
10. Selected: “Apply fraction of time at residence to age bins greater than or equal to 16 years”
11. Selected: “Use Tier 2 breathing rates (L/kg-day)” factor
12. Selected: “Use Tier 2 fraction of time at residence” factor

School Receptors (Calvary Baptist Christian Academy, K-12)

1. Analysis Type: Cancer Risk
2. Receptor Type: Individual Resident
3. Scenario 1 Exposure Duration: User Defined (Tier 2) – 1 Year, Age 5 Start Age
4. Scenario 2 Exposure Duration: User Defined (Tier 2) – 1 Year, Age 6 Start Age
5. Scenario 3 Exposure Duration: User Defined (Tier 2) – 11 Years, Age 7 Start Age
6. Intake Rate Percentile: 95th (High End)
7. Selected: “Apply Molecular Weight Adjustment Factor” factor
8. Pathways to Evaluate: Inhalation Only
9. Selected: “Use adjustment factors”
10. Exposure frequency (days/year): 180 days
11. Selected: “Use Tier 2 breathing rates (L/kg-day)” factor

Estimation of Non-Cancer Chronic Hazards

An evaluation of the potential non-cancer effects of chronic chemical exposures was also conducted. Adverse health effects are evaluated by comparing the annual receptor concentration of each chemical compound with the appropriate reference exposure limit. Available reference exposure limits promulgated by the California Office of Environmental Health Hazard Assessment (OEHHA) were considered in the assessment.

Risk characterization for non-cancer health hazards from toxic air contaminants (TAC) is expressed as a Hazard Index. The Hazard Index is a ratio of the predicted concentration of the project’s emissions to a concentration considered acceptable to public health professionals, termed the reference exposure limit. The Hazard Index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the Hazard Index, each chemical concentration or dose is divided by the appropriate toxicity reference exposure level. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds 1, a health hazard is presumed to exist. For purposes of this assessment, the TAC of concern is DPM for which the OEHHA has defined a reference exposure limit for DPM of 5 $\mu g/m^3$. The principal toxicological endpoint assumed in this assessment was through inhalation.

Cancer Risk and Non-Cancer Chronic Hazard Summary

Table 2 summarizes the cancer risk and hazard index results for the maximally impacted receptors (MIR) under each impact scenario. For Impact Scenario 1, the residential MIR represents a single-family residence approximately 1,860 feet northeast of the project site and the school MIR represents the Calvary Baptist Christian Academy. As previously noted, the proposed project would be required to implement MM AIR-2d, requiring the use of a 2014 model year or newer trucking fleet during project

operation. As such, cancer risk and chronic non-cancer hazards shown in Table 2 account for the implementation of MM AIR-2d.

Table 2: Estimated Cancer Risks and Chronic Non-Cancer Hazards (Proposed Project)

Impact Scenario	Cancer Risk[1] (risk per million)	Chronic Non-Cancer Hazard Index[2]	TAC Concentration[3] (µg/m^3)
Residential MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.44	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	1.44	<0.01	0.01
Scenario 3 (Phase 1, Phase 2 Operation)	0.22	0.01	0.04
Total (30 Year Duration)	*2.10*	*0.01*	*0.05*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**
School MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.01	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	0.03	<0.01	<0.01
Scenario 3 (Phase 1, Phase 2 Operation)	0.20	<0.01	<0.01
Total (30 Year Duration)	*0.24*	*<0.01*	*<0.01*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**

Notes:
[1] Cancer risk is identified by multiplying the risk sum from HARP2 by 1,000,000.
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the DPM reference exposure level of 5 µg/m^3.
[3] TAC concentration taken from AERMOD is always at the MIR identified from the project air dispersion models. The residential MIR was located at 38.20613°N -122.25739°E and the school MIR was identified as the Calvary Baptist Christian Academy.
REL = reference exposure level
MIR = maximally impacted sensitive receptor
µg/m^3 = micrograms per cubic meter
Emissions Source: Appendix B.
Thresholds Source: Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 15, 2021.

Cumulative Health Risk Assessment

The BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project. For a project-level analysis, BAAQMD provides several tools for use in screening potential sources of TACs. The BAAQMD-provided tools used to assess the potential cumulative impacts from TACs are described below:

- **Health Risks for Local Roadways.** The BAAQMD pre-calculated concentrations and the associated potential cancer risks and $PM_{2.5}$ concentration increases for each county within their jurisdiction for roadways that carry at least 30,000 average daily trips. For certain areas, the BAAQMD also includes local roadways that meet BAAQMD's "major roadway" criteria of 10,000 vehicles or 1,000 trucks per day. The latest available screening tool is in the form of a Geographic Information System (GIS) raster file.

- **Freeway Screening Analysis Tool**. The BAAQMD prepared a GIS tool that contains pre-estimated cancer risk and $PM_{2.5}$ concentration increases for highways within the Bay Area. The closest highway to the identified MIR is Highway 29, as close as 600 feet east of the project site.

- **Stationary Source Risk and Hazard Screening Tools**. The BAAQMD prepared a web-based tool[5] with the location of permitted stationary sources. For each emissions source, the BAAQMD provides conservative estimates of cancer risk and $PM_{2.5}$ concentrations. Based on information from the GIS tool, four BAAQMD-permitted stationary sources exist within 1,000 feet of the project site.

- **Rail Screening Tools.** The BAAQMD prepared GIS tools that contains estimated cancer risks and $PM_{2.5}$ concentrations from railroad operations at any point within the Air Basin. The closest rail line to the project site is operated by California Northern Railroad, which will connect directly to Building A during operation of Phase 1 of the proposed project.

A cumulative Health Risk Assessment (HRA) was performed that examined the cumulative impacts of the project's construction emissions and sources of TAC emissions within 1,000 feet of the project site.

The cumulative health risk results, including health risks from the existing stationary source, are summarized during project construction in Table 3. Cumulative health risk results shown therein are representative of the health risks to the residential MIR, which would experience the highest concentration of pollutants.

[5] Bay Area Air Quality Management District (BAAQMD). 2018. Permitted Stationary Sources Risk and Hazards. Permitted Stationary Sources Risk and Hazards. Website: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65. Accessed April 16, 2021.

Table 3: Summary of the Cumulative Health Impacts at the MIR during Construction

Source	Source Type	Distance from MIR[1] (feet)	Cancer Risk (per million)	Chronic HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Project					
Residential MIR	Diesel Construction Equipment, Trucking Fleets, and Passenger Vehicles	1,860	2.10	0.01	0.05
Existing Stationary Sources (BAAQMD Facility Number)[2]					
California Stonecraft Facility ID 24284	Polyester Resin Operation	1,455	ND	<0.01	ND
William Kreysler & Assoc Inc Facility ID 12852	Polyester Resin Operation, Solvent Cleaning	1,440	ND	<0.01	ND
City of American Canyon / Accounts Paybale Facility ID 14432	Generators	450	0.12	0.00	0.00
All Bay Mill & Lumber Co Facility ID 4793	Woodworking	2,085	ND	ND	0.11
Ikea Facility ID 200845	Generators	1,750	61.11	0.02	0.08
Roadways					
Existing Local Roadway Network		-	0.11	ND	<0.01
Rail					
Existing Rail Lines (California Northern Railroad)		140	4.87	ND	0.01
Freeways					
Existing Freeways (Highway 29)		225	5.58	ND	0.10
Cumulative Health Risks					
Cumulative Maximum with Project DPM Emissions			**73.89**	**0.03**	**0.35**
BAAQMD's Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceedance?			**No**	**No**	**No**

Notes:
[1] The residential MIR located at 38.20613°N -122.25739°E was identified as the primary MIR here as it would experience the greatest health impact between residential and school receptors.
[2] Assumes emissions remain constant with time. Values represent the greatest identified among all MIRs presented in this analysis, including the two previously identified residences and the previously identified school.
ND = no data available
Source: Appendix B.

Phase 1 Project Construction Emissions

Annual Construction Emissions (tons)
(as taken from CalEEMod)

	$PM_{2.5}$ (Exhaust)
Onsite	0.00099
Offsite	0.00000
Site Preparation (2022)	**0.00099**
Onsite	0.01280
Offsite	0.00052
Grading (2022)	**0.01332**
Onsite	0.06390
Offsite	0.02960
Building Construction (2022)	**0.09350**
Onsite	0.00287
Offsite	0.00000
Paving (2022)	**0.00287**
Onsite	0.00045
Offsite	0.00004
Architectural Coating (2022)	**0.00049**
Total Onsite	**8.101E-02**
Total Offsite	**3.016E-02**

Exhaust $PM_{2.5}$ AERMOD Inputs

Construction Hours	**1,704.00**	**(8 hours/day, 213 workdays)**
Elapsed Hours	**5,112.00**	
Variable Factor	**3.00**	
On-Site Emissions	**162.02**	**pounds**
	73,490.98	**grams**
	1.438E+01	**grams/hours**
	3.993E-03	**grams/sec**
Off-Site Emissions	**60.32**	**pounds**
	27,360.67	**grams**
	5.352E+00	**grams/hour**
	1.487E-03	**grams/sec**

Mitigation Applied	Mitigation Description
MM AIR-2a	BAAQMD Dust Control BMPs.
MM AIR-2b	Low-VOC coatings and paints during project construction.

Off-Site AERMOD Input Adjustments

Roadway Segment	Length (Miles)	Proportion of Total	$PM_{2.5}$ (Exhaust) Emission Rate (g/sec)
Devlin Road (Existing)	0.5	31.85%	**1.004E-04**
Green Island Road	0.6	36.31%	**1.144E-04**
Highway 29	0.5	31.85%	**1.004E-04**
Totals	*1.6*	*100.00%*	*3.152E-04*

Notes:

[1] Conversion factor of 453.592 grams/pound was used to convert daily emissions expressed in pounds to daily emissions expressed in grams.

[2] Off-site emissions used in the AERMOD air dispersion model were reduced to account for the proportion of emissions occurring within 1,000 feet of the project site.

Off-Site Emission Adjustment for 1,000-foot Radius of Project Site

Phase Name	Days	Vendor Trip Number (Daily)	Hauling Trip Number (Total)	Vendor Trip Length	Hauling Trip Length
Site Preparation	6	0	0	7.3	20
Grading	17	0	675	7.3	20
Building Construction	168	484	0	7.3	20
Paving	11	0	0	7.3	20
Architectural Coating	11	0	0	7.3	20
	Totals	**81,312**	**675**		

Diesel-Fueled Vehicle Results		
	Total Vehicle Trips	Vehicle Miles Traveled (VMT)
Vendor Trucks	81,312.00	593,577.60
Hauling Trucks	675	13,500
Total VMT		**607,078**

AERMOD 1,000-ft Radius Adjustment		
	Total Vehicle Trips	Vehicle Miles Traveled (VMT)
Vendor Trucks	81,312.00	127,659.84
Hauling Trucks	675	1,060
Total VMT		**128,719.59**

Proportion of off-site emissions occuring within 1,000 of project site:	**21.2032%**

Phase 1 Project Construction Emissions

Annual Construction Emissions (tons)
(as taken from CalEEMod)

	$PM_{2.5}$ (Exhaust)
Onsite	0.00099
Offsite	-
Site Preparation (2022)	**0.00099**
Onsite	0.01280
Offsite	0.00001
Grading (2022)	**0.01281**
Onsite	0.00913
Offsite	0.00565
Building Construction (2022)	**0.01478**
Onsite	0.04710
Offsite	0.01520
Building Construction (2023)	**0.06230**
Onsite	0.00282
Offsite	-
Paving (2023)	**0.00282**
Onsite	0.00042
Offsite	0.00006
Architectural Coating (2023)	**0.00048**
Total Onsite	**7.04E-02**
Total Offsite	**2.09E-02**

Exhaust $PM_{2.5}$ AERMOD Inputs

		(8 hours/day,
Construction Hours	**1,712.00**	**214 workdays)**
Elapsed Hours	**5,136.00**	
Variable Factor	**3.00**	
On-Site Emissions	**140.88**	**pounds**
	63,902.04	**grams**
	1.244E+01	**grams/hours**
	3.456E-03	**grams/sec**
Off-Site Emissions	**41.84**	**pounds**
	18,978.29	**grams**
	3.695E+00	**grams/hour**
	1.026E-03	**grams/sec**

Mitigation Applied	Mitigation Description
MM AIR-2a	BAAQMD Dust Control BMPs.
MM AIR-2b	Low-VOC coatings and paints during project construction.

Off-Site AERMOD Input Adjustments

Roadway Segment	Length (Miles)	Proportion of Total	$PM_{2.5}$ (Exhaust) Emission Rate (g/sec)
Devlin Road (Existing)	1.0	45.07%	**1.350E-04**
Green Island Road	0.7	31.46%	**9.421E-05**
Highway 29	0.5	23.47%	**7.030E-05**
Totals	*2.1*	*100.00%*	*2.995E-04*

Notes:

[1] Conversion factor of 453.592 grams/pound was used to convert daily emissions expressed in pounds to daily emissions expressed in grams.

[2] Off-site emissions used in the AERMOD air dispersion model were reduced to account for the proportion of emissions occurring within 1,000 feet of the project site.

Off-Site Emission Adjustment for 1,000-foot Radius of Project Site

Phase Name	Days	Vendor Trip Number (Daily)	Hauling Trip Number (Total)	Vendor Trip Length	Hauling Trip Length
Site Preparation	6	0	0	7.3	20
Grading	17	0	0	7.3	20
Building Construction	167	646	0	7.3	20
Paving	12	0	0	7.3	20
Architectural Coating	12	0	0	7.3	20
	Totals	**107,882**	**-**		

Diesel-Fueled Vehicle Results		
	Total Vehicle Trips	Vehicle Miles Traveled (VMT)
Vendor Trucks	107,882.00	787,538.60
Hauling Trucks	-	-
Total VMT		**787,539**

AERMOD 1,000-ft Radius Adjustment		
	Total Vehicle Trips	Vehicle Miles Traveled (VMT)
Vendor Trucks	107,882.00	229,788.66
Hauling Trucks	-	-
Total VMT		**229,788.66**

Proportion of off-site emissions occuring within 1,000 of project site:	**29.1781%**

Phase 1 Project Operational Emissions
(COLD Storage Scenario)

Annual Construction Emissions (tons/year)
(as taken from CalEEMod)

Emission Source	$PM_{2.5}$ (Exhaust)
Area (Onsite)	0.00003
Energy (Onsite)	0.01510
Mobile - Passenger Vehicle (Onsite)	0.02276
Mobile - Trucks (Onsite)	0.00378
Mobile - TRUs (Onsite)	0.12338
Stationary (Onsite)	0.00174
Total Onsite	**0.16679**
Mobile - Passenger Vehicles (Offsite)	0.36960
Mobile - Trucks (Offsite)	0.24782
Mobile - TRUs (Offsite)	0.06169
Mobile - Rail (Offsite)	0.04127
Total Offsite	**0.72038**
Total Onsite	**1.67E-01**
Total Offsite (Railroad)	**4.13E-02**
Total Offsite (Roadways)	**6.79E-01**

Note: To represent onsite passenger vehicle and truck mobile source emissions, associated offsite emission totals were used with a travel distance of 0.5 mile. For passenger vehicles, offsite emissions were multipled by a factor of 0.5/8.12 to identify onsite emissions. For trucks, offsite emissions were multiplied by a factor of 0.5/32.8 to identify onsite emissions.

Mitigation Applied
MM AIR-2c
MM AIR-2d

Off-Site AERMOD Input Adjustments

Roadway Segment	Length (Miles)	Proportion of Total	$PM_{2.5}$ (Exhaust) Emission Rate (g/sec)
Devlin Road (Existing & New)	1.0	47.29%	**1.221E-04**
Green Island Road	0.6	28.08%	**7.251E-05**
Highway 29	0.5	24.63%	**6.360E-05**
Totals	*2.0*	*100.00%*	*2.582E-04*

Notes:
[1] Conversion factor of 453.592 grams/pound was used to convert daily emissions expressed in pounds to daily emissions expressed in grams.
[2] Off-site emissions used in the AERMOD air dispersion model were reduced to account for the proportion of emissions occurring within 1,000 feet of the project site.

Off-Site Roadway Activity	Total Travel Distances per Trip	Adjusted for 1,000 ft
Passenger Vehicles	8.12 Miles	2.33%
Trucking Fleet	32.8 Miles	0.58%
Railroad Operations	50 Miles	0.38%

Mitigation Description

Low VOC coatings and paints, electric landscaping equipment

2014 Model Year or newer trucks

Exhaust $PM_{2.5}$ AERMOD Inputs		
Annual Hours	**8,760.00**	
On-Site Emissions	**333.58**	**pounds**
	151,307.81	**grams**
	1.727E+01	**grams/hours**
	4.798E-03	**grams/sec**
Off-Site Emissions	**739.20**	**pounds**
(Passenger Vehicles)	**335,295.21**	**grams**
	3.83E+01	**grams/hour**
	1.06E-02	**grams/sec**
Off-Site Emissions	**123.38**	**pounds**
(Trucks)	**55,965.15**	**grams**
	6.39E+00	**grams/hour**
	1.77E-03	**grams/sec**
Off-Site Emissions	**82.54**	**pounds**
(Railroad)	**37,440.00**	**grams**
	4.27E+00	**grams/hour**
	1.19E-03	**grams/sec**
Adjusted for 1,000 ft	**4.50E-06**	**grams/sec**

Phase 2 Project Operational Emissions (COLD Storage Scenario)

Annual Construction Emissions (tons/year) (as taken from CalEEMod)

Emission Source	$PM_{2.5}$ (Exhaust)
Area (Onsite)	0.00003
Energy (Onsite)	0.01870
Mobile - Passenger Vehicle (Onsite)	0.02822
Mobile - Trucks (Onsite)	0.00469
Mobile - TRUs (Onsite)	0.14111
Stationary (Onsite)	0.00087
Total Onsite	**0.19362**
Mobile - Passenger Vehicles (Offsite)	0.45830
Mobile - Trucks (Offsite)	0.30756
Mobile - TRUs (Offsite)	0.07056
Total Offsite	**0.83642**
Total Onsite	**1.94E-01**
Total Offsite	**8.36E-01**

Note: To represent onsite passenger vehicle and truck mobile source emissions, associated offsite emission totals were used with a travel distance of 0.5 mile. For passenger vehicles, offsite emissions were multipled by a factor of 0.5/8.12 to identify onsite emissions. For trucks, offsite emissions were multiplied by a factor of 0.5/32.8 to identify onsite emissions.

Off-Site AERMOD Input Adjustments

Roadway Segment	Length (Miles)	Proportion of Total	$PM_{2.5}$ (Exhaust) Emission Rate (g/sec)
Devlin Road (Existing & New)	1.0	45.07%	**1.439E-04**
Green Island Road	0.7	31.46%	**1.004E-04**
Highway 29	0.5	23.47%	**7.493E-05**
Totals	*2.1*	*100.00%*	*3.192E-04*

Notes:

[1] Conversion factor of 453.592 grams/pound was used to convert daily emissions expressed in pounds to daily emissions expressed in grams.

[2] Off-site emissions used in the AERMOD air dispersion model were reduced to account for the proportion of emissions occurring within 1,000 feet of the project site.

Off-Site Roadway Activity	Total Travel Distances per Trip	Adjusted for 1,000 ft
Passenger Vehicles	8.12 Miles	2.33%
Trucking Fleet	32.8 Miles	0.58%

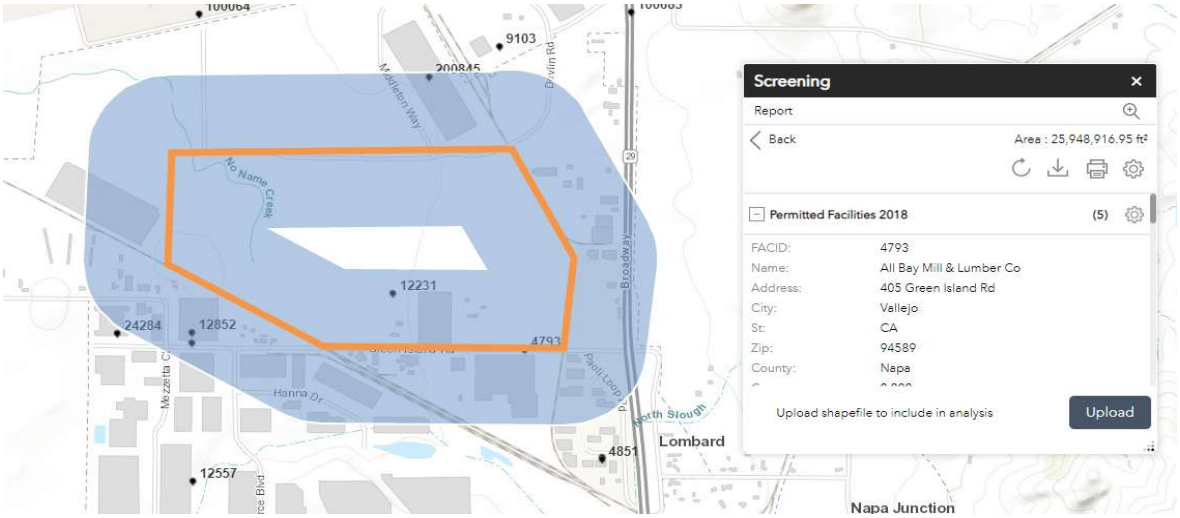
Mitigation Applied	Mitigation Description
MM AIR-2c	Low VOC coatings and paints, electric landscaping equipment
MM AIR-2d	2014 Model Year or newer trucks

Exhaust $PM_{2.5}$ AERMOD Inputs

Annual Hours	**8,760.00**	
On-Site Emissions	**387.24**	**pounds**
	175,648.69	**grams**
	2.005E+01	**grams/hours**
	5.570E-03	**grams/sec**
Off-Site Emissions	**916.60**	**pounds**
(Passenger Vehicles)	**415,762.43**	**grams**
	4.75E+01	**grams/hour**
	1.32E-02	**grams/sec**
Off-Site Emissions	**141.11**	**pounds**
(Trucks)	**64,006.72**	**grams**
	7.31E+00	**grams/hour**
	2.03E-03	**grams/sec**

Existing Stationary Sources within 1,000 Feet of the Project

Lat, Long Project Site: 38.198968°, -122.265359°



Permitted Stationary Sources within 1,000 feet of the Project Site:

1 Facility ID 24284 California Stonecraft, 1111 Green Island Road
2 Facility ID 12852 William Kreysler & Assoc Inc, 501 Green Island Road
3 Facility ID 14432 City of American Canyon / Accounts Paybale, Commerce Blvd & Green Island Road
4 Facility ID 4793 All Bay Mill & Lumber Co, 405 Green Island Road
5 Facility ID 200845 Ikea, 1 Middleton Way

Note: Facility ID 12231's location is misrepresented on the image above. This facility is further to the south, greater than 1,000 feet from the Project Site.

California Stonecraft

Facility ID	24284
Name	California Stonecraft
Address	1111 Green Island Road
City	American Canyon
St	CA
Zip	94503
County	Napa
Cancer (per million)	0.000
Hazard	0.000
PM_2.5 (ug/m3)	0.000
Type	Contact BAAQMD
Latitude	38.196
Longitude	-122.277

Distance from MIR: 1,455 feet

Data provided by BAAQMD:

Cancer Risk	No Data
Hazard	0.00091131
PM2.5 (ug/m3)	No Data
Source Type	Polyester Resin Operation (1)

Generic Case

Distance (meters)	Distance (feet)	Multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
295	967.8	0.136		0		0
300	984.3	0.132	0.0009113	0.000120061		0

William Kreysler & Assoc Inc

Facility ID	12852
Name	William Kreysler & Assoc Inc
Address	501 Green Island Road
City	American Canyon
St	CA
Zip	94503
County	Napa
Cancer (per million)	0.000
Hazard	0.030
PM_2.5 (ug/m3)	0.000
Type	Contact BAAQMD
Latitude	38.196
Longitude	-122.274

Distance from MIR: 1,440 feet

Data provided by BAAQMD:

Cancer Risk	No Data
Hazard	0.02724599
PM2.5 (ug/m3)	No Data
Source Type	Polyester Resin Operation (2), Solvent Cleaning (1)

Generic Case

Distance (meters)	Distance (feet)	Multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
295	967.8	0.136		0		0
300	984.3	0.132	0.027246	0.003589568		0

City of American Canyon / Accounts Paybale

Facility ID	14432
Name	City of American Canyon / Accounts Paybale
Address	Commerce Blvd & Green Island Rd
City	American Canyon
St	CA
Zip	94589
County	Napa
Cancer (per million)	0.830
Hazard	0.000
PM_2.5 (ug/m3)	0.000
Type	Generators
Latitude	38.195
Longitude	-122.274

Distance from MIR: 450 feet

Diesel Backup Generator

Distance (meters)	Distance (feet)	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
120	393.7	0.16		0		0
130	426.5	0.15	0.83	0.1245		0

All Bay Mill & Lumber Co

Facility ID	4793
Name	All Bay Mill & Lumber Co
Address	405 Green Island Rd
City	Vallejo
St	CA
Zip	94589
County	Napa
Cancer (per million)	0.000
Hazard	0.000
PM_2.5 (ug/m3)	0.850
Type	Contact BAAQMD
Latitude	38.195
Longitude	-122.260

Distance from MIR: 2,085 feet

Data provided by BAAQMD:

Cancer Risk	No Data
Hazard	No Data
PM2.5 (ug/m3)	0.8487176
Source Type	Woodworking (2)

Generic Case

Distance (meters)	Distance (feet)	Multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
295	967.8	0.136		0		0
300	984.3	0.132		0	0.8487176	0.111815656

Ikea

Facility ID	200845
Name	Ikea
Address	1 MIDDLETON WAY
City	AMERICAN CYN
St	CA
Zip	94503
County	Napa
Cancer (per million)	0.000
Hazard	0.000
PM_2.5 (ug/m3)	0.000
Type	Contact BAAQMD
Latitude	38.205
Longitude	-122.264

Distance from MIR: 1,750 feet

Data provided by BAAQMD:

Cancer Risk	463.811256
Hazard	0.12463154
PM2.5 (ug/m3)	0.58389909
Source Type	Generators

Diesel Backup Generator

Distance (meters)	Distance (feet)	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
295	967.8	0.136		0		0
300	984.3	0.132	463.81126	61.10555563	0.5838991	0.07692672
295	967.8	0.136		0		0
300	984.3	0.132	0.1246315	0.016419776		0

HARP2 - HRACalc (dated 19044) 3/16/2022 5:01:31 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 5
Total Exposure Duration: 1

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 1
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES

GLC adjustment factor: 1
Exposure frequency: 180

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|EF changed|DBRs changed|FAH changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\lpark\OneDrive - ADEC Solutions USA, Inc\Desktop\01. Project Files\5460.0001 Giovannoni\HRA\HARP2\Sc 1_School_CancerRisk.csv
HRA ran successfully

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 6
Total Exposure Duration: 1

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 1
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES

GLC adjustment factor: 1
Exposure frequency: 180

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|EF changed|DBRs changed|FAH changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\lpark\OneDrive - ADEC Solutions USA, Inc\Desktop\01. Project Files\5460.0001 Giovannoni\HRA\HARP2\Sc 2_School_CancerRisk.csv
HRA ran successfully

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 11
Total Exposure Duration: 7

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 5
16<30 Years Bin: 2
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES

GLC adjustment factor: 1
Exposure frequency: 180

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|EF changed|DBRs changed|FAH changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\lpark\OneDrive - ADEC Solutions USA, Inc\Desktop\01. Project Files\5460.0001 Giovannoni\HRA\HARP2\Sc 3_School_CancerRisk.csv
HRA ran successfully

Control Pathway

Dispersion Options

Titles

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

Dispersion Options

☐ Regulatory Default ☑ Non-Default Options

☑ Elevated Terrain
☐ No Stack-Tip Downwash (NOSTD)
☐ Run in Screening Mode
☐ Conversion of NOx to NO2 (OLM or PVMRM)
☐ No Checks for Non-Sequential Met Data
☑ Fast All Sources (FASTALL)
☐ Fast Area Sources (FASTAREA)
☐ Optimized Area Source Plume Depletion
☐ Gas Deposition

BETA Options:

☐ Capped and Horizontal Stack Releases
☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
☐ Low Wind Options

☐ SCIM (Sampled Chronological Input Model)
☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

Exponential Decay

☐ Yes ☑ No

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☑ Yes ☐ No

Default Height = 1.50 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: 54600001 Giovannoni Logistics_Scenario 1.err

Source Pathway - Source Inputs

Polygon Area Sources

Source Type: AREA POLY

Source: PHS1 (On-Site Phase 1)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
11.00	2.40	1.33E-8		18	564212.56	4227961.55
		1.33E-8			564355.03	4227962.60
		1.33E-8			564353.97	4227981.62
		1.33E-8			564614.97	4227980.57
		1.33E-8			564617.26	4227741.88
		1.33E-8			564885.02	4227742.53
		1.33E-8			564926.24	4228037.45
		1.33E-8			564925.04	4228076.51
		1.33E-8			564915.88	4228111.98
		1.33E-8			564900.33	4228149.05
		1.33E-8			564766.46	4228356.75
		1.33E-8			564586.25	4228355.22
		1.33E-8			564586.25	4228313.99
		1.33E-8			564505.31	4228278.87
		1.33E-8			564418.27	4228339.95
		1.33E-8			564348.02	4228309.41
		1.33E-8			564262.82	4228292.10
		1.33E-8			564209.96	4228293.89

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: DEVLIN (Devlin Road Off-Site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00010		564211.12	4228293.96	10.03	2.55
			564209.77	4228485.17	10.00	2.55
			564399.41	4228484.52	11.00	2.55
			564463.05	4228498.80	11.64	2.55
			564538.38	4228499.45	12.00	2.55
			564579.95	4228500.10	12.00	2.55
			564606.57	4228504.00	12.00	2.55
			564638.40	4228513.09	12.04	2.55
			564659.83	4228522.83	12.10	2.55
			564731.91	4228561.80	13.00	2.55
			564766.63	4228583.16	13.00	2.55
			564784.29	4228597.51	13.17	2.55
			564803.06	4228621.25	14.00	2.55
			564819.62	4228648.30	14.00	2.55
			564827.90	4228666.60	14.82	2.55
			564832.29	4228690.53	14.99	2.55
			564834.68	4228709.28	14.98	2.55
			564837.74	4228744.21	15.07	2.55
			564836.98	4228744.21	15.07	2.55

Source Type: LINE VOLUME

Source: GREENISLAND (Green Island Road Off-site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00011		564204.23	4227734.14	10.00	2.55
			565109.93	4227732.71	18.99	2.55

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME

Source: HWY29 (Highway 29 Off-site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
36.00	0.00010		565127.67	4228418.04	16.10	2.55
			565129.85	4227839.68	19.00	2.55
			565134.89	4227733.13	19.00	2.55
			565150.65	4227594.12	19.47	2.55
			565159.57	4227514.30	19.06	2.55

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0000983	564209.23	4227734.14	10.19	2.55	1.26E-6	10.00		4.65	2.37
	L0000984	564219.23	4227734.12	10.52	2.55	1.26E-6	10.00		4.65	2.37
	L0000985	564229.23	4227734.11	10.85	2.55	1.26E-6	10.00		4.65	2.37
	L0000986	564239.23	4227734.09	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000987	564249.23	4227734.07	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000988	564259.23	4227734.06	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000989	564269.23	4227734.04	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000990	564279.23	4227734.03	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000991	564289.23	4227734.01	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000992	564299.23	4227733.99	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000993	564309.23	4227733.98	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000994	564319.23	4227733.96	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000995	564329.23	4227733.95	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000996	564339.23	4227733.93	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000997	564349.23	4227733.92	11.00	2.55	1.26E-6	10.00		4.65	2.37
	L0000998	564359.23	4227733.90	11.19	2.55	1.26E-6	10.00		4.65	2.37
	L0000999	564369.23	4227733.88	11.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001000	564379.23	4227733.87	11.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001001	564389.23	4227733.85	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001002	564399.23	4227733.84	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001003	564409.23	4227733.82	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001004	564419.23	4227733.80	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001005	564429.23	4227733.79	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001006	564439.23	4227733.77	12.00	2.55	1.26E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0001007	564449.23	4227733.76	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001008	564459.23	4227733.74	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001009	564469.23	4227733.73	12.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001010	564479.23	4227733.71	12.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001011	564489.23	4227733.69	12.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001012	564499.23	4227733.68	12.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001013	564509.23	4227733.66	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001014	564519.23	4227733.65	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001015	564529.23	4227733.63	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001016	564539.23	4227733.61	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001017	564549.23	4227733.60	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001018	564559.23	4227733.58	13.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001019	564569.23	4227733.57	13.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001020	564579.23	4227733.55	13.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001021	564589.23	4227733.54	13.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001022	564599.23	4227733.52	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001023	564609.23	4227733.50	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001024	564619.23	4227733.49	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001025	564629.23	4227733.47	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001026	564639.23	4227733.46	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001027	564649.23	4227733.44	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001028	564659.23	4227733.42	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001029	564669.23	4227733.41	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001030	564679.23	4227733.39	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001031	564689.23	4227733.38	14.00	2.55	1.26E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0001032	564699.23	4227733.36	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001033	564709.23	4227733.35	14.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001034	564719.23	4227733.33	14.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001035	564729.23	4227733.31	14.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001036	564739.23	4227733.30	14.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001037	564749.23	4227733.28	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001038	564759.23	4227733.27	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001039	564769.23	4227733.25	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001040	564779.23	4227733.24	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001041	564789.23	4227733.22	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001042	564799.23	4227733.20	15.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001043	564809.23	4227733.19	15.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001044	564819.23	4227733.17	15.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001045	564829.23	4227733.16	15.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001046	564839.23	4227733.14	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001047	564849.23	4227733.12	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001048	564859.23	4227733.11	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001049	564869.23	4227733.09	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001050	564879.23	4227733.08	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001051	564889.23	4227733.06	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001052	564899.23	4227733.05	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001053	564909.23	4227733.03	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001054	564919.23	4227733.01	16.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001055	564929.23	4227733.00	16.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001056	564939.23	4227732.98	16.52	2.55	1.26E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0001057	564949.23	4227732.97	16.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001058	564959.23	4227732.95	17.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001059	564969.23	4227732.93	17.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001060	564979.23	4227732.92	17.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001061	564989.23	4227732.90	17.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001062	564999.23	4227732.89	17.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001063	565009.23	4227732.87	17.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001064	565019.23	4227732.86	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001065	565029.23	4227732.84	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001066	565039.23	4227732.82	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001067	565049.23	4227732.81	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001068	565059.23	4227732.79	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001069	565069.23	4227732.78	18.00	2.55	1.26E-6	10.00		4.65	2.37
	L0001070	565079.23	4227732.76	18.19	2.55	1.26E-6	10.00		4.65	2.37
	L0001071	565089.23	4227732.74	18.52	2.55	1.26E-6	10.00		4.65	2.37
	L0001072	565099.23	4227732.73	18.85	2.55	1.26E-6	10.00		4.65	2.37
	L0001073	565109.23	4227732.71	19.00	2.55	1.26E-6	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29	L0001074	565127.74	4228400.04	15.83	2.55	4.02E-6	36.00		16.74	2.37
	L0001075	565127.88	4228364.04	15.81	2.55	4.02E-6	36.00		16.74	2.37
	L0001076	565128.01	4228328.04	15.81	2.55	4.02E-6	36.00		16.74	2.37
	L0001077	565128.15	4228292.04	15.82	2.55	4.02E-6	36.00		16.74	2.37
	L0001078	565128.28	4228256.04	15.94	2.55	4.02E-6	36.00		16.74	2.37
	L0001079	565128.42	4228220.04	16.00	2.55	4.02E-6	36.00		16.74	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29	L0001080	565128.55	4228184.04	16.07	2.55	4.02E-6	36.00		16.74	2.37
	L0001081	565128.69	4228148.04	17.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001082	565128.82	4228112.04	17.40	2.55	4.02E-6	36.00		16.74	2.37
	L0001083	565128.96	4228076.04	17.84	2.55	4.02E-6	36.00		16.74	2.37
	L0001084	565129.10	4228040.04	17.98	2.55	4.02E-6	36.00		16.74	2.37
	L0001085	565129.23	4228004.04	18.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001086	565129.37	4227968.04	18.23	2.55	4.02E-6	36.00		16.74	2.37
	L0001087	565129.50	4227932.04	18.93	2.55	4.02E-6	36.00		16.74	2.37
	L0001088	565129.64	4227896.04	19.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001089	565129.77	4227860.04	19.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001090	565130.59	4227824.06	19.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001091	565132.29	4227788.10	19.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001092	565133.99	4227752.14	19.00	2.55	4.02E-6	36.00		16.74	2.37
	L0001093	565136.80	4227716.27	19.10	2.55	4.02E-6	36.00		16.74	2.37
	L0001094	565140.86	4227680.50	19.24	2.55	4.02E-6	36.00		16.74	2.37
	L0001095	565144.91	4227644.73	19.37	2.55	4.02E-6	36.00		16.74	2.37
	L0001096	565148.97	4227608.96	19.51	2.55	4.02E-6	36.00		16.74	2.37
	L0001097	565152.99	4227573.18	19.36	2.55	4.02E-6	36.00		16.74	2.37
	L0001098	565156.99	4227537.40	19.00	2.55	4.02E-6	36.00		16.74	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0001099	564211.09	4228298.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001100	564211.02	4228308.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001101	564210.95	4228318.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001102	564210.88	4228328.96	10.00	2.55	1.06E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0001103	564210.81	4228338.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001104	564210.74	4228348.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001105	564210.66	4228358.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001106	564210.59	4228368.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001107	564210.52	4228378.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001108	564210.45	4228388.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001109	564210.38	4228398.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001110	564210.31	4228408.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001111	564210.24	4228418.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001112	564210.17	4228428.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001113	564210.10	4228438.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001114	564210.03	4228448.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001115	564209.96	4228458.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001116	564209.89	4228468.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001117	564209.82	4228478.96	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001118	564213.57	4228485.15	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001119	564223.57	4228485.12	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001120	564233.57	4228485.08	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001121	564243.57	4228485.05	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001122	564253.57	4228485.02	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001123	564263.57	4228484.98	10.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001124	564273.57	4228484.95	10.33	2.55	1.06E-6	10.00		4.65	2.37
	L0001125	564283.57	4228484.91	10.66	2.55	1.06E-6	10.00		4.65	2.37
	L0001126	564293.57	4228484.88	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001127	564303.57	4228484.85	11.00	2.55	1.06E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0001128	564313.57	4228484.81	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001129	564323.57	4228484.78	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001130	564333.57	4228484.74	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001131	564343.57	4228484.71	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001132	564353.57	4228484.67	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001133	564363.57	4228484.64	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001134	564373.57	4228484.61	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001135	564383.57	4228484.57	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001136	564393.57	4228484.54	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001137	564403.47	4228485.43	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001138	564413.22	4228487.62	11.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001139	564422.98	4228489.81	11.04	2.55	1.06E-6	10.00		4.65	2.37
	L0001140	564432.74	4228492.00	11.12	2.55	1.06E-6	10.00		4.65	2.37
	L0001141	564442.50	4228494.19	11.25	2.55	1.06E-6	10.00		4.65	2.37
	L0001142	564452.25	4228496.38	11.53	2.55	1.06E-6	10.00		4.65	2.37
	L0001143	564462.01	4228498.57	11.77	2.55	1.06E-6	10.00		4.65	2.37
	L0001144	564471.98	4228498.88	11.97	2.55	1.06E-6	10.00		4.65	2.37
	L0001145	564481.98	4228498.97	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001146	564491.98	4228499.05	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001147	564501.98	4228499.14	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001148	564511.98	4228499.23	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001149	564521.98	4228499.31	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001150	564531.98	4228499.40	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001151	564541.98	4228499.51	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001152	564551.98	4228499.67	12.00	2.55	1.06E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0001153	564561.98	4228499.82	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001154	564571.98	4228499.98	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001155	564581.95	4228500.40	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001156	564591.85	4228501.84	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001157	564601.74	4228503.29	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001158	564611.50	4228505.41	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001159	564621.11	4228508.15	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001160	564630.73	4228510.90	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001161	564640.24	4228513.93	12.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001162	564649.34	4228518.07	12.05	2.55	1.06E-6	10.00		4.65	2.37
	L0001163	564658.44	4228522.20	12.33	2.55	1.06E-6	10.00		4.65	2.37
	L0001164	564667.29	4228526.87	12.65	2.55	1.06E-6	10.00		4.65	2.37
	L0001165	564676.09	4228531.62	12.88	2.55	1.06E-6	10.00		4.65	2.37
	L0001166	564684.88	4228536.38	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001167	564693.68	4228541.13	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001168	564702.48	4228545.89	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001169	564711.27	4228550.64	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001170	564720.07	4228555.40	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001171	564728.87	4228560.15	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001172	564737.48	4228565.23	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001173	564746.00	4228570.47	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001174	564754.52	4228575.71	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001175	564763.03	4228580.95	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001176	564771.11	4228586.80	13.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001177	564778.87	4228593.11	13.10	2.55	1.06E-6	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0001178	564786.16	4228599.88	13.33	2.55	1.06E-6	10.00		4.65	2.37
	L0001179	564792.37	4228607.72	13.64	2.55	1.06E-6	10.00		4.65	2.37
	L0001180	564798.57	4228615.57	13.88	2.55	1.06E-6	10.00		4.65	2.37
	L0001181	564804.50	4228623.60	14.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001182	564809.72	4228632.13	14.00	2.55	1.06E-6	10.00		4.65	2.37
	L0001183	564814.94	4228640.66	14.06	2.55	1.06E-6	10.00		4.65	2.37
	L0001184	564820.05	4228649.25	14.24	2.55	1.06E-6	10.00		4.65	2.37
	L0001185	564824.17	4228658.36	14.50	2.55	1.06E-6	10.00		4.65	2.37
	L0001186	564828.07	4228667.54	14.81	2.55	1.06E-6	10.00		4.65	2.37
	L0001187	564829.88	4228677.37	14.87	2.55	1.06E-6	10.00		4.65	2.37
	L0001188	564831.68	4228687.21	14.93	2.55	1.06E-6	10.00		4.65	2.37
	L0001189	564833.13	4228697.10	14.98	2.55	1.06E-6	10.00		4.65	2.37
	L0001190	564834.39	4228707.02	15.02	2.55	1.06E-6	10.00		4.65	2.37
	L0001191	564835.36	4228716.97	15.06	2.55	1.06E-6	10.00		4.65	2.37
	L0001192	564836.23	4228726.93	15.09	2.55	1.06E-6	10.00		4.65	2.37
	L0001193	564837.10	4228736.90	15.11	2.55	1.06E-6	10.00		4.65	2.37

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	563846.99	4227763.17		9.00	
2	563152.88	4227961.87		10.03	
3	563514.22	4227959.26		10.45	
4	563487.56	4227974.48		10.12	
5	563482.14	4227991.20		10.97	
6	563427.00	4227966.19		10.00	
7	563425.95	4227956.25		10.00	
8	563265.64	4227970.13		9.00	
9	562505.78	4227951.68		3.18	
10	563810.19	4227762.07		9.00	
11	563740.68	4227815.91		9.00	
12	564832.15	4226970.55		18.57	
13	564869.92	4226938.63		17.38	
14	565044.27	4226568.58		18.00	
15	564973.13	4226565.86		18.00	
16	564955.94	4226541.29		18.00	
17	564893.17	4226549.81		22.03	
18	565028.87	4226540.35		18.00	
19	565035.66	4226521.39		18.00	
20	565038.10	4226497.30		18.00	
21	565000.82	4226474.49		18.00	
22	565008.62	4226449.37		18.00	
23	565042.99	4226474.21		18.00	
24	565049.05	4226447.64		18.00	
25	565049.05	4226421.36		18.00	
26	565437.70	4226745.61		20.00	
27	565456.18	4226744.45		20.00	
28	565498.35	4226743.87		21.00	
29	565514.23	4226744.16		21.00	
30	565441.17	4226713.84		20.00	

31	565459.65	4226713.55	20.00
32	565517.12	4226698.53	21.00
33	565516.25	4226683.80	21.00
34	565482.47	4226674.27	20.63
35	565483.33	4226658.68	20.66
36	565433.95	4226666.19	20.00
37	565434.24	4226653.48	20.00
38	565444.63	4226624.31	20.00
39	565463.98	4226624.31	20.01
40	565509.03	4226631.82	21.00
41	565509.03	4226617.38	21.00
42	565314.45	4227270.70	20.00
43	565291.64	4227217.62	19.00
44	565309.08	4227218.00	19.00
45	565384.70	4227209.41	20.00
46	565449.84	4227190.61	20.00
47	565496.35	4227202.46	20.28
48	565481.62	4227270.05	21.00
49	565516.57	4227270.92	21.00
50	565553.69	4227134.21	22.00
51	565613.85	4227214.51	22.01
52	565588.48	4227278.18	22.85
53	565625.01	4227289.45	24.49
54	565729.83	4227269.14	29.12
55	565890.63	4227286.35	34.23
56	565430.90	4227667.38	23.64
57	565017.44	4228947.47	20.67
58	566101.79	4227980.30	40.54
59	566081.49	4228935.03	70.63
60	564793.53	4226912.96	21.04
61	564970.33	4226914.23	16.00
62	565009.97	4226624.20	18.00
63	564973.04	4226624.09	18.00
64	564972.69	4226614.91	18.00
65	564928.06	4226614.73	18.85
66	564928.06	4226608.07	18.85
67	564884.55	4226608.07	21.49
68	564848.83	4226641.41	22.74

69	564798.44	4226913.00	20.81
70	564803.35	4226913.03	20.57
71	564808.26	4226913.07	20.32
72	564813.17	4226913.10	20.07
73	564818.09	4226913.14	19.81
74	564823.00	4226913.17	19.56
75	564827.91	4226913.21	19.30
76	564832.82	4226913.24	19.04
77	564837.73	4226913.28	18.86
78	564842.64	4226913.31	18.70
79	564847.55	4226913.35	18.54
80	564852.46	4226913.38	18.37
81	564857.37	4226913.42	18.21
82	564862.29	4226913.45	18.05
83	564867.20	4226913.49	17.88
84	564872.11	4226913.52	17.72
85	564877.02	4226913.56	17.56
86	564881.93	4226913.60	17.39
87	564886.84	4226913.63	17.23
88	564891.75	4226913.67	17.06
89	564896.66	4226913.70	16.90
90	564901.57	4226913.74	16.74
91	564906.49	4226913.77	16.57
92	564911.40	4226913.81	16.41
93	564916.31	4226913.84	16.25
94	564921.22	4226913.88	16.08
95	564926.13	4226913.91	16.00
96	564931.04	4226913.95	16.00
97	564935.95	4226913.98	16.00
98	564940.86	4226914.02	16.00
99	564945.77	4226914.05	16.00
100	564950.69	4226914.09	16.00
101	564955.60	4226914.12	16.00
102	564960.51	4226914.16	16.00
103	564965.42	4226914.20	16.00
104	564971.00	4226909.31	16.00
105	564971.67	4226904.40	16.00
106	564972.35	4226899.48	16.00

107	564973.02	4226894.57	16.00
108	564973.69	4226889.65	16.00
109	564974.36	4226884.74	16.00
110	564975.03	4226879.82	16.00
111	564975.70	4226874.90	16.00
112	564976.38	4226869.99	16.00
113	564977.05	4226865.07	16.00
114	564977.72	4226860.16	16.00
115	564978.39	4226855.24	16.00
116	564979.06	4226850.33	16.00
117	564979.74	4226845.41	16.00
118	564980.41	4226840.49	16.00
119	564981.08	4226835.58	16.00
120	564981.75	4226830.66	16.01
121	564982.42	4226825.75	16.01
122	564983.10	4226820.83	16.01
123	564983.77	4226815.92	16.00
124	564984.44	4226811.00	16.00
125	564985.11	4226806.08	16.01
126	564985.78	4226801.17	16.17
127	564986.45	4226796.25	16.33
128	564987.13	4226791.34	16.50
129	564987.80	4226786.42	16.66
130	564988.47	4226781.50	16.83
131	564989.14	4226776.59	16.99
132	564989.81	4226771.67	17.00
133	564990.49	4226766.76	17.00
134	564991.16	4226761.84	17.00
135	564991.83	4226756.93	17.00
136	564992.50	4226752.01	17.00
137	564993.17	4226747.09	17.00
138	564993.85	4226742.18	17.00
139	564994.52	4226737.26	17.00
140	564995.19	4226732.35	17.00
141	564995.86	4226727.43	17.00
142	564996.53	4226722.52	17.00
143	564997.20	4226717.60	17.00
144	564997.88	4226712.68	17.12

145	564998.55	4226707.77	17.28
146	564999.22	4226702.85	17.45
147	564999.89	4226697.94	17.61
148	565000.56	4226693.02	17.77
149	565001.24	4226688.11	17.94
150	565001.91	4226683.19	18.00
151	565002.58	4226678.27	18.00
152	565003.25	4226673.36	18.00
153	565003.92	4226668.44	18.00
154	565004.60	4226663.53	18.00
155	565005.27	4226658.61	18.00
156	565005.94	4226653.70	18.00
157	565006.61	4226648.78	18.00
158	565007.28	4226643.86	18.00
159	565007.95	4226638.95	18.00
160	565008.63	4226634.03	18.00
161	565009.30	4226629.12	18.00
162	565005.35	4226624.19	18.00
163	565000.74	4226624.17	18.00
164	564996.12	4226624.16	18.00
165	564991.51	4226624.15	18.00
166	564986.89	4226624.13	18.00
167	564982.27	4226624.12	18.00
168	564977.66	4226624.10	18.00
169	564972.87	4226619.50	18.00
170	564967.73	4226614.89	18.00
171	564962.77	4226614.87	18.00
172	564957.81	4226614.85	18.00
173	564952.85	4226614.83	18.03
174	564947.90	4226614.81	18.19
175	564942.94	4226614.79	18.36
176	564937.98	4226614.77	18.52
177	564933.02	4226614.75	18.69
178	564928.06	4226611.40	18.85
179	564923.23	4226608.07	19.03
180	564918.39	4226608.07	19.35
181	564913.56	4226608.07	19.67
182	564908.72	4226608.07	20.00

183	564903.89	4226608.07	20.32
184	564899.05	4226608.07	20.64
185	564894.22	4226608.07	20.96
186	564889.38	4226608.07	21.23
187	564880.98	4226611.40	21.63
188	564877.41	4226614.74	21.75
189	564873.83	4226618.07	21.84
190	564870.26	4226621.41	21.91
191	564866.69	4226624.74	21.95
192	564863.12	4226628.07	22.04
193	564859.55	4226631.41	22.25
194	564855.97	4226634.74	22.44
195	564852.40	4226638.08	22.60
196	564847.84	4226646.26	22.70
197	564846.86	4226651.11	22.66
198	564845.87	4226655.96	22.60
199	564844.88	4226660.81	22.63
200	564843.89	4226665.66	22.66
201	564842.91	4226670.51	22.69
202	564841.92	4226675.35	22.73
203	564840.93	4226680.20	22.76
204	564839.94	4226685.05	22.79
205	564838.96	4226689.90	22.82
206	564837.97	4226694.75	22.86
207	564836.98	4226699.60	22.89
208	564835.99	4226704.45	22.92
209	564835.01	4226709.30	22.96
210	564834.02	4226714.15	22.99
211	564833.03	4226719.00	23.02
212	564832.04	4226723.85	23.05
213	564831.06	4226728.69	23.09
214	564830.07	4226733.54	23.12
215	564829.08	4226738.39	23.15
216	564828.09	4226743.24	23.19
217	564827.11	4226748.09	23.11
218	564826.12	4226752.94	22.86
219	564825.13	4226757.79	22.63
220	564824.14	4226762.64	22.40

221	564823.16	4226767.49	22.18
222	564822.17	4226772.34	21.98
223	564821.18	4226777.19	21.82
224	564820.19	4226782.03	21.81
225	564819.21	4226786.88	21.79
226	564818.22	4226791.73	21.76
227	564817.23	4226796.58	21.72
228	564816.24	4226801.43	21.67
229	564815.26	4226806.28	21.61
230	564814.27	4226811.13	21.59
231	564813.28	4226815.98	21.58
232	564812.29	4226820.83	21.57
233	564811.31	4226825.68	21.58
234	564810.32	4226830.53	21.60
235	564809.33	4226835.37	21.63
236	564808.34	4226840.22	21.58
237	564807.36	4226845.07	21.50
238	564806.37	4226849.92	21.41
239	564805.38	4226854.77	21.30
240	564804.39	4226859.62	21.19
241	564803.41	4226864.47	21.08
242	564802.42	4226869.32	20.98
243	564801.43	4226874.17	20.89
244	564800.44	4226879.02	20.79
245	564799.46	4226883.87	20.69
246	564798.47	4226888.71	20.60
247	564797.48	4226893.56	20.50
248	564796.49	4226898.41	20.53
249	564795.51	4226903.26	20.71
250	564794.52	4226908.11	20.88
251	565006.95	4226529.57	18.00
252	565012.12	4226486.09	18.00
253	564904.50	4226487.58	22.14
254	564903.47	4226530.72	21.47
255	565007.52	4226524.74	18.00
256	565008.10	4226519.91	18.00
257	565008.67	4226515.08	18.00
258	565009.25	4226510.25	18.00

259	565009.82	4226505.41	18.00
260	565010.40	4226500.58	18.00
261	565010.97	4226495.75	18.00
262	565011.55	4226490.92	18.00
263	565007.23	4226486.16	18.00
264	565002.34	4226486.23	18.00
265	564997.44	4226486.29	18.00
266	564992.55	4226486.36	18.00
267	564987.66	4226486.43	18.00
268	564982.77	4226486.50	18.02
269	564977.88	4226486.56	18.13
270	564972.99	4226486.63	18.23
271	564968.09	4226486.70	18.34
272	564963.20	4226486.77	18.44
273	564958.31	4226486.84	18.55
274	564953.42	4226486.90	18.66
275	564948.53	4226486.97	18.99
276	564943.63	4226487.04	19.31
277	564938.74	4226487.11	19.63
278	564933.85	4226487.17	19.96
279	564928.96	4226487.24	20.28
280	564924.07	4226487.31	20.61
281	564919.18	4226487.38	20.98
282	564914.28	4226487.45	21.37
283	564909.39	4226487.51	21.76
284	564904.39	4226492.37	22.09
285	564904.27	4226497.17	22.05
286	564904.16	4226501.96	22.00
287	564904.04	4226506.75	21.95
288	564903.93	4226511.55	21.86
289	564903.81	4226516.34	21.76
290	564903.70	4226521.13	21.67
291	564903.58	4226525.93	21.57
292	564908.40	4226530.67	21.11
293	564913.33	4226530.61	20.75
294	564918.25	4226530.56	20.40
295	564923.18	4226530.50	20.04
296	564928.11	4226530.45	19.70

297	564933.04	4226530.39	19.38	
298	564937.96	4226530.34	19.05	
299	564942.89	4226530.28	18.72	
300	564947.82	4226530.23	18.39	
301	564952.75	4226530.17	18.06	
302	564957.67	4226530.12	18.00	
303	564962.60	4226530.06	18.00	
304	564967.53	4226530.01	18.00	
305	564972.46	4226529.95	18.00	
306	564977.38	4226529.90	18.00	
307	564982.31	4226529.84	18.00	
308	564987.24	4226529.79	18.00	
309	564992.17	4226529.73	18.00	
310	564997.09	4226529.68	18.00	
311	565002.02	4226529.63	18.00	

Plant Boundary Receptors

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	563457.30	4228069.59	FENCEPRI	12.00	
2	563454.58	4228468.76	FENCEPRI	5.58	
3	564713.90	4228465.95	FENCEPRI	13.00	
4	564906.96	4228133.69	FENCEPRI	15.00	
5	564922.90	4228088.04	FENCEPRI	15.00	
6	564925.80	4228041.66	FENCEPRI	15.07	
7	564923.63	4228023.55	FENCEPRI	15.42	
8	564885.52	4227743.43	FENCEPRI	16.00	
9	564616.96	4227744.28	FENCEPRI	14.00	
10	564615.26	4227980.44	FENCEPRI	13.00	
11	564352.67	4227982.14	FENCEPRI	11.97	
12	564354.69	4227963.73	FENCEPRI	12.00	
13	564211.10	4227961.31	FENCEPRI	11.00	
14	564208.20	4227747.51	FENCEPRI	10.15	
15	564026.11	4227747.24	FENCEPRI	9.42	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	FENCEINT	Cartesian plant boundary Intermediate Receptors

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.SF
Format Type: Default AERMET format

Profile Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.PF
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 4.30 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2009			
Upper Air		2009			

Data Period

Data Period to Process

Start Date: 1/1/2009 Start Hour: 1 End Date: 1/2/2014 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00085	ug/m^3	R1	563846.99	4227763.17	9.00	1.50	9.00	
PERIOD		0.00056	ug/m^3	R2	563152.88	4227961.87	10.03	1.50	10.03	
PERIOD		0.00088	ug/m^3	R3	563514.22	4227959.26	10.45	1.50	10.45	
PERIOD		0.00088	ug/m^3	R4	563487.56	4227974.48	10.12	1.50	10.12	
PERIOD		0.00090	ug/m^3	R5	563482.14	4227991.20	10.97	1.50	10.97	
PERIOD		0.00079	ug/m^3	R6	563427.00	4227966.19	10.00	1.50	10.00	
PERIOD		0.00077	ug/m^3	R7	563425.95	4227956.25	10.00	1.50	10.00	
PERIOD		0.00065	ug/m^3	R8	563265.64	4227970.13	9.00	1.50	9.00	
PERIOD		0.00079	ug/m^3	R10	563810.19	4227762.07	9.00	1.50	9.00	
PERIOD		0.00082	ug/m^3	R11	563740.68	4227815.91	9.00	1.50	9.00	
PERIOD		0.00106	ug/m^3	R12	564832.15	4226970.55	18.57	1.50	80.00	
PERIOD		0.00100	ug/m^3	R13	564869.92	4226938.63	17.38	1.50	80.00	
PERIOD		0.00058	ug/m^3	R14	565044.27	4226568.58	18.00	1.50	251.00	
PERIOD		0.00061	ug/m^3	R15	564973.13	4226565.86	18.00	1.50	80.00	
PERIOD		0.00060	ug/m^3	R16	564955.94	4226541.29	18.00	1.50	80.00	
PERIOD		0.00062	ug/m^3	R17	564893.17	4226549.81	22.03	1.50	80.00	
PERIOD		0.00057	ug/m^3	R18	565028.87	4226540.35	18.00	1.50	251.00	
PERIOD		0.00056	ug/m^3	R19	565035.66	4226521.39	18.00	1.50	251.00	
PERIOD		0.00055	ug/m^3	R20	565038.10	4226497.30	18.00	1.50	251.00	
PERIOD		0.00055	ug/m^3	R21	565000.82	4226474.49	18.00	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00053	ug/m^3	R22	565008.62	4226449.37	18.00	1.50	250.00	
PERIOD		0.00053	ug/m^3	R23	565042.99	4226474.21	18.00	1.50	251.00	
PERIOD		0.00052	ug/m^3	R24	565049.05	4226447.64	18.00	1.50	251.00	
PERIOD		0.00051	ug/m^3	R25	565049.05	4226421.36	18.00	1.50	251.00	
PERIOD		0.00040	ug/m^3	R26	565437.70	4226745.61	20.00	1.50	265.00	
PERIOD		0.00038	ug/m^3	R27	565456.18	4226744.45	20.00	1.50	265.00	
PERIOD		0.00035	ug/m^3	R28	565498.35	4226743.87	21.00	1.50	265.00	
PERIOD		0.00034	ug/m^3	R29	565514.23	4226744.16	21.00	1.50	265.00	
PERIOD		0.00039	ug/m^3	R30	565441.17	4226713.84	20.00	1.50	265.00	
PERIOD		0.00038	ug/m^3	R31	565459.65	4226713.55	20.00	1.50	265.00	
PERIOD		0.00034	ug/m^3	R32	565517.12	4226698.53	21.00	1.50	265.00	
PERIOD		0.00034	ug/m^3	R33	565516.25	4226683.80	21.00	1.50	265.00	
PERIOD		0.00036	ug/m^3	R34	565482.46	4226674.27	20.63	1.50	265.00	
PERIOD		0.00036	ug/m^3	R35	565483.33	4226658.68	20.66	1.50	265.00	
PERIOD		0.00039	ug/m^3	R36	565433.95	4226666.19	20.00	1.50	265.00	
PERIOD		0.00038	ug/m^3	R38	565444.63	4226624.31	20.00	1.50	265.00	
PERIOD		0.00037	ug/m^3	R39	565463.98	4226624.31	20.01	1.50	265.00	
PERIOD		0.00034	ug/m^3	R40	565509.03	4226631.82	21.00	1.50	265.00	
PERIOD		0.00034	ug/m^3	R41	565509.03	4226617.38	21.00	1.50	265.00	
PERIOD		0.00058	ug/m^3	R42	565314.45	4227270.70	20.00	1.50	251.00	
PERIOD		0.00060	ug/m^3	R43	565291.64	4227217.62	19.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00058	ug/m^3	R44	565309.08	4227218.00	19.00	1.50	251.00	
PERIOD		0.00047	ug/m^3	R45	565384.70	4227209.41	20.00	1.50	265.00	
PERIOD		0.00040	ug/m^3	R46	565449.84	4227190.61	20.00	1.50	265.00	
PERIOD		0.00036	ug/m^3	R47	565496.35	4227202.46	20.28	1.50	265.00	
PERIOD		0.00039	ug/m^3	R48	565481.62	4227270.05	21.00	1.50	265.00	
PERIOD		0.00036	ug/m^3	R49	565516.57	4227270.92	21.00	1.50	265.00	
PERIOD		0.00031	ug/m^3	R50	565553.69	4227134.21	22.00	1.50	265.00	
PERIOD		0.00030	ug/m^3	R51	565613.85	4227214.51	22.01	1.50	265.00	
PERIOD		0.00032	ug/m^3	R52	565588.48	4227278.18	22.85	1.50	265.00	
PERIOD		0.00030	ug/m^3	R53	565625.01	4227289.45	24.49	1.50	265.00	
PERIOD		0.00025	ug/m^3	R54	565729.83	4227269.14	29.12	1.50	265.00	
PERIOD		0.00020	ug/m^3	R55	565890.63	4227286.35	34.23	1.50	265.00	
PERIOD		0.00083	ug/m^3	R56	565430.90	4227667.38	23.64	1.50	251.00	
PERIOD		0.00291	ug/m^3	R57	565017.44	4228947.47	20.67	1.50	20.67	
PERIOD		0.00049	ug/m^3	R59	566081.49	4228935.03	70.63	1.50	70.63	
PERIOD		0.00098	ug/m^3	NJMES1	564793.53	4226912.96	21.04	1.50	80.00	
PERIOD		0.00089	ug/m^3	NJMES2	564970.33	4226914.23	16.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES3	565009.97	4226624.20	18.00	1.50	251.00	
PERIOD		0.00064	ug/m^3	NJMES4	564973.04	4226624.09	18.00	1.50	250.00	
PERIOD		0.00064	ug/m^3	NJMES5	564972.69	4226614.91	18.00	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES6	564928.06	4226614.73	18.85	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00065	ug/m^3	NJMES7	564928.06	4226608.07	18.85	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES8	564884.55	4226608.07	21.49	1.50	80.00	
PERIOD		0.00069	ug/m^3	NJMES9	564848.83	4226641.41	22.74	1.50	80.00	
PERIOD		0.00098	ug/m^3	NJMES10	564798.44	4226913.00	20.81	1.50	80.00	
PERIOD		0.00098	ug/m^3	NJMES11	564803.35	4226913.03	20.57	1.50	80.00	
PERIOD		0.00098	ug/m^3	NJMES12	564808.26	4226913.07	20.32	1.50	80.00	
PERIOD		0.00098	ug/m^3	NJMES13	564813.17	4226913.10	20.07	1.50	80.00	
PERIOD		0.00098	ug/m^3	NJMES14	564818.09	4226913.14	19.81	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES15	564823.00	4226913.17	19.56	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES16	564827.91	4226913.21	19.30	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES17	564832.82	4226913.24	19.04	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES18	564837.73	4226913.28	18.86	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES19	564842.64	4226913.31	18.70	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES20	564847.55	4226913.35	18.54	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES21	564852.46	4226913.38	18.37	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES22	564857.37	4226913.42	18.21	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES23	564862.29	4226913.45	18.05	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES24	564867.20	4226913.49	17.88	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES25	564872.11	4226913.52	17.72	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES26	564877.02	4226913.56	17.56	1.50	80.00	
PERIOD		0.00095	ug/m^3	NJMES28	564886.84	4226913.63	17.23	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00095	ug/m^3	NJMES29	564891.75	4226913.67	17.06	1.50	80.00	
PERIOD		0.00095	ug/m^3	NJMES30	564896.66	4226913.70	16.90	1.50	80.00	
PERIOD		0.00094	ug/m^3	NJMES31	564901.57	4226913.74	16.74	1.50	80.00	
PERIOD		0.00094	ug/m^3	NJMES32	564906.49	4226913.77	16.57	1.50	80.00	
PERIOD		0.00094	ug/m^3	NJMES33	564911.40	4226913.81	16.41	1.50	80.00	
PERIOD		0.00094	ug/m^3	NJMES34	564916.31	4226913.84	16.25	1.50	80.00	
PERIOD		0.00093	ug/m^3	NJMES35	564921.22	4226913.88	16.08	1.50	80.00	
PERIOD		0.00093	ug/m^3	NJMES36	564926.13	4226913.91	16.00	1.50	250.00	
PERIOD		0.00093	ug/m^3	NJMES37	564931.04	4226913.95	16.00	1.50	250.00	
PERIOD		0.00092	ug/m^3	NJMES38	564935.95	4226913.98	16.00	1.50	250.00	
PERIOD		0.00092	ug/m^3	NJMES39	564940.86	4226914.02	16.00	1.50	250.00	
PERIOD		0.00091	ug/m^3	NJMES40	564945.77	4226914.05	16.00	1.50	251.00	
PERIOD		0.00091	ug/m^3	NJMES41	564950.69	4226914.09	16.00	1.50	251.00	
PERIOD		0.00091	ug/m^3	NJMES42	564955.60	4226914.12	16.00	1.50	251.00	
PERIOD		0.00090	ug/m^3	NJMES43	564960.51	4226914.16	16.00	1.50	251.00	
PERIOD		0.00090	ug/m^3	NJMES44	564965.42	4226914.20	16.00	1.50	251.00	
PERIOD		0.00089	ug/m^3	NJMES45	564971.00	4226909.31	16.00	1.50	251.00	
PERIOD		0.00088	ug/m^3	NJMES46	564971.67	4226904.40	16.00	1.50	251.00	
PERIOD		0.00088	ug/m^3	NJMES47	564972.35	4226899.48	16.00	1.50	251.00	
PERIOD		0.00087	ug/m^3	NJMES48	564973.02	4226894.57	16.00	1.50	251.00	
PERIOD		0.00086	ug/m^3	NJMES49	564973.69	4226889.65	16.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00086	ug/m^3	NJMES50	564974.36	4226884.74	16.00	1.50	251.00	
PERIOD		0.00085	ug/m^3	NJMES51	564975.03	4226879.82	16.00	1.50	251.00	
PERIOD		0.00085	ug/m^3	NJMES52	564975.70	4226874.90	16.00	1.50	251.00	
PERIOD		0.00084	ug/m^3	NJMES53	564976.38	4226869.99	16.00	1.50	251.00	
PERIOD		0.00084	ug/m^3	NJMES54	564977.05	4226865.07	16.00	1.50	251.00	
PERIOD		0.00083	ug/m^3	NJMES55	564977.72	4226860.16	16.00	1.50	251.00	
PERIOD		0.00083	ug/m^3	NJMES56	564978.39	4226855.24	16.00	1.50	251.00	
PERIOD		0.00082	ug/m^3	NJMES57	564979.06	4226850.33	16.00	1.50	251.00	
PERIOD		0.00082	ug/m^3	NJMES58	564979.74	4226845.41	16.00	1.50	251.00	
PERIOD		0.00081	ug/m^3	NJMES59	564980.41	4226840.49	16.00	1.50	251.00	
PERIOD		0.00081	ug/m^3	NJMES60	564981.08	4226835.58	16.00	1.50	251.00	
PERIOD		0.00080	ug/m^3	NJMES61	564981.75	4226830.66	16.01	1.50	251.00	
PERIOD		0.00080	ug/m^3	NJMES62	564982.42	4226825.75	16.01	1.50	251.00	
PERIOD		0.00079	ug/m^3	NJMES63	564983.10	4226820.83	16.01	1.50	251.00	
PERIOD		0.00079	ug/m^3	NJMES64	564983.77	4226815.92	16.00	1.50	251.00	
PERIOD		0.00078	ug/m^3	NJMES65	564984.44	4226811.00	16.00	1.50	251.00	
PERIOD		0.00078	ug/m^3	NJMES66	564985.11	4226806.08	16.01	1.50	251.00	
PERIOD		0.00077	ug/m^3	NJMES67	564985.78	4226801.17	16.17	1.50	251.00	
PERIOD		0.00077	ug/m^3	NJMES68	564986.45	4226796.25	16.33	1.50	251.00	
PERIOD		0.00076	ug/m^3	NJMES69	564987.13	4226791.34	16.50	1.50	251.00	
PERIOD		0.00076	ug/m^3	NJMES70	564987.80	4226786.42	16.66	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00075	ug/m^3	NJMES71	564988.47	4226781.50	16.83	1.50	251.00	
PERIOD		0.00075	ug/m^3	NJMES72	564989.14	4226776.59	16.99	1.50	251.00	
PERIOD		0.00074	ug/m^3	NJMES73	564989.81	4226771.67	17.00	1.50	251.00	
PERIOD		0.00074	ug/m^3	NJMES74	564990.49	4226766.76	17.00	1.50	251.00	
PERIOD		0.00073	ug/m^3	NJMES75	564991.16	4226761.84	17.00	1.50	251.00	
PERIOD		0.00073	ug/m^3	NJMES76	564991.83	4226756.93	17.00	1.50	251.00	
PERIOD		0.00073	ug/m^3	NJMES77	564992.50	4226752.01	17.00	1.50	251.00	
PERIOD		0.00072	ug/m^3	NJMES78	564993.17	4226747.09	17.00	1.50	251.00	
PERIOD		0.00072	ug/m^3	NJMES79	564993.85	4226742.18	17.00	1.50	251.00	
PERIOD		0.00071	ug/m^3	NJMES80	564994.52	4226737.26	17.00	1.50	251.00	
PERIOD		0.00071	ug/m^3	NJMES81	564995.19	4226732.35	17.00	1.50	251.00	
PERIOD		0.00071	ug/m^3	NJMES82	564995.86	4226727.43	17.00	1.50	251.00	
PERIOD		0.00070	ug/m^3	NJMES83	564996.53	4226722.51	17.00	1.50	251.00	
PERIOD		0.00070	ug/m^3	NJMES84	564997.20	4226717.60	17.00	1.50	251.00	
PERIOD		0.00069	ug/m^3	NJMES85	564997.88	4226712.68	17.12	1.50	251.00	
PERIOD		0.00069	ug/m^3	NJMES86	564998.55	4226707.77	17.28	1.50	251.00	
PERIOD		0.00068	ug/m^3	NJMES87	564999.22	4226702.85	17.45	1.50	251.00	
PERIOD		0.00068	ug/m^3	NJMES88	564999.89	4226697.94	17.61	1.50	251.00	
PERIOD		0.00068	ug/m^3	NJMES89	565000.56	4226693.02	17.77	1.50	251.00	
PERIOD		0.00067	ug/m^3	NJMES90	565001.24	4226688.11	17.94	1.50	251.00	
PERIOD		0.00067	ug/m^3	NJMES91	565001.91	4226683.19	18.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00066	ug/m^3	NJMES92	565002.58	4226678.27	18.00	1.50	251.00	
PERIOD		0.00066	ug/m^3	NJMES93	565003.25	4226673.36	18.00	1.50	251.00	
PERIOD		0.00066	ug/m^3	NJMES94	565003.92	4226668.44	18.00	1.50	251.00	
PERIOD		0.00065	ug/m^3	NJMES95	565004.60	4226663.53	18.00	1.50	251.00	
PERIOD		0.00065	ug/m^3	NJMES96	565005.27	4226658.61	18.00	1.50	251.00	
PERIOD		0.00065	ug/m^3	NJMES97	565005.94	4226653.70	18.00	1.50	251.00	
PERIOD		0.00064	ug/m^3	NJMES98	565006.61	4226648.78	18.00	1.50	251.00	
PERIOD		0.00064	ug/m^3	NJMES99	565007.28	4226643.86	18.00	1.50	251.00	
PERIOD		0.00064	ug/m^3	NJMES100	565007.95	4226638.95	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES101	565008.63	4226634.03	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES102	565009.30	4226629.12	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES103	565005.35	4226624.19	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES104	565000.74	4226624.17	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES105	564996.12	4226624.16	18.00	1.50	251.00	
PERIOD		0.00063	ug/m^3	NJMES106	564991.51	4226624.14	18.00	1.50	250.00	
PERIOD		0.00064	ug/m^3	NJMES107	564986.89	4226624.13	18.00	1.50	250.00	
PERIOD		0.00064	ug/m^3	NJMES108	564982.27	4226624.12	18.00	1.50	250.00	
PERIOD		0.00064	ug/m^3	NJMES109	564977.66	4226624.10	18.00	1.50	250.00	
PERIOD		0.00064	ug/m^3	NJMES111	564967.73	4226614.89	18.00	1.50	80.00	
PERIOD		0.00064	ug/m^3	NJMES112	564962.77	4226614.87	18.00	1.50	80.00	
PERIOD		0.00064	ug/m^3	NJMES113	564957.81	4226614.85	18.00	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00065	ug/m^3	NJMES114	564952.85	4226614.83	18.03	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES115	564947.90	4226614.81	18.19	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES116	564942.94	4226614.79	18.36	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES117	564937.98	4226614.77	18.52	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES118	564933.02	4226614.75	18.69	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES119	564928.06	4226611.40	18.85	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES120	564923.23	4226608.07	19.03	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES121	564918.39	4226608.07	19.35	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES122	564913.56	4226608.07	19.67	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES123	564908.72	4226608.07	20.00	1.50	80.00	
PERIOD		0.00065	ug/m^3	NJMES124	564903.89	4226608.07	20.32	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES125	564899.05	4226608.07	20.64	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES126	564894.22	4226608.07	20.96	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES127	564889.38	4226608.07	21.23	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES128	564880.98	4226611.40	21.63	1.50	80.00	
PERIOD		0.00066	ug/m^3	NJMES129	564877.41	4226614.74	21.75	1.50	80.00	
PERIOD		0.00067	ug/m^3	NJMES130	564873.83	4226618.07	21.84	1.50	80.00	
PERIOD		0.00067	ug/m^3	NJMES131	564870.26	4226621.41	21.91	1.50	80.00	
PERIOD		0.00067	ug/m^3	NJMES132	564866.69	4226624.74	21.95	1.50	80.00	
PERIOD		0.00068	ug/m^3	NJMES133	564863.12	4226628.07	22.04	1.50	80.00	
PERIOD		0.00068	ug/m^3	NJMES134	564859.55	4226631.41	22.25	1.50	80.00	

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00068	ug/m^3	NJMES135	564855.97	4226634.74	22.44	1.50	80.00	
PERIOD		0.00068	ug/m^3	NJMES136	564852.40	4226638.08	22.60	1.50	80.00	
PERIOD		0.00069	ug/m^3	NJMES137	564847.84	4226646.26	22.70	1.50	80.00	
PERIOD		0.00070	ug/m^3	NJMES139	564845.87	4226655.96	22.60	1.50	80.00	
PERIOD		0.00070	ug/m^3	NJMES140	564844.88	4226660.81	22.63	1.50	80.00	
PERIOD		0.00071	ug/m^3	NJMES141	564843.89	4226665.66	22.66	1.50	80.00	
PERIOD		0.00071	ug/m^3	NJMES143	564841.92	4226675.35	22.73	1.50	80.00	
PERIOD		0.00072	ug/m^3	NJMES144	564840.93	4226680.20	22.76	1.50	80.00	
PERIOD		0.00072	ug/m^3	NJMES145	564839.94	4226685.05	22.79	1.50	80.00	
PERIOD		0.00072	ug/m^3	NJMES146	564838.95	4226689.90	22.82	1.50	80.00	
PERIOD		0.00073	ug/m^3	NJMES147	564837.97	4226694.75	22.86	1.50	80.00	
PERIOD		0.00073	ug/m^3	NJMES148	564836.98	4226699.60	22.89	1.50	80.00	
PERIOD		0.00074	ug/m^3	NJMES149	564835.99	4226704.45	22.92	1.50	80.00	
PERIOD		0.00074	ug/m^3	NJMES150	564835.01	4226709.30	22.96	1.50	80.00	
PERIOD		0.00074	ug/m^3	NJMES151	564834.02	4226714.15	22.99	1.50	80.00	
PERIOD		0.00075	ug/m^3	NJMES152	564833.03	4226719.00	23.02	1.50	80.00	
PERIOD		0.00076	ug/m^3	NJMES154	564831.06	4226728.69	23.09	1.50	80.00	
PERIOD		0.00076	ug/m^3	NJMES155	564830.07	4226733.54	23.12	1.50	80.00	
PERIOD		0.00076	ug/m^3	NJMES156	564829.08	4226738.39	23.15	1.50	80.00	
PERIOD		0.00077	ug/m^3	NJMES157	564828.09	4226743.24	23.19	1.50	80.00	
PERIOD		0.00078	ug/m^3	NJMES159	564826.12	4226752.94	22.86	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00079	ug/m^3	NJMES160	564825.13	4226757.79	22.63	1.50	80.00	
PERIOD		0.00079	ug/m^3	NJMES161	564824.14	4226762.64	22.40	1.50	80.00	
PERIOD		0.00080	ug/m^3	NJMES162	564823.16	4226767.49	22.18	1.50	80.00	
PERIOD		0.00080	ug/m^3	NJMES163	564822.17	4226772.34	21.98	1.50	80.00	
PERIOD		0.00081	ug/m^3	NJMES164	564821.18	4226777.18	21.82	1.50	80.00	
PERIOD		0.00082	ug/m^3	NJMES165	564820.19	4226782.03	21.81	1.50	80.00	
PERIOD		0.00082	ug/m^3	NJMES166	564819.20	4226786.88	21.79	1.50	80.00	
PERIOD		0.00083	ug/m^3	NJMES167	564818.22	4226791.73	21.76	1.50	80.00	
PERIOD		0.00083	ug/m^3	NJMES168	564817.23	4226796.58	21.72	1.50	80.00	
PERIOD		0.00084	ug/m^3	NJMES169	564816.24	4226801.43	21.67	1.50	80.00	
PERIOD		0.00084	ug/m^3	NJMES170	564815.26	4226806.28	21.61	1.50	80.00	
PERIOD		0.00085	ug/m^3	NJMES171	564814.27	4226811.13	21.59	1.50	80.00	
PERIOD		0.00085	ug/m^3	NJMES172	564813.28	4226815.98	21.58	1.50	80.00	
PERIOD		0.00086	ug/m^3	NJMES173	564812.29	4226820.83	21.57	1.50	80.00	
PERIOD		0.00086	ug/m^3	NJMES174	564811.31	4226825.68	21.58	1.50	80.00	
PERIOD		0.00087	ug/m^3	NJMES175	564810.32	4226830.53	21.60	1.50	80.00	
PERIOD		0.00087	ug/m^3	NJMES176	564809.33	4226835.37	21.63	1.50	80.00	
PERIOD		0.00088	ug/m^3	NJMES177	564808.34	4226840.22	21.58	1.50	80.00	
PERIOD		0.00089	ug/m^3	NJMES179	564806.37	4226849.92	21.41	1.50	80.00	
PERIOD		0.00090	ug/m^3	NJMES180	564805.38	4226854.77	21.30	1.50	80.00	
PERIOD		0.00091	ug/m^3	NJMES181	564804.39	4226859.62	21.19	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00091	ug/m^3	NJMES182	564803.41	4226864.47	21.08	1.50	80.00	
PERIOD		0.00092	ug/m^3	NJMES183	564802.42	4226869.32	20.98	1.50	80.00	
PERIOD		0.00093	ug/m^3	NJMES184	564801.43	4226874.17	20.89	1.50	80.00	
PERIOD		0.00093	ug/m^3	NJMES185	564800.44	4226879.02	20.79	1.50	80.00	
PERIOD		0.00094	ug/m^3	NJMES186	564799.45	4226883.87	20.69	1.50	80.00	
PERIOD		0.00095	ug/m^3	NJMES187	564798.47	4226888.71	20.60	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES188	564797.48	4226893.56	20.50	1.50	80.00	
PERIOD		0.00096	ug/m^3	NJMES189	564796.49	4226898.41	20.53	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES190	564795.51	4226903.26	20.71	1.50	80.00	
PERIOD		0.00097	ug/m^3	NJMES191	564794.52	4226908.11	20.88	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA1	565006.95	4226529.57	18.00	1.50	250.00	
PERIOD		0.00055	ug/m^3	CBCA2	565012.12	4226486.09	18.00	1.50	250.00	
PERIOD		0.00058	ug/m^3	CBCA3	564904.50	4226487.58	22.14	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA4	564903.47	4226530.72	21.47	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA5	565007.52	4226524.74	18.00	1.50	250.00	
PERIOD		0.00057	ug/m^3	CBCA6	565008.10	4226519.91	18.00	1.50	250.00	
PERIOD		0.00057	ug/m^3	CBCA7	565008.67	4226515.08	18.00	1.50	250.00	
PERIOD		0.00056	ug/m^3	CBCA8	565009.25	4226510.25	18.00	1.50	250.00	
PERIOD		0.00056	ug/m^3	CBCA9	565009.82	4226505.41	18.00	1.50	250.00	
PERIOD		0.00056	ug/m^3	CBCA10	565010.40	4226500.58	18.00	1.50	250.00	
PERIOD		0.00055	ug/m^3	CBCA11	565010.97	4226495.75	18.00	1.50	250.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00055	ug/m^3	CBCA12	565011.55	4226490.92	18.00	1.50	250.00	
PERIOD		0.00055	ug/m^3	CBCA13	565007.23	4226486.16	18.00	1.50	250.00	
PERIOD		0.00055	ug/m^3	CBCA14	565002.34	4226486.22	18.00	1.50	250.00	
PERIOD		0.00056	ug/m^3	CBCA15	564997.44	4226486.29	18.00	1.50	80.00	
PERIOD		0.00056	ug/m^3	CBCA16	564992.55	4226486.36	18.00	1.50	80.00	
PERIOD		0.00056	ug/m^3	CBCA17	564987.66	4226486.43	18.00	1.50	80.00	
PERIOD		0.00056	ug/m^3	CBCA18	564982.77	4226486.50	18.02	1.50	80.00	
PERIOD		0.00056	ug/m^3	CBCA19	564977.88	4226486.56	18.13	1.50	80.00	
PERIOD		0.00056	ug/m^3	CBCA20	564972.99	4226486.63	18.23	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA21	564968.09	4226486.70	18.34	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA22	564963.20	4226486.77	18.44	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA24	564953.42	4226486.90	18.66	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA25	564948.53	4226486.97	18.99	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA26	564943.63	4226487.04	19.31	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA27	564938.74	4226487.11	19.63	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA28	564933.85	4226487.17	19.96	1.50	80.00	
PERIOD		0.00057	ug/m^3	CBCA29	564928.96	4226487.24	20.28	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA30	564924.07	4226487.31	20.61	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA31	564919.18	4226487.38	20.98	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA32	564914.28	4226487.45	21.37	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA33	564909.39	4226487.51	21.76	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00058	ug/m^3	CBCA34	564904.39	4226492.37	22.09	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA35	564904.27	4226497.17	22.05	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA36	564904.16	4226501.96	22.00	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA37	564904.04	4226506.75	21.95	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA38	564903.93	4226511.55	21.86	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA39	564903.81	4226516.34	21.76	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA40	564903.70	4226521.13	21.67	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA41	564903.58	4226525.93	21.57	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA42	564908.40	4226530.67	21.11	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA43	564913.33	4226530.61	20.75	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA44	564918.25	4226530.56	20.40	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA45	564923.18	4226530.50	20.04	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA46	564928.11	4226530.45	19.70	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA47	564933.04	4226530.39	19.38	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA48	564937.96	4226530.34	19.05	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA49	564942.89	4226530.28	18.72	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA50	564947.82	4226530.23	18.39	1.50	80.00	
PERIOD		0.00060	ug/m^3	CBCA51	564952.75	4226530.17	18.06	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA52	564957.67	4226530.12	18.00	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA53	564962.60	4226530.06	18.00	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA54	564967.53	4226530.01	18.00	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00059	ug/m^3	CBCA55	564972.46	4226529.95	18.00	1.50	80.00	
PERIOD		0.00059	ug/m^3	CBCA56	564977.38	4226529.90	18.00	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA57	564982.31	4226529.84	18.00	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA58	564987.24	4226529.79	18.00	1.50	80.00	
PERIOD		0.00058	ug/m^3	CBCA59	564992.17	4226529.73	18.00	1.50	250.00	
PERIOD		0.00058	ug/m^3	CBCA60	564997.09	4226529.68	18.00	1.50	250.00	
PERIOD		0.00058	ug/m^3	CBCA61	565002.02	4226529.63	18.00	1.50	250.00	

PROJECT TITLE:

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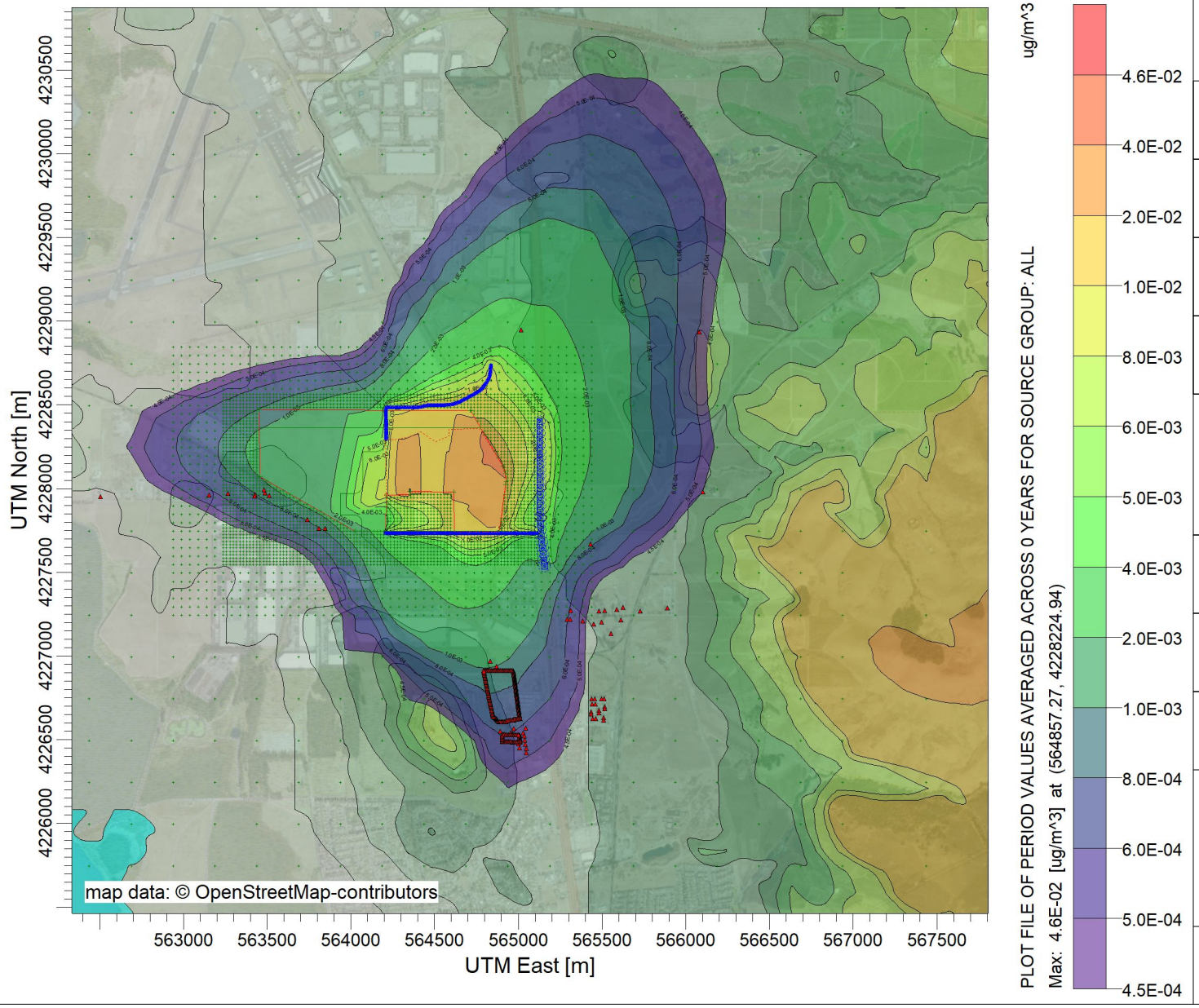

COMMENTS:

SOURCES:

4

RECEPTORS:

4828

OUTPUT TYPE:

Concentration

MAX:

4.6E-02 ug/m^3

COMPANY NAME:

MODELER:

DATE:

9/24/2021

SCALE: 1:36,847

0 1 km

PROJECT NO.:

Control Pathway

Dispersion Options

Titles

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Dispersion Options

- ☐ Regulatory Default
- ■ Non-Default Options

- ■ Elevated Terrain
- ☐ No Stack-Tip Downwash (NOSTD)
- ☐ Run in Screening Mode
- ☐ Conversion of NOx to NO2 (OLM or PVMRM)
- ☐ No Checks for Non-Sequential Met Data
- ■ Fast All Sources (FASTALL)
- ☐ Fast Area Sources (FASTAREA)
- ☐ Optimized Area Source Plume Depletion
- ☐ Gas Deposition

BETA Options:

- ☐ Capped and Horizontal Stack Releases
- ☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
- ☐ Low Wind Options

- ☐ SCIM (Sampled Chronological Input Model)
- ☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- ■ Concentration
- ☐ Total Deposition (Dry & Wet)
- ☐ Dry Deposition
- ☐ Wet Deposition

Plume Depletion

- ☐ Dry Removal
- ☐ Wet Removal

Output Warnings

- ☐ No Output Warnings
- ☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ■ Period ☐ Annual

Exponential Decay

☐ Yes ■ No

Terrain Height Options

☐ Flat ■ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

■ Yes ☐ No

Default Height = 1.50 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: 54600001 Giovannoni Logistics_Scenario 2.err

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

Polygon Area Sources

Source Type: AREA POLY

Source: PHS1 (On-Site Phase 1)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
11.00	2.40	1.60E-8		18	564212.56	4227961.55
		1.60E-8			564355.03	4227962.60
		1.60E-8			564353.97	4227981.62
		1.60E-8			564614.97	4227980.57
		1.60E-8			564617.26	4227741.88
		1.60E-8			564885.02	4227742.53
		1.60E-8			564926.24	4228037.45
		1.60E-8			564925.04	4228076.51
		1.60E-8			564915.88	4228111.98
		1.60E-8			564900.33	4228149.05
		1.60E-8			564766.46	4228356.75
		1.60E-8			564586.25	4228355.22
		1.60E-8			564586.25	4228313.99
		1.60E-8			564505.31	4228278.87
		1.60E-8			564418.27	4228339.95
		1.60E-8			564348.02	4228309.41
		1.60E-8			564262.82	4228292.10
		1.60E-8			564209.96	4228293.89

Source Pathway - Source Inputs

AERMOD

Source Type: AREA POLY

Source: PHS2 (On-site Phase 2)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
10.00	2.40	9.07E-9		21	564209.57	4228359.29
		9.07E-9			564210.78	4227740.61
		9.07E-9			564042.18	4227742.44
		9.07E-9			563456.84	4228067.27
		9.07E-9			563456.20	4228399.72
		9.07E-9			563495.17	4228407.66
		9.07E-9			563507.65	4228422.04
		9.07E-9			563534.14	4228414.09
		9.07E-9			563562.51	4228425.06
		9.07E-9			563607.91	4228413.71
		9.07E-9			563651.79	4228388.37
		9.07E-9			563710.44	4228372.45
		9.07E-9			563750.57	4228364.42
		9.07E-9			563751.55	4228343.76
		9.07E-9			563823.63	4228344.99
		9.07E-9			563825.79	4228325.52
		9.07E-9			563866.79	4228324.62
		9.07E-9			563866.00	4228328.89
		9.07E-9			563865.19	4228337.16
		9.07E-9			563860.59	4228349.92
		9.07E-9			563875.99	4228369.02

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: DEV.OP (Devlin - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00012		564837.18	4228744.04	15.07	2.55
			564834.90	4228711.18	15.08	2.55
			564831.66	4228686.92	14.97	2.55
			564828.13	4228667.09	14.82	2.55
			564818.89	4228646.59	14.00	2.55
			564806.96	4228627.43	14.00	2.55
			564803.34	4228621.61	14.00	2.55
			564785.60	4228599.24	13.21	2.55
			564771.13	4228587.62	13.00	2.55
			564755.00	4228575.86	13.00	2.55
			564731.14	4228561.57	13.00	2.55
			564662.04	4228524.22	12.19	2.55
			564638.89	4228513.36	12.04	2.55
			564606.61	4228504.08	12.00	2.55
			564580.75	4228500.22	12.00	2.55
			564462.16	4228498.66	11.61	2.55
			564399.11	4228484.70	11.00	2.55
			564209.86	4228485.01	10.00	2.55
			564210.68	4227739.72	10.11	2.55

Source Pathway - Source Inputs

Source Type: LINE VOLUME
Source: DEVLIN (Devlin Road Off-Site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00014		564210.89	4227739.18	10.11	2.55
			564209.77	4228485.17	10.00	2.55
			564399.41	4228484.52	11.00	2.55
			564463.05	4228498.80	11.64	2.55
			564538.38	4228499.45	12.00	2.55
			564579.95	4228500.10	12.00	2.55
			564606.57	4228504.00	12.00	2.55
			564638.40	4228513.09	12.04	2.55
			564659.83	4228522.83	12.10	2.55
			564731.91	4228561.80	13.00	2.55
			564766.63	4228583.16	13.00	2.55
			564784.29	4228597.51	13.17	2.55
			564803.06	4228621.25	14.00	2.55
			564819.62	4228648.30	14.00	2.55
			564827.90	4228666.60	14.82	2.55
			564832.29	4228690.53	14.99	2.55
			564834.68	4228709.28	14.98	2.55
			564837.74	4228744.21	15.07	2.55
			564836.98	4228744.21	15.07	2.55

Source Type: LINE VOLUME
Source: GREEN.OP (Green Island Rd - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00007		564209.52	4227734.18	10.01	2.55
			565109.19	4227732.73	18.99	2.55

Source Pathway - Source Inputs

Source Type: LINE VOLUME
Source: GREENISLAND (Green Island Road Off-site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00009		564044.35	4227734.42	9.74	2.55
			565109.93	4227732.71	18.99	2.55

Source Type: LINE VOLUME
Source: HWY29 (Highway 29 Off-site)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
36.00	0.00007		565127.67	4228418.04	16.10	2.55
			565129.85	4227839.68	19.00	2.55
			565134.89	4227733.13	19.00	2.55
			565150.65	4227594.12	19.47	2.55
			565159.57	4227514.30	19.06	2.55

Source Type: LINE VOLUME
Source: HWY29.OP (Highway 29 - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
36.00	0.00006		565127.07	4228417.80	16.10	3.40
			565128.48	4227999.25	18.00	3.40
			565133.01	4227743.08	19.07	3.40
			565159.16	4227514.07	19.06	3.40

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME
Source: RAIL (Railroad)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
3.12	4.50E-6		564562.63	4228760.49	13.00	0.00
			564911.88	4228144.12	15.00	0.00
			564920.45	4228124.05	15.00	0.00
			564927.68	4228100.19	15.00	0.00
			564933.72	4228073.99	15.29	0.00
			564934.90	4228052.65	15.39	0.00
			564934.99	4228033.96	15.23	0.00
			564932.62	4228011.86	16.03	0.00
			564926.58	4227967.15	16.00	0.00
			564889.12	4227684.38	16.00	0.00
			564856.43	4227436.79	15.05	0.00
			564855.27	4227419.35	15.10	0.00

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0005940	564210.88	4227744.18	10.24	2.55	8.94E-7	10.00		4.65	2.37
	L0005941	564210.87	4227754.18	10.24	2.55	8.94E-7	10.00		4.65	2.37
	L0005942	564210.85	4227764.18	10.24	2.55	8.94E-7	10.00		4.65	2.37
	L0005943	564210.84	4227774.18	10.44	2.55	8.94E-7	10.00		4.65	2.37
	L0005944	564210.82	4227784.18	10.69	2.55	8.94E-7	10.00		4.65	2.37
	L0005945	564210.81	4227794.18	10.95	2.55	8.94E-7	10.00		4.65	2.37
	L0005946	564210.79	4227804.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005947	564210.78	4227814.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005948	564210.76	4227824.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005949	564210.75	4227834.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005950	564210.73	4227844.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005951	564210.72	4227854.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005952	564210.70	4227864.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005953	564210.69	4227874.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005954	564210.67	4227884.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005955	564210.66	4227894.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005956	564210.64	4227904.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005957	564210.63	4227914.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005958	564210.61	4227924.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005959	564210.60	4227934.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005960	564210.58	4227944.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005961	564210.57	4227954.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005962	564210.55	4227964.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005963	564210.54	4227974.18	11.00	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0005964	564210.52	4227984.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005965	564210.51	4227994.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005966	564210.49	4228004.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005967	564210.48	4228014.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005968	564210.46	4228024.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005969	564210.45	4228034.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005970	564210.43	4228044.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005971	564210.42	4228054.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005972	564210.40	4228064.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005973	564210.39	4228074.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005974	564210.37	4228084.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005975	564210.36	4228094.18	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005976	564210.34	4228104.18	10.79	2.55	8.94E-7	10.00		4.65	2.37
	L0005977	564210.33	4228114.18	10.54	2.55	8.94E-7	10.00		4.65	2.37
	L0005978	564210.31	4228124.18	10.28	2.55	8.94E-7	10.00		4.65	2.37
	L0005979	564210.30	4228134.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005980	564210.28	4228144.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005981	564210.27	4228154.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005982	564210.26	4228164.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005983	564210.24	4228174.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005984	564210.23	4228184.18	10.22	2.55	8.94E-7	10.00		4.65	2.37
	L0005985	564210.21	4228194.18	10.16	2.55	8.94E-7	10.00		4.65	2.37
	L0005986	564210.20	4228204.18	10.09	2.55	8.94E-7	10.00		4.65	2.37
	L0005987	564210.18	4228214.18	10.02	2.55	8.94E-7	10.00		4.65	2.37
	L0005988	564210.17	4228224.18	10.00	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0005989	564210.15	4228234.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005990	564210.14	4228244.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005991	564210.12	4228254.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005992	564210.11	4228264.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005993	564210.09	4228274.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005994	564210.08	4228284.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005995	564210.06	4228294.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005996	564210.05	4228304.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005997	564210.03	4228314.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005998	564210.02	4228324.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0005999	564210.00	4228334.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006000	564209.99	4228344.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006001	564209.97	4228354.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006002	564209.96	4228364.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006003	564209.94	4228374.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006004	564209.93	4228384.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006005	564209.91	4228394.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006006	564209.90	4228404.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006007	564209.88	4228414.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006008	564209.87	4228424.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006009	564209.85	4228434.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006010	564209.84	4228444.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006011	564209.82	4228454.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006012	564209.81	4228464.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006013	564209.79	4228474.18	10.00	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0006014	564209.78	4228484.18	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006015	564218.79	4228485.14	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006016	564228.79	4228485.10	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006017	564238.79	4228485.07	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006018	564248.79	4228485.03	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006019	564258.79	4228485.00	10.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006020	564268.79	4228484.96	10.17	2.55	8.94E-7	10.00		4.65	2.37
	L0006021	564278.79	4228484.93	10.50	2.55	8.94E-7	10.00		4.65	2.37
	L0006022	564288.79	4228484.90	10.84	2.55	8.94E-7	10.00		4.65	2.37
	L0006023	564298.79	4228484.86	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006024	564308.79	4228484.83	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006025	564318.79	4228484.79	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006026	564328.79	4228484.76	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006027	564338.79	4228484.72	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006028	564348.79	4228484.69	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006029	564358.79	4228484.66	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006030	564368.79	4228484.62	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006031	564378.79	4228484.59	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006032	564388.79	4228484.55	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006033	564398.79	4228484.52	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006034	564408.56	4228486.57	11.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006035	564418.32	4228488.76	11.01	2.55	8.94E-7	10.00		4.65	2.37
	L0006036	564428.08	4228490.95	11.08	2.55	8.94E-7	10.00		4.65	2.37
	L0006037	564437.83	4228493.14	11.18	2.55	8.94E-7	10.00		4.65	2.37
	L0006038	564447.59	4228495.33	11.39	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0006039	564457.35	4228497.52	11.66	2.55	8.94E-7	10.00		4.65	2.37
	L0006040	564467.20	4228498.84	11.87	2.55	8.94E-7	10.00		4.65	2.37
	L0006041	564477.20	4228498.93	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006042	564487.20	4228499.01	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006043	564497.20	4228499.10	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006044	564507.20	4228499.18	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006045	564517.20	4228499.27	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006046	564527.20	4228499.36	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006047	564537.20	4228499.44	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006048	564547.20	4228499.59	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006049	564557.20	4228499.75	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006050	564567.20	4228499.90	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006051	564577.20	4228500.06	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006052	564587.12	4228501.15	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006053	564597.02	4228502.60	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006054	564606.90	4228504.09	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006055	564616.52	4228506.84	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006056	564626.13	4228509.59	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006057	564635.75	4228512.33	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006058	564644.99	4228516.09	12.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006059	564654.09	4228520.23	12.14	2.55	8.94E-7	10.00		4.65	2.37
	L0006060	564663.08	4228524.59	12.50	2.55	8.94E-7	10.00		4.65	2.37
	L0006061	564671.88	4228529.35	12.78	2.55	8.94E-7	10.00		4.65	2.37
	L0006062	564680.68	4228534.10	12.96	2.55	8.94E-7	10.00		4.65	2.37
	L0006063	564689.48	4228538.86	13.00	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0006064	564698.27	4228543.61	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006065	564707.07	4228548.37	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006066	564715.87	4228553.12	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006067	564724.66	4228557.88	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006068	564733.41	4228562.72	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006069	564741.93	4228567.96	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006070	564750.45	4228573.20	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006071	564758.96	4228578.44	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006072	564767.40	4228583.79	13.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006073	564775.16	4228590.10	13.02	2.55	8.94E-7	10.00		4.65	2.37
	L0006074	564782.93	4228596.40	13.21	2.55	8.94E-7	10.00		4.65	2.37
	L0006075	564789.40	4228603.97	13.48	2.55	8.94E-7	10.00		4.65	2.37
	L0006076	564795.61	4228611.82	13.78	2.55	8.94E-7	10.00		4.65	2.37
	L0006077	564801.81	4228619.66	13.97	2.55	8.94E-7	10.00		4.65	2.37
	L0006078	564807.23	4228628.05	14.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006079	564812.45	4228636.58	14.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006080	564817.67	4228645.11	14.14	2.55	8.94E-7	10.00		4.65	2.37
	L0006081	564822.20	4228654.00	14.37	2.55	8.94E-7	10.00		4.65	2.37
	L0006082	564826.32	4228663.11	14.68	2.55	8.94E-7	10.00		4.65	2.37
	L0006083	564829.01	4228672.67	14.84	2.55	8.94E-7	10.00		4.65	2.37
	L0006084	564830.82	4228682.51	14.90	2.55	8.94E-7	10.00		4.65	2.37
	L0006085	564832.52	4228692.36	14.96	2.55	8.94E-7	10.00		4.65	2.37
	L0006086	564833.79	4228702.28	15.00	2.55	8.94E-7	10.00		4.65	2.37
	L0006087	564834.94	4228712.21	15.04	2.55	8.94E-7	10.00		4.65	2.37
	L0006088	564835.81	4228722.17	15.07	2.55	8.94E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEVLIN	L0006089	564836.68	4228732.14	15.10	2.55	8.94E-7	10.00		4.65	2.37
	L0006090	564837.56	4228742.10	15.13	2.55	8.94E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0006091	564049.35	4227734.41	9.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006092	564059.35	4227734.39	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006093	564069.35	4227734.38	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006094	564079.35	4227734.36	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006095	564089.35	4227734.35	10.01	2.55	8.80E-7	10.00		4.65	2.37
	L0006096	564099.35	4227734.33	10.03	2.55	8.80E-7	10.00		4.65	2.37
	L0006097	564109.35	4227734.31	10.06	2.55	8.80E-7	10.00		4.65	2.37
	L0006098	564119.35	4227734.30	10.07	2.55	8.80E-7	10.00		4.65	2.37
	L0006099	564129.35	4227734.28	10.07	2.55	8.80E-7	10.00		4.65	2.37
	L0006100	564139.35	4227734.27	10.07	2.55	8.80E-7	10.00		4.65	2.37
	L0006101	564149.35	4227734.25	10.05	2.55	8.80E-7	10.00		4.65	2.37
	L0006102	564159.35	4227734.23	10.03	2.55	8.80E-7	10.00		4.65	2.37
	L0006103	564169.35	4227734.22	10.01	2.55	8.80E-7	10.00		4.65	2.37
	L0006104	564179.35	4227734.20	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006105	564189.35	4227734.19	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006106	564199.35	4227734.17	10.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006107	564209.35	4227734.15	10.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006108	564219.35	4227734.14	10.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006109	564229.35	4227734.12	10.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006110	564239.35	4227734.11	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006111	564249.35	4227734.09	11.00	2.55	8.80E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0006112	564259.35	4227734.07	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006113	564269.35	4227734.06	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006114	564279.35	4227734.04	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006115	564289.35	4227734.03	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006116	564299.35	4227734.01	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006117	564309.35	4227733.99	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006118	564319.35	4227733.98	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006119	564329.35	4227733.96	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006120	564339.35	4227733.95	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006121	564349.35	4227733.93	11.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006122	564359.35	4227733.91	11.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006123	564369.35	4227733.90	11.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006124	564379.35	4227733.88	11.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006125	564389.35	4227733.87	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006126	564399.35	4227733.85	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006127	564409.35	4227733.83	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006128	564419.35	4227733.82	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006129	564429.35	4227733.80	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006130	564439.35	4227733.79	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006131	564449.35	4227733.77	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006132	564459.35	4227733.75	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006133	564469.35	4227733.74	12.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006134	564479.35	4227733.72	12.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006135	564489.35	4227733.71	12.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006136	564499.35	4227733.69	12.86	2.55	8.80E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0006137	564509.35	4227733.67	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006138	564519.35	4227733.66	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006139	564529.35	4227733.64	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006140	564539.35	4227733.63	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006141	564549.35	4227733.61	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006142	564559.35	4227733.59	13.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006143	564569.35	4227733.58	13.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006144	564579.35	4227733.56	13.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006145	564589.35	4227733.55	13.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006146	564599.35	4227733.53	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006147	564609.35	4227733.51	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006148	564619.35	4227733.50	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006149	564629.35	4227733.48	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006150	564639.35	4227733.47	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006151	564649.35	4227733.45	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006152	564659.35	4227733.43	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006153	564669.35	4227733.42	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006154	564679.35	4227733.40	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006155	564689.35	4227733.39	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006156	564699.35	4227733.37	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006157	564709.35	4227733.35	14.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006158	564719.35	4227733.34	14.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006159	564729.35	4227733.32	14.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006160	564739.35	4227733.31	14.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006161	564749.35	4227733.29	15.00	2.55	8.80E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0006162	564759.35	4227733.27	15.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006163	564769.35	4227733.26	15.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006164	564779.35	4227733.24	15.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006165	564789.35	4227733.23	15.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006166	564799.35	4227733.21	15.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006167	564809.35	4227733.19	15.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006168	564819.35	4227733.18	15.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006169	564829.35	4227733.16	15.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006170	564839.35	4227733.15	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006171	564849.35	4227733.13	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006172	564859.35	4227733.11	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006173	564869.35	4227733.10	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006174	564879.35	4227733.08	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006175	564889.35	4227733.07	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006176	564899.35	4227733.05	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006177	564909.35	4227733.03	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006178	564919.35	4227733.02	16.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006179	564929.35	4227733.00	16.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006180	564939.35	4227732.99	16.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006181	564949.35	4227732.97	16.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006182	564959.35	4227732.95	17.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006183	564969.35	4227732.94	17.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006184	564979.35	4227732.92	17.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006185	564989.35	4227732.91	17.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006186	564999.35	4227732.89	17.52	2.55	8.80E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREENISLAND	L0006187	565009.35	4227732.87	17.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006188	565019.35	4227732.86	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006189	565029.35	4227732.84	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006190	565039.35	4227732.83	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006191	565049.35	4227732.81	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006192	565059.35	4227732.79	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006193	565069.35	4227732.78	18.00	2.55	8.80E-7	10.00		4.65	2.37
	L0006194	565079.35	4227732.76	18.19	2.55	8.80E-7	10.00		4.65	2.37
	L0006195	565089.35	4227732.74	18.52	2.55	8.80E-7	10.00		4.65	2.37
	L0006196	565099.35	4227732.73	18.86	2.55	8.80E-7	10.00		4.65	2.37
	L0006197	565109.35	4227732.71	19.00	2.55	8.80E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29	L0006198	565127.74	4228400.04	15.83	2.55	2.81E-6	36.00		16.74	2.37
	L0006199	565127.88	4228364.04	15.81	2.55	2.81E-6	36.00		16.74	2.37
	L0006200	565128.01	4228328.04	15.81	2.55	2.81E-6	36.00		16.74	2.37
	L0006201	565128.15	4228292.04	15.82	2.55	2.81E-6	36.00		16.74	2.37
	L0006202	565128.28	4228256.04	15.94	2.55	2.81E-6	36.00		16.74	2.37
	L0006203	565128.42	4228220.04	16.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006204	565128.55	4228184.04	16.07	2.55	2.81E-6	36.00		16.74	2.37
	L0006205	565128.69	4228148.04	17.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006206	565128.82	4228112.04	17.40	2.55	2.81E-6	36.00		16.74	2.37
	L0006207	565128.96	4228076.04	17.84	2.55	2.81E-6	36.00		16.74	2.37
	L0006208	565129.10	4228040.04	17.98	2.55	2.81E-6	36.00		16.74	2.37
	L0006209	565129.23	4228004.04	18.00	2.55	2.81E-6	36.00		16.74	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29	L0006210	565129.37	4227968.04	18.23	2.55	2.81E-6	36.00		16.74	2.37
	L0006211	565129.50	4227932.04	18.93	2.55	2.81E-6	36.00		16.74	2.37
	L0006212	565129.64	4227896.04	19.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006213	565129.77	4227860.04	19.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006214	565130.59	4227824.06	19.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006215	565132.29	4227788.10	19.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006216	565133.99	4227752.14	19.00	2.55	2.81E-6	36.00		16.74	2.37
	L0006217	565136.80	4227716.27	19.10	2.55	2.81E-6	36.00		16.74	2.37
	L0006218	565140.86	4227680.50	19.24	2.55	2.81E-6	36.00		16.74	2.37
	L0006219	565144.91	4227644.73	19.37	2.55	2.81E-6	36.00		16.74	2.37
	L0006220	565148.97	4227608.96	19.51	2.55	2.81E-6	36.00		16.74	2.37
	L0006221	565152.99	4227573.18	19.36	2.55	2.81E-6	36.00		16.74	2.37
	L0006222	565156.99	4227537.40	19.00	2.55	2.81E-6	36.00		16.74	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006223	564563.39	4228759.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006224	564564.93	4228756.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006225	564566.47	4228753.70	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006226	564568.01	4228750.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006227	564569.55	4228748.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006228	564571.09	4228745.56	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006229	564572.62	4228742.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006230	564574.16	4228740.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006231	564575.70	4228737.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006232	564577.24	4228734.70	13.00	0.00	9.74E-9	3.12		1.45	2.27

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006233	564578.78	4228731.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006234	564580.31	4228729.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006235	564581.85	4228726.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006236	564583.39	4228723.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006237	564584.93	4228721.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006238	564586.47	4228718.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006239	564588.00	4228715.70	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006240	564589.54	4228712.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006241	564591.08	4228710.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006242	564592.62	4228707.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006243	564594.16	4228704.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006244	564595.70	4228702.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006245	564597.23	4228699.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006246	564598.77	4228696.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006247	564600.31	4228693.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006248	564601.85	4228691.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006249	564603.39	4228688.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006250	564604.92	4228685.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006251	564606.46	4228683.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006252	564608.00	4228680.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006253	564609.54	4228677.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006254	564611.08	4228674.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006255	564612.61	4228672.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006256	564614.15	4228669.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006257	564615.69	4228666.84	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006258	564617.23	4228664.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006259	564618.77	4228661.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006260	564620.31	4228658.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006261	564621.84	4228655.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006262	564623.38	4228653.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006263	564624.92	4228650.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006264	564626.46	4228647.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006265	564628.00	4228645.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006266	564629.53	4228642.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006267	564631.07	4228639.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006268	564632.61	4228636.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006269	564634.15	4228634.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006270	564635.69	4228631.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006271	564637.23	4228628.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006272	564638.76	4228626.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006273	564640.30	4228623.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006274	564641.84	4228620.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006275	564643.38	4228617.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006276	564644.92	4228615.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006277	564646.45	4228612.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006278	564647.99	4228609.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006279	564649.53	4228607.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006280	564651.07	4228604.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006281	564652.61	4228601.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006282	564654.14	4228598.97	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006283	564655.68	4228596.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006284	564657.22	4228593.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006285	564658.76	4228590.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006286	564660.30	4228588.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006287	564661.84	4228585.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006288	564663.37	4228582.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006289	564664.91	4228579.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006290	564666.45	4228577.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006291	564667.99	4228574.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006292	564669.53	4228571.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006293	564671.06	4228569.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006294	564672.60	4228566.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006295	564674.14	4228563.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006296	564675.68	4228560.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006297	564677.22	4228558.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006298	564678.76	4228555.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006299	564680.29	4228552.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006300	564681.83	4228550.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006301	564683.37	4228547.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006302	564684.91	4228544.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006303	564686.45	4228541.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006304	564687.98	4228539.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006305	564689.52	4228536.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006306	564691.06	4228533.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006307	564692.60	4228531.11	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006308	564694.14	4228528.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006309	564695.67	4228525.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006310	564697.21	4228522.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006311	564698.75	4228520.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006312	564700.29	4228517.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006313	564701.83	4228514.82	12.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006314	564703.37	4228512.11	12.95	0.00	9.74E-9	3.12		1.45	2.27
	L0006315	564704.90	4228509.39	12.93	0.00	9.74E-9	3.12		1.45	2.27
	L0006316	564706.44	4228506.68	12.92	0.00	9.74E-9	3.12		1.45	2.27
	L0006317	564707.98	4228503.97	12.92	0.00	9.74E-9	3.12		1.45	2.27
	L0006318	564709.52	4228501.25	12.93	0.00	9.74E-9	3.12		1.45	2.27
	L0006319	564711.06	4228498.54	12.95	0.00	9.74E-9	3.12		1.45	2.27
	L0006320	564712.59	4228495.82	12.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006321	564714.13	4228493.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006322	564715.67	4228490.39	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006323	564717.21	4228487.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006324	564718.75	4228484.96	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006325	564720.28	4228482.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006326	564721.82	4228479.53	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006327	564723.36	4228476.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006328	564724.90	4228474.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006329	564726.44	4228471.39	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006330	564727.98	4228468.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006331	564729.51	4228465.96	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006332	564731.05	4228463.25	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006333	564732.59	4228460.53	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006334	564734.13	4228457.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006335	564735.67	4228455.10	13.02	0.00	9.74E-9	3.12		1.45	2.27
	L0006336	564737.20	4228452.39	13.07	0.00	9.74E-9	3.12		1.45	2.27
	L0006337	564738.74	4228449.68	13.15	0.00	9.74E-9	3.12		1.45	2.27
	L0006338	564740.28	4228446.96	13.24	0.00	9.74E-9	3.12		1.45	2.27
	L0006339	564741.82	4228444.25	13.35	0.00	9.74E-9	3.12		1.45	2.27
	L0006340	564743.36	4228441.53	13.48	0.00	9.74E-9	3.12		1.45	2.27
	L0006341	564744.90	4228438.82	13.58	0.00	9.74E-9	3.12		1.45	2.27
	L0006342	564746.43	4228436.10	13.67	0.00	9.74E-9	3.12		1.45	2.27
	L0006343	564747.97	4228433.39	13.76	0.00	9.74E-9	3.12		1.45	2.27
	L0006344	564749.51	4228430.67	13.85	0.00	9.74E-9	3.12		1.45	2.27
	L0006345	564751.05	4228427.96	13.94	0.00	9.74E-9	3.12		1.45	2.27
	L0006346	564752.59	4228425.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006347	564754.12	4228422.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006348	564755.66	4228419.82	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006349	564757.20	4228417.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006350	564758.74	4228414.39	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006351	564760.28	4228411.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006352	564761.81	4228408.96	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006353	564763.35	4228406.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006354	564764.89	4228403.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006355	564766.43	4228400.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006356	564767.97	4228398.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006357	564769.51	4228395.39	14.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006358	564771.04	4228392.67	13.99	0.00	9.74E-9	3.12		1.45	2.27
	L0006359	564772.58	4228389.96	13.99	0.00	9.74E-9	3.12		1.45	2.27
	L0006360	564774.12	4228387.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006361	564775.66	4228384.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006362	564777.20	4228381.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006363	564778.73	4228379.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006364	564780.27	4228376.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006365	564781.81	4228373.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006366	564783.35	4228370.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006367	564784.89	4228368.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006368	564786.43	4228365.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006369	564787.96	4228362.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006370	564789.50	4228360.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006371	564791.04	4228357.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006372	564792.58	4228354.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006373	564794.12	4228351.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006374	564795.65	4228349.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006375	564797.19	4228346.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006376	564798.73	4228343.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006377	564800.27	4228341.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006378	564801.81	4228338.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006379	564803.34	4228335.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006380	564804.88	4228332.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006381	564806.42	4228330.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006382	564807.96	4228327.52	14.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006383	564809.50	4228324.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006384	564811.04	4228322.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006385	564812.57	4228319.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006386	564814.11	4228316.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006387	564815.65	4228313.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006388	564817.19	4228311.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006389	564818.73	4228308.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006390	564820.26	4228305.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006391	564821.80	4228303.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006392	564823.34	4228300.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006393	564824.88	4228297.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006394	564826.42	4228294.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006395	564827.95	4228292.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006396	564829.49	4228289.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006397	564831.03	4228286.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006398	564832.57	4228284.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006399	564834.11	4228281.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006400	564835.65	4228278.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006401	564837.18	4228275.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006402	564838.72	4228273.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006403	564840.26	4228270.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006404	564841.80	4228267.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006405	564843.34	4228265.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006406	564844.87	4228262.37	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006407	564846.41	4228259.66	14.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006408	564847.95	4228256.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006409	564849.49	4228254.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006410	564851.03	4228251.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006411	564852.57	4228248.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006412	564854.10	4228246.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006413	564855.64	4228243.37	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006414	564857.18	4228240.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006415	564858.72	4228237.94	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006416	564860.26	4228235.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006417	564861.79	4228232.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006418	564863.33	4228229.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006419	564864.87	4228227.09	14.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006420	564866.41	4228224.37	14.07	0.00	9.74E-9	3.12		1.45	2.27
	L0006421	564867.95	4228221.66	14.12	0.00	9.74E-9	3.12		1.45	2.27
	L0006422	564869.48	4228218.94	14.18	0.00	9.74E-9	3.12		1.45	2.27
	L0006423	564871.02	4228216.23	14.25	0.00	9.74E-9	3.12		1.45	2.27
	L0006424	564872.56	4228213.51	14.36	0.00	9.74E-9	3.12		1.45	2.27
	L0006425	564874.10	4228210.80	14.47	0.00	9.74E-9	3.12		1.45	2.27
	L0006426	564875.64	4228208.08	14.56	0.00	9.74E-9	3.12		1.45	2.27
	L0006427	564877.18	4228205.37	14.65	0.00	9.74E-9	3.12		1.45	2.27
	L0006428	564878.71	4228202.66	14.73	0.00	9.74E-9	3.12		1.45	2.27
	L0006429	564880.25	4228199.94	14.80	0.00	9.74E-9	3.12		1.45	2.27
	L0006430	564881.79	4228197.23	14.85	0.00	9.74E-9	3.12		1.45	2.27
	L0006431	564883.33	4228194.51	14.90	0.00	9.74E-9	3.12		1.45	2.27
	L0006432	564884.87	4228191.80	14.95	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006433	564886.40	4228189.08	14.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006434	564887.94	4228186.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006435	564889.48	4228183.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006436	564891.02	4228180.94	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006437	564892.56	4228178.23	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006438	564894.10	4228175.51	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006439	564895.63	4228172.80	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006440	564897.17	4228170.08	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006441	564898.71	4228167.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006442	564900.25	4228164.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006443	564901.79	4228161.94	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006444	564903.32	4228159.22	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006445	564904.86	4228156.51	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006446	564906.40	4228153.79	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006447	564907.94	4228151.08	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006448	564909.48	4228148.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006449	564911.01	4228145.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006450	564912.42	4228142.87	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006451	564913.64	4228140.00	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006452	564914.87	4228137.13	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006453	564916.09	4228134.26	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006454	564917.32	4228131.39	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006455	564918.54	4228128.52	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006456	564919.77	4228125.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006457	564920.85	4228122.73	15.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006458	564921.76	4228119.75	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006459	564922.66	4228116.76	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006460	564923.56	4228113.77	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006461	564924.47	4228110.79	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006462	564925.37	4228107.80	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006463	564926.28	4228104.82	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006464	564927.18	4228101.83	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006465	564927.99	4228098.82	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006466	564928.70	4228095.78	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006467	564929.40	4228092.74	15.02	0.00	9.74E-9	3.12		1.45	2.27
	L0006468	564930.10	4228089.70	15.05	0.00	9.74E-9	3.12		1.45	2.27
	L0006469	564930.80	4228086.66	15.08	0.00	9.74E-9	3.12		1.45	2.27
	L0006470	564931.50	4228083.62	15.11	0.00	9.74E-9	3.12		1.45	2.27
	L0006471	564932.20	4228080.58	15.15	0.00	9.74E-9	3.12		1.45	2.27
	L0006472	564932.90	4228077.54	15.19	0.00	9.74E-9	3.12		1.45	2.27
	L0006473	564933.61	4228074.50	15.24	0.00	9.74E-9	3.12		1.45	2.27
	L0006474	564933.87	4228071.40	15.28	0.00	9.74E-9	3.12		1.45	2.27
	L0006475	564934.04	4228068.28	15.32	0.00	9.74E-9	3.12		1.45	2.27
	L0006476	564934.21	4228065.17	15.35	0.00	9.74E-9	3.12		1.45	2.27
	L0006477	564934.38	4228062.05	15.36	0.00	9.74E-9	3.12		1.45	2.27
	L0006478	564934.55	4228058.93	15.36	0.00	9.74E-9	3.12		1.45	2.27
	L0006479	564934.73	4228055.82	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0006480	564934.90	4228052.70	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0006481	564934.91	4228049.58	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0006482	564934.93	4228046.46	15.38	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006483	564934.94	4228043.34	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0006484	564934.96	4228040.22	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0006485	564934.97	4228037.10	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0006486	564934.99	4228033.98	15.42	0.00	9.74E-9	3.12		1.45	2.27
	L0006487	564934.66	4228030.88	15.48	0.00	9.74E-9	3.12		1.45	2.27
	L0006488	564934.32	4228027.78	15.54	0.00	9.74E-9	3.12		1.45	2.27
	L0006489	564933.99	4228024.68	15.60	0.00	9.74E-9	3.12		1.45	2.27
	L0006490	564933.66	4228021.58	15.66	0.00	9.74E-9	3.12		1.45	2.27
	L0006491	564933.33	4228018.47	15.72	0.00	9.74E-9	3.12		1.45	2.27
	L0006492	564932.99	4228015.37	15.79	0.00	9.74E-9	3.12		1.45	2.27
	L0006493	564932.66	4228012.27	15.86	0.00	9.74E-9	3.12		1.45	2.27
	L0006494	564932.26	4228009.18	15.93	0.00	9.74E-9	3.12		1.45	2.27
	L0006495	564931.84	4228006.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006496	564931.42	4228002.99	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006497	564931.00	4227999.90	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006498	564930.59	4227996.81	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006499	564930.17	4227993.72	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006500	564929.75	4227990.62	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006501	564929.33	4227987.53	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006502	564928.92	4227984.44	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006503	564928.50	4227981.35	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006504	564928.08	4227978.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006505	564927.66	4227975.16	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006506	564927.25	4227972.07	16.02	0.00	9.74E-9	3.12		1.45	2.27
	L0006507	564926.83	4227968.98	16.03	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006508	564926.41	4227965.89	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006509	564926.00	4227962.79	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006510	564925.59	4227959.70	16.04	0.00	9.74E-9	3.12		1.45	2.27
	L0006511	564925.18	4227956.61	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006512	564924.78	4227953.52	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006513	564924.37	4227950.42	16.02	0.00	9.74E-9	3.12		1.45	2.27
	L0006514	564923.96	4227947.33	16.01	0.00	9.74E-9	3.12		1.45	2.27
	L0006515	564923.55	4227944.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006516	564923.14	4227941.14	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006517	564922.73	4227938.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006518	564922.32	4227934.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006519	564921.91	4227931.86	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006520	564921.50	4227928.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006521	564921.09	4227925.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006522	564920.68	4227922.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006523	564920.27	4227919.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006524	564919.86	4227916.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006525	564919.45	4227913.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006526	564919.04	4227910.21	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006527	564918.63	4227907.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006528	564918.22	4227904.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006529	564917.81	4227900.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006530	564917.40	4227897.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006531	564916.99	4227894.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006532	564916.58	4227891.66	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006533	564916.17	4227888.56	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006534	564915.76	4227885.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006535	564915.35	4227882.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006536	564914.94	4227879.28	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006537	564914.53	4227876.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006538	564914.12	4227873.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006539	564913.71	4227870.01	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006540	564913.30	4227866.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006541	564912.89	4227863.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006542	564912.48	4227860.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006543	564912.07	4227857.63	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006544	564911.66	4227854.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006545	564911.25	4227851.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006546	564910.84	4227848.35	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006547	564910.43	4227845.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006548	564910.02	4227842.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006549	564909.61	4227839.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006550	564909.21	4227835.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006551	564908.80	4227832.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006552	564908.39	4227829.80	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006553	564907.98	4227826.70	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006554	564907.57	4227823.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006555	564907.16	4227820.52	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006556	564906.75	4227817.42	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006557	564906.34	4227814.33	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006558	564905.93	4227811.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006559	564905.52	4227808.15	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006560	564905.11	4227805.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006561	564904.70	4227801.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006562	564904.29	4227798.87	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006563	564903.88	4227795.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006564	564903.47	4227792.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006565	564903.06	4227789.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006566	564902.65	4227786.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006567	564902.24	4227783.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006568	564901.83	4227780.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006569	564901.42	4227777.22	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006570	564901.01	4227774.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006571	564900.60	4227771.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006572	564900.19	4227767.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006573	564899.78	4227764.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006574	564899.37	4227761.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006575	564898.96	4227758.66	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006576	564898.55	4227755.57	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006577	564898.14	4227752.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006578	564897.73	4227749.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006579	564897.32	4227746.29	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006580	564896.91	4227743.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006581	564896.50	4227740.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006582	564896.09	4227737.01	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006583	564895.68	4227733.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006584	564895.27	4227730.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006585	564894.86	4227727.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006586	564894.45	4227724.64	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006587	564894.04	4227721.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006588	564893.63	4227718.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006589	564893.23	4227715.36	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006590	564892.82	4227712.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006591	564892.41	4227709.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006592	564892.00	4227706.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006593	564891.59	4227702.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006594	564891.18	4227699.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006595	564890.77	4227696.80	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006596	564890.36	4227693.71	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006597	564889.95	4227690.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006598	564889.54	4227687.52	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006599	564889.13	4227684.43	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006600	564888.72	4227681.33	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006601	564888.31	4227678.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006602	564887.90	4227675.15	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006603	564887.49	4227672.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006604	564887.09	4227668.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006605	564886.68	4227665.87	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006606	564886.27	4227662.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006607	564885.86	4227659.68	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006608	564885.45	4227656.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006609	564885.04	4227653.50	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006610	564884.64	4227650.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006611	564884.23	4227647.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006612	564883.82	4227644.22	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006613	564883.41	4227641.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006614	564883.00	4227638.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006615	564882.59	4227634.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006616	564882.19	4227631.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006617	564881.78	4227628.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006618	564881.37	4227625.66	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006619	564880.96	4227622.56	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006620	564880.55	4227619.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006621	564880.14	4227616.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006622	564879.73	4227613.28	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006623	564879.33	4227610.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006624	564878.92	4227607.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006625	564878.51	4227604.00	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006626	564878.10	4227600.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006627	564877.69	4227597.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006628	564877.28	4227594.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006629	564876.88	4227591.63	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006630	564876.47	4227588.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006631	564876.06	4227585.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006632	564875.65	4227582.35	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006633	564875.24	4227579.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006634	564874.83	4227576.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006635	564874.43	4227573.07	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006636	564874.02	4227569.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006637	564873.61	4227566.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006638	564873.20	4227563.79	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006639	564872.79	4227560.70	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006640	564872.38	4227557.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006641	564871.98	4227554.51	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006642	564871.57	4227551.42	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006643	564871.16	4227548.33	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006644	564870.75	4227545.23	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006645	564870.34	4227542.14	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006646	564869.93	4227539.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006647	564869.52	4227535.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006648	564869.12	4227532.86	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006649	564868.71	4227529.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006650	564868.30	4227526.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006651	564867.89	4227523.58	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006652	564867.48	4227520.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006653	564867.07	4227517.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006654	564866.67	4227514.30	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006655	564866.26	4227511.21	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006656	564865.85	4227508.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006657	564865.44	4227505.02	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006658	564865.03	4227501.93	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006659	564864.62	4227498.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006660	564864.22	4227495.74	15.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006661	564863.81	4227492.65	15.88	0.00	9.74E-9	3.12		1.45	2.27
	L0006662	564863.40	4227489.56	15.77	0.00	9.74E-9	3.12		1.45	2.27
	L0006663	564862.99	4227486.46	15.66	0.00	9.74E-9	3.12		1.45	2.27
	L0006664	564862.58	4227483.37	15.55	0.00	9.74E-9	3.12		1.45	2.27
	L0006665	564862.17	4227480.28	15.44	0.00	9.74E-9	3.12		1.45	2.27
	L0006666	564861.77	4227477.19	15.34	0.00	9.74E-9	3.12		1.45	2.27
	L0006667	564861.36	4227474.09	15.24	0.00	9.74E-9	3.12		1.45	2.27
	L0006668	564860.95	4227471.00	15.14	0.00	9.74E-9	3.12		1.45	2.27
	L0006669	564860.54	4227467.91	15.05	0.00	9.74E-9	3.12		1.45	2.27
	L0006670	564860.13	4227464.81	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006671	564859.72	4227461.72	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006672	564859.32	4227458.63	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006673	564858.91	4227455.53	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006674	564858.50	4227452.44	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006675	564858.09	4227449.35	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006676	564857.68	4227446.25	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006677	564857.27	4227443.16	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006678	564856.86	4227440.07	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006679	564856.46	4227436.97	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006680	564856.24	4227433.86	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006681	564856.03	4227430.75	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006682	564855.82	4227427.64	15.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL	L0006683	564855.61	4227424.52	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006684	564855.41	4227421.41	15.00	0.00	9.74E-9	3.12		1.45	2.27

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007066	564836.84	4228739.05	15.11	2.55	8.09E-7	10.00		4.65	2.37
	L0007067	564836.14	4228729.07	15.08	2.55	8.09E-7	10.00		4.65	2.37
	L0007068	564835.45	4228719.10	15.06	2.55	8.09E-7	10.00		4.65	2.37
	L0007069	564834.62	4228709.13	15.03	2.55	8.09E-7	10.00		4.65	2.37
	L0007070	564833.30	4228699.22	14.99	2.55	8.09E-7	10.00		4.65	2.37
	L0007071	564831.98	4228689.31	14.94	2.55	8.09E-7	10.00		4.65	2.37
	L0007072	564830.33	4228679.45	14.89	2.55	8.09E-7	10.00		4.65	2.37
	L0007073	564828.58	4228669.60	14.83	2.55	8.09E-7	10.00		4.65	2.37
	L0007074	564825.07	4228660.30	14.57	2.55	8.09E-7	10.00		4.65	2.37
	L0007075	564820.96	4228651.18	14.29	2.55	8.09E-7	10.00		4.65	2.37
	L0007076	564816.27	4228642.38	14.09	2.55	8.09E-7	10.00		4.65	2.37
	L0007077	564810.98	4228633.89	14.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007078	564805.70	4228625.40	14.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007079	564799.90	4228617.27	13.92	2.55	8.09E-7	10.00		4.65	2.37
	L0007080	564793.69	4228609.44	13.70	2.55	8.09E-7	10.00		4.65	2.37
	L0007081	564787.47	4228601.60	13.39	2.55	8.09E-7	10.00		4.65	2.37
	L0007082	564780.15	4228594.87	13.13	2.55	8.09E-7	10.00		4.65	2.37
	L0007083	564772.36	4228588.60	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007084	564764.32	4228582.65	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007085	564756.24	4228576.76	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007086	564747.74	4228571.51	13.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007087	564739.16	4228566.37	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007088	564730.56	4228561.26	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007089	564721.77	4228556.51	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007090	564712.97	4228551.75	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007091	564704.17	4228547.00	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007092	564695.38	4228542.24	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007093	564686.58	4228537.49	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007094	564677.78	4228532.73	12.91	2.55	8.09E-7	10.00		4.65	2.37
	L0007095	564668.98	4228527.97	12.70	2.55	8.09E-7	10.00		4.65	2.37
	L0007096	564660.13	4228523.33	12.40	2.55	8.09E-7	10.00		4.65	2.37
	L0007097	564651.08	4228519.08	12.09	2.55	8.09E-7	10.00		4.65	2.37
	L0007098	564642.03	4228514.83	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007099	564632.61	4228511.55	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007100	564623.00	4228508.79	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007101	564613.39	4228506.03	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007102	564603.70	4228503.64	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007103	564593.81	4228502.17	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007104	564583.91	4228500.69	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007105	564573.95	4228500.13	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007106	564563.95	4228500.00	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007107	564553.95	4228499.87	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007108	564543.95	4228499.74	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007109	564533.95	4228499.60	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007110	564523.95	4228499.47	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007111	564513.96	4228499.34	12.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007112	564503.96	4228499.21	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007113	564493.96	4228499.08	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007114	564483.96	4228498.95	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007115	564473.96	4228498.82	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007116	564463.96	4228498.68	11.81	2.55	8.09E-7	10.00		4.65	2.37
	L0007117	564454.15	4228496.89	11.58	2.55	8.09E-7	10.00		4.65	2.37
	L0007118	564444.39	4228494.73	11.30	2.55	8.09E-7	10.00		4.65	2.37
	L0007119	564434.63	4228492.57	11.15	2.55	8.09E-7	10.00		4.65	2.37
	L0007120	564424.86	4228490.40	11.05	2.55	8.09E-7	10.00		4.65	2.37
	L0007121	564415.10	4228488.24	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007122	564405.34	4228486.08	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007123	564395.49	4228484.71	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007124	564385.49	4228484.72	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007125	564375.49	4228484.74	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007126	564365.49	4228484.76	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007127	564355.49	4228484.77	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007128	564345.49	4228484.79	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007129	564335.49	4228484.80	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007130	564325.49	4228484.82	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007131	564315.49	4228484.84	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007132	564305.49	4228484.85	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007133	564295.49	4228484.87	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007134	564285.49	4228484.88	10.73	2.55	8.09E-7	10.00		4.65	2.37
	L0007135	564275.49	4228484.90	10.39	2.55	8.09E-7	10.00		4.65	2.37
	L0007136	564265.49	4228484.92	10.06	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007137	564255.49	4228484.93	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007138	564245.49	4228484.95	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007139	564235.49	4228484.97	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007140	564225.49	4228484.98	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007141	564215.49	4228485.00	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007142	564209.86	4228480.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007143	564209.87	4228470.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007144	564209.88	4228460.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007145	564209.89	4228450.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007146	564209.91	4228440.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007147	564209.92	4228430.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007148	564209.93	4228420.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007149	564209.94	4228410.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007150	564209.95	4228400.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007151	564209.96	4228390.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007152	564209.97	4228380.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007153	564209.98	4228370.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007154	564209.99	4228360.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007155	564210.00	4228350.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007156	564210.02	4228340.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007157	564210.03	4228330.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007158	564210.04	4228320.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007159	564210.05	4228310.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007160	564210.06	4228300.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007161	564210.07	4228290.64	10.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007162	564210.08	4228280.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007163	564210.09	4228270.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007164	564210.10	4228260.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007165	564210.11	4228250.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007166	564210.13	4228240.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007167	564210.14	4228230.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007168	564210.15	4228220.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007169	564210.16	4228210.64	10.04	2.55	8.09E-7	10.00		4.65	2.37
	L0007170	564210.17	4228200.64	10.11	2.55	8.09E-7	10.00		4.65	2.37
	L0007171	564210.18	4228190.64	10.19	2.55	8.09E-7	10.00		4.65	2.37
	L0007172	564210.19	4228180.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007173	564210.20	4228170.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007174	564210.21	4228160.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007175	564210.22	4228150.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007176	564210.24	4228140.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007177	564210.25	4228130.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007178	564210.26	4228120.64	10.37	2.55	8.09E-7	10.00		4.65	2.37
	L0007179	564210.27	4228110.64	10.63	2.55	8.09E-7	10.00		4.65	2.37
	L0007180	564210.28	4228100.64	10.89	2.55	8.09E-7	10.00		4.65	2.37
	L0007181	564210.29	4228090.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007182	564210.30	4228080.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007183	564210.31	4228070.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007184	564210.32	4228060.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007185	564210.33	4228050.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007186	564210.35	4228040.64	11.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007187	564210.36	4228030.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007188	564210.37	4228020.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007189	564210.38	4228010.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007190	564210.39	4228000.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007191	564210.40	4227990.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007192	564210.41	4227980.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007193	564210.42	4227970.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007194	564210.43	4227960.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007195	564210.44	4227950.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007196	564210.46	4227940.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007197	564210.47	4227930.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007198	564210.48	4227920.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007199	564210.49	4227910.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007200	564210.50	4227900.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007201	564210.51	4227890.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007202	564210.52	4227880.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007203	564210.53	4227870.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007204	564210.54	4227860.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007205	564210.56	4227850.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007206	564210.57	4227840.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007207	564210.58	4227830.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007208	564210.59	4227820.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007209	564210.60	4227810.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007210	564210.61	4227800.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007211	564210.62	4227790.64	10.86	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.OP	L0007212	564210.63	4227780.64	10.60	2.55	8.09E-7	10.00		4.65	2.37
	L0007213	564210.64	4227770.64	10.34	2.55	8.09E-7	10.00		4.65	2.37
	L0007214	564210.65	4227760.64	10.23	2.55	8.09E-7	10.00		4.65	2.37
	L0007215	564210.67	4227750.64	10.23	2.55	8.09E-7	10.00		4.65	2.37
	L0007216	564210.68	4227740.64	10.23	2.55	8.09E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.OP	L0007368	564214.52	4227734.17	10.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007369	564224.52	4227734.16	10.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007370	564234.52	4227734.14	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007371	564244.52	4227734.13	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007372	564254.52	4227734.11	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007373	564264.52	4227734.09	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007374	564274.52	4227734.08	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007375	564284.52	4227734.06	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007376	564294.52	4227734.05	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007377	564304.52	4227734.03	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007378	564314.52	4227734.01	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007379	564324.52	4227734.00	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007380	564334.52	4227733.98	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007381	564344.52	4227733.96	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007382	564354.52	4227733.95	11.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007383	564364.52	4227733.93	11.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007384	564374.52	4227733.92	11.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007385	564384.52	4227733.90	12.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.OP	L0007386	564394.52	4227733.88	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007387	564404.52	4227733.87	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007388	564414.52	4227733.85	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007389	564424.52	4227733.84	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007390	564434.52	4227733.82	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007391	564444.52	4227733.80	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007392	564454.52	4227733.79	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007393	564464.52	4227733.77	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007394	564474.52	4227733.76	12.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007395	564484.52	4227733.74	12.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007396	564494.52	4227733.72	12.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007397	564504.52	4227733.71	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007398	564514.52	4227733.69	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007399	564524.52	4227733.67	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007400	564534.52	4227733.66	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007401	564544.52	4227733.64	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007402	564554.52	4227733.63	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007403	564564.52	4227733.61	13.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007404	564574.52	4227733.59	13.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007405	564584.52	4227733.58	13.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007406	564594.52	4227733.56	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007407	564604.52	4227733.55	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007408	564614.52	4227733.53	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007409	564624.52	4227733.51	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007410	564634.52	4227733.50	14.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.OP	L0007411	564644.52	4227733.48	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007412	564654.52	4227733.47	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007413	564664.52	4227733.45	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007414	564674.52	4227733.43	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007415	564684.52	4227733.42	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007416	564694.52	4227733.40	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007417	564704.52	4227733.38	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007418	564714.52	4227733.37	14.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007419	564724.52	4227733.35	14.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007420	564734.52	4227733.34	14.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007421	564744.52	4227733.32	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007422	564754.52	4227733.30	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007423	564764.52	4227733.29	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007424	564774.52	4227733.27	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007425	564784.52	4227733.26	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007426	564794.52	4227733.24	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007427	564804.52	4227733.22	15.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007428	564814.52	4227733.21	15.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007429	564824.52	4227733.19	15.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007430	564834.52	4227733.18	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007431	564844.52	4227733.16	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007432	564854.52	4227733.14	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007433	564864.52	4227733.13	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007434	564874.52	4227733.11	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007435	564884.52	4227733.10	16.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.OP	L0007436	564894.52	4227733.08	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007437	564904.52	4227733.06	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007438	564914.52	4227733.05	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007439	564924.52	4227733.03	16.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007440	564934.52	4227733.01	16.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007441	564944.52	4227733.00	16.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007442	564954.52	4227732.98	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007443	564964.52	4227732.97	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007444	564974.52	4227732.95	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007445	564984.52	4227732.93	17.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007446	564994.52	4227732.92	17.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007447	565004.52	4227732.90	17.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007448	565014.52	4227732.89	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007449	565024.52	4227732.87	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007450	565034.52	4227732.85	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007451	565044.52	4227732.84	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007452	565054.52	4227732.82	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007453	565064.52	4227732.81	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007454	565074.52	4227732.79	18.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007455	565084.52	4227732.77	18.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007456	565094.52	4227732.76	18.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007457	565104.52	4227732.74	19.00	2.55	8.06E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.OP	L0007458	565127.13	4228399.80	15.81	3.40	2.54E-6	36.00		16.74	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.OP	L0007459	565127.26	4228363.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007460	565127.38	4228327.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007461	565127.50	4228291.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007462	565127.62	4228255.80	15.94	3.40	2.54E-6	36.00		16.74	3.16
	L0007463	565127.74	4228219.80	16.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007464	565127.86	4228183.80	16.08	3.40	2.54E-6	36.00		16.74	3.16
	L0007465	565127.98	4228147.80	17.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007466	565128.10	4228111.80	17.39	3.40	2.54E-6	36.00		16.74	3.16
	L0007467	565128.22	4228075.80	17.82	3.40	2.54E-6	36.00		16.74	3.16
	L0007468	565128.34	4228039.80	17.98	3.40	2.54E-6	36.00		16.74	3.16
	L0007469	565128.46	4228003.80	18.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007470	565129.04	4227967.81	18.24	3.40	2.54E-6	36.00		16.74	3.16
	L0007471	565129.67	4227931.81	18.93	3.40	2.54E-6	36.00		16.74	3.16
	L0007472	565130.31	4227895.82	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007473	565130.94	4227859.82	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007474	565131.58	4227823.83	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007475	565132.22	4227787.83	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007476	565132.85	4227751.84	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007477	565136.10	4227716.02	19.08	3.40	2.54E-6	36.00		16.74	3.16
	L0007478	565140.18	4227680.25	19.22	3.40	2.54E-6	36.00		16.74	3.16
	L0007479	565144.27	4227644.48	19.35	3.40	2.54E-6	36.00		16.74	3.16
	L0007480	565148.35	4227608.71	19.49	3.40	2.54E-6	36.00		16.74	3.16
	L0007481	565152.44	4227572.95	19.35	3.40	2.54E-6	36.00		16.74	3.16
	L0007482	565156.52	4227537.18	19.00	3.40	2.54E-6	36.00		16.74	3.16

Source Pathway - Source Inputs

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	563846.99	4227763.17		9.00	
2	563152.88	4227961.87		10.03	
3	563514.22	4227959.26		10.45	
4	563487.56	4227974.48		10.12	
5	563482.14	4227991.20		10.97	
6	563427.00	4227966.19		10.00	
7	563425.95	4227956.25		10.00	
8	563265.64	4227970.13		9.00	
9	562505.78	4227951.68		3.18	
10	563810.19	4227762.07		9.00	
11	563740.68	4227815.91		9.00	
12	564832.15	4226970.55		18.57	
13	564869.92	4226938.63		17.38	
14	565044.27	4226568.58		18.00	
15	564973.13	4226565.86		18.00	
16	564955.94	4226541.29		18.00	
17	564893.17	4226549.81		22.03	
18	565028.87	4226540.35		18.00	
19	565035.66	4226521.39		18.00	
20	565038.10	4226497.30		18.00	
21	565000.82	4226474.49		18.00	
22	565008.62	4226449.37		18.00	
23	565042.99	4226474.21		18.00	
24	565049.05	4226447.64		18.00	
25	565049.05	4226421.36		18.00	
26	565437.70	4226745.61		20.00	
27	565456.18	4226744.45		20.00	
28	565498.35	4226743.87		21.00	
29	565514.23	4226744.16		21.00	
30	565441.17	4226713.84		20.00	

31	565459.65	4226713.55	20.00
32	565517.12	4226698.53	21.00
33	565516.25	4226683.80	21.00
34	565482.47	4226674.27	20.63
35	565483.33	4226658.68	20.66
36	565433.95	4226666.19	20.00
37	565434.24	4226653.48	20.00
38	565444.63	4226624.31	20.00
39	565463.98	4226624.31	20.01
40	565509.03	4226631.82	21.00
41	565509.03	4226617.38	21.00
42	565314.45	4227270.70	20.00
43	565291.64	4227217.62	19.00
44	565309.08	4227218.00	19.00
45	565384.70	4227209.41	20.00
46	565449.84	4227190.61	20.00
47	565496.35	4227202.46	20.28
48	565481.62	4227270.05	21.00
49	565516.57	4227270.92	21.00
50	565553.69	4227134.21	22.00
51	565613.85	4227214.51	22.01
52	565588.48	4227278.18	22.85
53	565625.01	4227289.45	24.49
54	565729.83	4227269.14	29.12
55	565890.63	4227286.35	34.23
56	565430.90	4227667.38	23.64
57	565017.44	4228947.47	20.67
58	566101.79	4227980.30	40.54
59	566081.49	4228935.03	70.63
60	564793.53	4226912.96	21.04
61	564970.33	4226914.23	16.00
62	565009.97	4226624.20	18.00
63	564973.04	4226624.09	18.00
64	564972.69	4226614.91	18.00
65	564928.06	4226614.73	18.85
66	564928.06	4226608.07	18.85
67	564884.55	4226608.07	21.49
68	564848.83	4226641.41	22.74

69	564798.44	4226913.00	20.81
70	564803.35	4226913.03	20.57
71	564808.26	4226913.07	20.32
72	564813.17	4226913.10	20.07
73	564818.09	4226913.14	19.81
74	564823.00	4226913.17	19.56
75	564827.91	4226913.21	19.30
76	564832.82	4226913.24	19.04
77	564837.73	4226913.28	18.86
78	564842.64	4226913.31	18.70
79	564847.55	4226913.35	18.54
80	564852.46	4226913.38	18.37
81	564857.37	4226913.42	18.21
82	564862.29	4226913.45	18.05
83	564867.20	4226913.49	17.88
84	564872.11	4226913.52	17.72
85	564877.02	4226913.56	17.56
86	564881.93	4226913.60	17.39
87	564886.84	4226913.63	17.23
88	564891.75	4226913.67	17.06
89	564896.66	4226913.70	16.90
90	564901.57	4226913.74	16.74
91	564906.49	4226913.77	16.57
92	564911.40	4226913.81	16.41
93	564916.31	4226913.84	16.25
94	564921.22	4226913.88	16.08
95	564926.13	4226913.91	16.00
96	564931.04	4226913.95	16.00
97	564935.95	4226913.98	16.00
98	564940.86	4226914.02	16.00
99	564945.77	4226914.05	16.00
100	564950.69	4226914.09	16.00
101	564955.60	4226914.12	16.00
102	564960.51	4226914.16	16.00
103	564965.42	4226914.20	16.00
104	564971.00	4226909.31	16.00
105	564971.67	4226904.40	16.00
106	564972.35	4226899.48	16.00

107	564973.02	4226894.57	16.00
108	564973.69	4226889.65	16.00
109	564974.36	4226884.74	16.00
110	564975.03	4226879.82	16.00
111	564975.70	4226874.90	16.00
112	564976.38	4226869.99	16.00
113	564977.05	4226865.07	16.00
114	564977.72	4226860.16	16.00
115	564978.39	4226855.24	16.00
116	564979.06	4226850.33	16.00
117	564979.74	4226845.41	16.00
118	564980.41	4226840.49	16.00
119	564981.08	4226835.58	16.00
120	564981.75	4226830.66	16.01
121	564982.42	4226825.75	16.01
122	564983.10	4226820.83	16.01
123	564983.77	4226815.92	16.00
124	564984.44	4226811.00	16.00
125	564985.11	4226806.08	16.01
126	564985.78	4226801.17	16.17
127	564986.45	4226796.25	16.33
128	564987.13	4226791.34	16.50
129	564987.80	4226786.42	16.66
130	564988.47	4226781.50	16.83
131	564989.14	4226776.59	16.99
132	564989.81	4226771.67	17.00
133	564990.49	4226766.76	17.00
134	564991.16	4226761.84	17.00
135	564991.83	4226756.93	17.00
136	564992.50	4226752.01	17.00
137	564993.17	4226747.09	17.00
138	564993.85	4226742.18	17.00
139	564994.52	4226737.26	17.00
140	564995.19	4226732.35	17.00
141	564995.86	4226727.43	17.00
142	564996.53	4226722.52	17.00
143	564997.20	4226717.60	17.00
144	564997.88	4226712.68	17.12

145	564998.55	4226707.77	17.28
146	564999.22	4226702.85	17.45
147	564999.89	4226697.94	17.61
148	565000.56	4226693.02	17.77
149	565001.24	4226688.11	17.94
150	565001.91	4226683.19	18.00
151	565002.58	4226678.27	18.00
152	565003.25	4226673.36	18.00
153	565003.92	4226668.44	18.00
154	565004.60	4226663.53	18.00
155	565005.27	4226658.61	18.00
156	565005.94	4226653.70	18.00
157	565006.61	4226648.78	18.00
158	565007.28	4226643.86	18.00
159	565007.95	4226638.95	18.00
160	565008.63	4226634.03	18.00
161	565009.30	4226629.12	18.00
162	565005.35	4226624.19	18.00
163	565000.74	4226624.17	18.00
164	564996.12	4226624.16	18.00
165	564991.51	4226624.15	18.00
166	564986.89	4226624.13	18.00
167	564982.27	4226624.12	18.00
168	564977.66	4226624.10	18.00
169	564972.87	4226619.50	18.00
170	564967.73	4226614.89	18.00
171	564962.77	4226614.87	18.00
172	564957.81	4226614.85	18.00
173	564952.85	4226614.83	18.03
174	564947.90	4226614.81	18.19
175	564942.94	4226614.79	18.36
176	564937.98	4226614.77	18.52
177	564933.02	4226614.75	18.69
178	564928.06	4226611.40	18.85
179	564923.23	4226608.07	19.03
180	564918.39	4226608.07	19.35
181	564913.56	4226608.07	19.67
182	564908.72	4226608.07	20.00

183	564903.89	4226608.07	20.32
184	564899.05	4226608.07	20.64
185	564894.22	4226608.07	20.96
186	564889.38	4226608.07	21.23
187	564880.98	4226611.40	21.63
188	564877.41	4226614.74	21.75
189	564873.83	4226618.07	21.84
190	564870.26	4226621.41	21.91
191	564866.69	4226624.74	21.95
192	564863.12	4226628.07	22.04
193	564859.55	4226631.41	22.25
194	564855.97	4226634.74	22.44
195	564852.40	4226638.08	22.60
196	564847.84	4226646.26	22.70
197	564846.86	4226651.11	22.66
198	564845.87	4226655.96	22.60
199	564844.88	4226660.81	22.63
200	564843.89	4226665.66	22.66
201	564842.91	4226670.51	22.69
202	564841.92	4226675.35	22.73
203	564840.93	4226680.20	22.76
204	564839.94	4226685.05	22.79
205	564838.96	4226689.90	22.82
206	564837.97	4226694.75	22.86
207	564836.98	4226699.60	22.89
208	564835.99	4226704.45	22.92
209	564835.01	4226709.30	22.96
210	564834.02	4226714.15	22.99
211	564833.03	4226719.00	23.02
212	564832.04	4226723.85	23.05
213	564831.06	4226728.69	23.09
214	564830.07	4226733.54	23.12
215	564829.08	4226738.39	23.15
216	564828.09	4226743.24	23.19
217	564827.11	4226748.09	23.11
218	564826.12	4226752.94	22.86
219	564825.13	4226757.79	22.63
220	564824.14	4226762.64	22.40

221	564823.16	4226767.49	22.18
222	564822.17	4226772.34	21.98
223	564821.18	4226777.19	21.82
224	564820.19	4226782.03	21.81
225	564819.21	4226786.88	21.79
226	564818.22	4226791.73	21.76
227	564817.23	4226796.58	21.72
228	564816.24	4226801.43	21.67
229	564815.26	4226806.28	21.61
230	564814.27	4226811.13	21.59
231	564813.28	4226815.98	21.58
232	564812.29	4226820.83	21.57
233	564811.31	4226825.68	21.58
234	564810.32	4226830.53	21.60
235	564809.33	4226835.37	21.63
236	564808.34	4226840.22	21.58
237	564807.36	4226845.07	21.50
238	564806.37	4226849.92	21.41
239	564805.38	4226854.77	21.30
240	564804.39	4226859.62	21.19
241	564803.41	4226864.47	21.08
242	564802.42	4226869.32	20.98
243	564801.43	4226874.17	20.89
244	564800.44	4226879.02	20.79
245	564799.46	4226883.87	20.69
246	564798.47	4226888.71	20.60
247	564797.48	4226893.56	20.50
248	564796.49	4226898.41	20.53
249	564795.51	4226903.26	20.71
250	564794.52	4226908.11	20.88
251	565006.95	4226529.57	18.00
252	565012.12	4226486.09	18.00
253	564904.50	4226487.58	22.14
254	564903.47	4226530.72	21.47
255	565007.52	4226524.74	18.00
256	565008.10	4226519.91	18.00
257	565008.67	4226515.08	18.00
258	565009.25	4226510.25	18.00

259	565009.82	4226505.41	18.00
260	565010.40	4226500.58	18.00
261	565010.97	4226495.75	18.00
262	565011.55	4226490.92	18.00
263	565007.23	4226486.16	18.00
264	565002.34	4226486.23	18.00
265	564997.44	4226486.29	18.00
266	564992.55	4226486.36	18.00
267	564987.66	4226486.43	18.00
268	564982.77	4226486.50	18.02
269	564977.88	4226486.56	18.13
270	564972.99	4226486.63	18.23
271	564968.09	4226486.70	18.34
272	564963.20	4226486.77	18.44
273	564958.31	4226486.84	18.55
274	564953.42	4226486.90	18.66
275	564948.53	4226486.97	18.99
276	564943.63	4226487.04	19.31
277	564938.74	4226487.11	19.63
278	564933.85	4226487.17	19.96
279	564928.96	4226487.24	20.28
280	564924.07	4226487.31	20.61
281	564919.18	4226487.38	20.98
282	564914.28	4226487.45	21.37
283	564909.39	4226487.51	21.76
284	564904.39	4226492.37	22.09
285	564904.27	4226497.17	22.05
286	564904.16	4226501.96	22.00
287	564904.04	4226506.75	21.95
288	564903.93	4226511.55	21.86
289	564903.81	4226516.34	21.76
290	564903.70	4226521.13	21.67
291	564903.58	4226525.93	21.57
292	564908.40	4226530.67	21.11
293	564913.33	4226530.61	20.75
294	564918.25	4226530.56	20.40
295	564923.18	4226530.50	20.04
296	564928.11	4226530.45	19.70

297	564933.04	4226530.39	19.38	
298	564937.96	4226530.34	19.05	
299	564942.89	4226530.28	18.72	
300	564947.82	4226530.23	18.39	
301	564952.75	4226530.17	18.06	
302	564957.67	4226530.12	18.00	
303	564962.60	4226530.06	18.00	
304	564967.53	4226530.01	18.00	
305	564972.46	4226529.95	18.00	
306	564977.38	4226529.90	18.00	
307	564982.31	4226529.84	18.00	
308	564987.24	4226529.79	18.00	
309	564992.17	4226529.73	18.00	
310	564997.09	4226529.68	18.00	
311	565002.02	4226529.63	18.00	

Plant Boundary Receptors

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	564210.16	4227741.41	FENCEPRI	10.22	
2	564211.21	4227962.51	FENCEPRI	11.00	
3	564354.58	4227962.51	FENCEPRI	12.00	
4	564353.00	4227982.47	FENCEPRI	11.98	
5	564614.01	4227980.89	FENCEPRI	13.00	
6	564617.69	4227743.51	FENCEPRI	14.00	
7	564884.55	4227743.19	FENCEPRI	16.00	
8	564926.65	4228034.30	FENCEPRI	15.16	
9	564924.87	4228077.16	FENCEPRI	15.03	
10	564915.94	4228111.98	FENCEPRI	15.00	
11	564898.97	4228151.71	FENCEPRI	15.00	
12	564701.68	4228465.17	FENCEPRI	12.60	
13	563449.86	4228465.13	FENCEPRI	5.74	
14	563456.60	4228067.69	FENCEPRI	12.00	
15	564042.56	4227742.07	FENCEPRI	9.70	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	FENCEINT	Cartesian plant boundary Intermediate Receptors

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.SF
Format Type: Default AERMET format

Profile Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.PF
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 4.30 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2009			
Upper Air		2009			

Data Period

Data Period to Process

Start Date: 1/1/2009 Start Hour: 1 End Date: 1/2/2014 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00989	ug/m^3	R1	563846.99	4227763.17	9.00	1.50	9.00	
PERIOD		0.00395	ug/m^3	R2	563152.88	4227961.87	10.03	1.50	10.03	
PERIOD		0.00977	ug/m^3	R3	563514.22	4227959.26	10.45	1.50	10.45	
PERIOD		0.00946	ug/m^3	R4	563487.56	4227974.48	10.12	1.50	10.12	
PERIOD		0.00998	ug/m^3	R5	563482.14	4227991.20	10.97	1.50	10.97	
PERIOD		0.00714	ug/m^3	R6	563427.00	4227966.19	10.00	1.50	10.00	
PERIOD		0.00688	ug/m^3	R7	563425.95	4227956.25	10.00	1.50	10.00	
PERIOD		0.00478	ug/m^3	R8	563265.64	4227970.13	9.00	1.50	9.00	
PERIOD		0.00894	ug/m^3	R10	563810.19	4227762.07	9.00	1.50	9.00	
PERIOD		0.00960	ug/m^3	R11	563740.68	4227815.91	9.00	1.50	9.00	
PERIOD		0.00523	ug/m^3	R12	564832.15	4226970.55	18.57	1.50	80.00	
PERIOD		0.00481	ug/m^3	R13	564869.92	4226938.63	17.38	1.50	80.00	
PERIOD		0.00262	ug/m^3	R14	565044.27	4226568.58	18.00	1.50	251.00	
PERIOD		0.00288	ug/m^3	R15	564973.13	4226565.86	18.00	1.50	80.00	
PERIOD		0.00289	ug/m^3	R16	564955.94	4226541.29	18.00	1.50	80.00	
PERIOD		0.00306	ug/m^3	R17	564893.17	4226549.81	22.03	1.50	80.00	
PERIOD		0.00262	ug/m^3	R18	565028.87	4226540.35	18.00	1.50	251.00	
PERIOD		0.00256	ug/m^3	R19	565035.66	4226521.39	18.00	1.50	251.00	
PERIOD		0.00251	ug/m^3	R20	565038.10	4226497.30	18.00	1.50	251.00	
PERIOD		0.00259	ug/m^3	R21	565000.82	4226474.49	18.00	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00252	ug/m^3	R22	565008.62	4226449.37	18.00	1.50	250.00	
PERIOD		0.00246	ug/m^3	R23	565042.99	4226474.21	18.00	1.50	251.00	
PERIOD		0.00240	ug/m^3	R24	565049.05	4226447.64	18.00	1.50	251.00	
PERIOD		0.00236	ug/m^3	R25	565049.05	4226421.36	18.00	1.50	251.00	
PERIOD		0.00194	ug/m^3	R26	565437.70	4226745.61	20.00	1.50	265.00	
PERIOD		0.00192	ug/m^3	R27	565456.18	4226744.45	20.00	1.50	265.00	
PERIOD		0.00187	ug/m^3	R28	565498.35	4226743.87	21.00	1.50	265.00	
PERIOD		0.00186	ug/m^3	R29	565514.23	4226744.16	21.00	1.50	265.00	
PERIOD		0.00188	ug/m^3	R30	565441.17	4226713.84	20.00	1.50	265.00	
PERIOD		0.00186	ug/m^3	R31	565459.65	4226713.55	20.00	1.50	265.00	
PERIOD		0.00177	ug/m^3	R32	565517.12	4226698.53	21.00	1.50	265.00	
PERIOD		0.00175	ug/m^3	R33	565516.25	4226683.80	21.00	1.50	265.00	
PERIOD		0.00176	ug/m^3	R34	565482.46	4226674.27	20.63	1.50	265.00	
PERIOD		0.00173	ug/m^3	R35	565483.33	4226658.68	20.66	1.50	265.00	
PERIOD		0.00180	ug/m^3	R36	565433.95	4226666.19	20.00	1.50	265.00	
PERIOD		0.00172	ug/m^3	R38	565444.63	4226624.31	20.00	1.50	265.00	
PERIOD		0.00170	ug/m^3	R39	565463.98	4226624.31	20.01	1.50	265.00	
PERIOD		0.00166	ug/m^3	R40	565509.03	4226631.82	21.00	1.50	265.00	
PERIOD		0.00164	ug/m^3	R41	565509.03	4226617.38	21.00	1.50	265.00	
PERIOD		0.00400	ug/m^3	R42	565314.45	4227270.70	20.00	1.50	251.00	
PERIOD		0.00380	ug/m^3	R43	565291.64	4227217.62	19.00	1.50	251.00	

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00375	ug/m^3	R44	565309.08	4227218.00	19.00	1.50	251.00	
PERIOD		0.00347	ug/m^3	R45	565384.70	4227209.41	20.00	1.50	265.00	
PERIOD		0.00324	ug/m^3	R46	565449.84	4227190.61	20.00	1.50	265.00	
PERIOD		0.00318	ug/m^3	R47	565496.35	4227202.46	20.28	1.50	265.00	
PERIOD		0.00348	ug/m^3	R48	565481.62	4227270.05	21.00	1.50	265.00	
PERIOD		0.00339	ug/m^3	R49	565516.57	4227270.92	21.00	1.50	265.00	
PERIOD		0.00275	ug/m^3	R50	565553.69	4227134.21	22.00	1.50	265.00	
PERIOD		0.00290	ug/m^3	R51	565613.85	4227214.51	22.01	1.50	265.00	
PERIOD		0.00315	ug/m^3	R52	565588.48	4227278.18	22.85	1.50	265.00	
PERIOD		0.00302	ug/m^3	R53	565625.01	4227289.45	24.49	1.50	265.00	
PERIOD		0.00250	ug/m^3	R54	565729.83	4227269.14	29.12	1.50	265.00	
PERIOD		0.00206	ug/m^3	R55	565890.63	4227286.35	34.23	1.50	265.00	
PERIOD		0.00658	ug/m^3	R56	565430.90	4227667.38	23.64	1.50	251.00	
PERIOD		0.01032	ug/m^3	R57	565017.44	4228947.47	20.67	1.50	20.67	
PERIOD		0.00221	ug/m^3	R59	566081.49	4228935.03	70.63	1.50	70.63	
PERIOD		0.00500	ug/m^3	NJMES1	564793.53	4226912.96	21.04	1.50	80.00	
PERIOD		0.00404	ug/m^3	NJMES2	564970.33	4226914.23	16.00	1.50	251.00	
PERIOD		0.00286	ug/m^3	NJMES3	565009.97	4226624.20	18.00	1.50	251.00	
PERIOD		0.00302	ug/m^3	NJMES4	564973.04	4226624.09	18.00	1.50	250.00	
PERIOD		0.00299	ug/m^3	NJMES5	564972.69	4226614.91	18.00	1.50	80.00	
PERIOD		0.00317	ug/m^3	NJMES6	564928.06	4226614.73	18.85	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00315	ug/m^3	NJMES7	564928.06	4226608.07	18.85	1.50	80.00	
PERIOD		0.00326	ug/m^3	NJMES8	564884.55	4226608.07	21.49	1.50	80.00	
PERIOD		0.00346	ug/m^3	NJMES9	564848.83	4226641.41	22.74	1.50	80.00	
PERIOD		0.00498	ug/m^3	NJMES10	564798.44	4226913.00	20.81	1.50	80.00	
PERIOD		0.00496	ug/m^3	NJMES11	564803.35	4226913.03	20.57	1.50	80.00	
PERIOD		0.00495	ug/m^3	NJMES12	564808.26	4226913.07	20.32	1.50	80.00	
PERIOD		0.00493	ug/m^3	NJMES13	564813.17	4226913.10	20.07	1.50	80.00	
PERIOD		0.00491	ug/m^3	NJMES14	564818.09	4226913.14	19.81	1.50	80.00	
PERIOD		0.00489	ug/m^3	NJMES15	564823.00	4226913.17	19.56	1.50	80.00	
PERIOD		0.00487	ug/m^3	NJMES16	564827.91	4226913.21	19.30	1.50	80.00	
PERIOD		0.00485	ug/m^3	NJMES17	564832.82	4226913.24	19.04	1.50	80.00	
PERIOD		0.00482	ug/m^3	NJMES18	564837.73	4226913.28	18.86	1.50	80.00	
PERIOD		0.00480	ug/m^3	NJMES19	564842.64	4226913.31	18.70	1.50	80.00	
PERIOD		0.00477	ug/m^3	NJMES20	564847.55	4226913.35	18.54	1.50	80.00	
PERIOD		0.00475	ug/m^3	NJMES21	564852.46	4226913.38	18.37	1.50	80.00	
PERIOD		0.00472	ug/m^3	NJMES22	564857.37	4226913.42	18.21	1.50	80.00	
PERIOD		0.00469	ug/m^3	NJMES23	564862.29	4226913.45	18.05	1.50	80.00	
PERIOD		0.00467	ug/m^3	NJMES24	564867.20	4226913.49	17.88	1.50	80.00	
PERIOD		0.00464	ug/m^3	NJMES25	564872.11	4226913.52	17.72	1.50	80.00	
PERIOD		0.00461	ug/m^3	NJMES26	564877.02	4226913.56	17.56	1.50	80.00	
PERIOD		0.00456	ug/m^3	NJMES28	564886.84	4226913.63	17.23	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00453	ug/m^3	NJMES29	564891.75	4226913.67	17.06	1.50	80.00	
PERIOD		0.00450	ug/m^3	NJMES30	564896.66	4226913.70	16.90	1.50	80.00	
PERIOD		0.00447	ug/m^3	NJMES31	564901.57	4226913.74	16.74	1.50	80.00	
PERIOD		0.00444	ug/m^3	NJMES32	564906.49	4226913.77	16.57	1.50	80.00	
PERIOD		0.00442	ug/m^3	NJMES33	564911.40	4226913.81	16.41	1.50	80.00	
PERIOD		0.00439	ug/m^3	NJMES34	564916.31	4226913.84	16.25	1.50	80.00	
PERIOD		0.00436	ug/m^3	NJMES35	564921.22	4226913.88	16.08	1.50	80.00	
PERIOD		0.00433	ug/m^3	NJMES36	564926.13	4226913.91	16.00	1.50	250.00	
PERIOD		0.00429	ug/m^3	NJMES37	564931.04	4226913.95	16.00	1.50	250.00	
PERIOD		0.00426	ug/m^3	NJMES38	564935.95	4226913.98	16.00	1.50	250.00	
PERIOD		0.00423	ug/m^3	NJMES39	564940.86	4226914.02	16.00	1.50	250.00	
PERIOD		0.00419	ug/m^3	NJMES40	564945.77	4226914.05	16.00	1.50	251.00	
PERIOD		0.00416	ug/m^3	NJMES41	564950.69	4226914.09	16.00	1.50	251.00	
PERIOD		0.00413	ug/m^3	NJMES42	564955.60	4226914.12	16.00	1.50	251.00	
PERIOD		0.00410	ug/m^3	NJMES43	564960.51	4226914.16	16.00	1.50	251.00	
PERIOD		0.00407	ug/m^3	NJMES44	564965.42	4226914.20	16.00	1.50	251.00	
PERIOD		0.00401	ug/m^3	NJMES45	564971.00	4226909.31	16.00	1.50	251.00	
PERIOD		0.00399	ug/m^3	NJMES46	564971.67	4226904.40	16.00	1.50	251.00	
PERIOD		0.00396	ug/m^3	NJMES47	564972.35	4226899.48	16.00	1.50	251.00	
PERIOD		0.00393	ug/m^3	NJMES48	564973.02	4226894.57	16.00	1.50	251.00	
PERIOD		0.00391	ug/m^3	NJMES49	564973.69	4226889.65	16.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00388	ug/m^3	NJMES50	564974.36	4226884.74	16.00	1.50	251.00	
PERIOD		0.00386	ug/m^3	NJMES51	564975.03	4226879.82	16.00	1.50	251.00	
PERIOD		0.00384	ug/m^3	NJMES52	564975.70	4226874.90	16.00	1.50	251.00	
PERIOD		0.00381	ug/m^3	NJMES53	564976.38	4226869.99	16.00	1.50	251.00	
PERIOD		0.00379	ug/m^3	NJMES54	564977.05	4226865.07	16.00	1.50	251.00	
PERIOD		0.00377	ug/m^3	NJMES55	564977.72	4226860.16	16.00	1.50	251.00	
PERIOD		0.00374	ug/m^3	NJMES56	564978.39	4226855.24	16.00	1.50	251.00	
PERIOD		0.00372	ug/m^3	NJMES57	564979.06	4226850.33	16.00	1.50	251.00	
PERIOD		0.00370	ug/m^3	NJMES58	564979.74	4226845.41	16.00	1.50	251.00	
PERIOD		0.00368	ug/m^3	NJMES59	564980.41	4226840.49	16.00	1.50	251.00	
PERIOD		0.00365	ug/m^3	NJMES60	564981.08	4226835.58	16.00	1.50	251.00	
PERIOD		0.00363	ug/m^3	NJMES61	564981.75	4226830.66	16.01	1.50	251.00	
PERIOD		0.00361	ug/m^3	NJMES62	564982.42	4226825.75	16.01	1.50	251.00	
PERIOD		0.00359	ug/m^3	NJMES63	564983.10	4226820.83	16.01	1.50	251.00	
PERIOD		0.00357	ug/m^3	NJMES64	564983.77	4226815.92	16.00	1.50	251.00	
PERIOD		0.00355	ug/m^3	NJMES65	564984.44	4226811.00	16.00	1.50	251.00	
PERIOD		0.00353	ug/m^3	NJMES66	564985.11	4226806.08	16.01	1.50	251.00	
PERIOD		0.00350	ug/m^3	NJMES67	564985.78	4226801.17	16.17	1.50	251.00	
PERIOD		0.00348	ug/m^3	NJMES68	564986.45	4226796.25	16.33	1.50	251.00	
PERIOD		0.00345	ug/m^3	NJMES69	564987.13	4226791.34	16.50	1.50	251.00	
PERIOD		0.00343	ug/m^3	NJMES70	564987.80	4226786.42	16.66	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00341	ug/m^3	NJMES71	564988.47	4226781.50	16.83	1.50	251.00	
PERIOD		0.00338	ug/m^3	NJMES72	564989.14	4226776.59	16.99	1.50	251.00	
PERIOD		0.00337	ug/m^3	NJMES73	564989.81	4226771.67	17.00	1.50	251.00	
PERIOD		0.00335	ug/m^3	NJMES74	564990.49	4226766.76	17.00	1.50	251.00	
PERIOD		0.00333	ug/m^3	NJMES75	564991.16	4226761.84	17.00	1.50	251.00	
PERIOD		0.00331	ug/m^3	NJMES76	564991.83	4226756.93	17.00	1.50	251.00	
PERIOD		0.00329	ug/m^3	NJMES77	564992.50	4226752.01	17.00	1.50	251.00	
PERIOD		0.00327	ug/m^3	NJMES78	564993.17	4226747.09	17.00	1.50	251.00	
PERIOD		0.00326	ug/m^3	NJMES79	564993.85	4226742.18	17.00	1.50	251.00	
PERIOD		0.00324	ug/m^3	NJMES80	564994.52	4226737.26	17.00	1.50	251.00	
PERIOD		0.00322	ug/m^3	NJMES81	564995.19	4226732.35	17.00	1.50	251.00	
PERIOD		0.00321	ug/m^3	NJMES82	564995.86	4226727.43	17.00	1.50	251.00	
PERIOD		0.00319	ug/m^3	NJMES83	564996.53	4226722.51	17.00	1.50	251.00	
PERIOD		0.00317	ug/m^3	NJMES84	564997.20	4226717.60	17.00	1.50	251.00	
PERIOD		0.00315	ug/m^3	NJMES85	564997.88	4226712.68	17.12	1.50	251.00	
PERIOD		0.00313	ug/m^3	NJMES86	564998.55	4226707.77	17.28	1.50	251.00	
PERIOD		0.00311	ug/m^3	NJMES87	564999.22	4226702.85	17.45	1.50	251.00	
PERIOD		0.00309	ug/m^3	NJMES88	564999.89	4226697.94	17.61	1.50	251.00	
PERIOD		0.00307	ug/m^3	NJMES89	565000.56	4226693.02	17.77	1.50	251.00	
PERIOD		0.00305	ug/m^3	NJMES90	565001.24	4226688.11	17.94	1.50	251.00	
PERIOD		0.00304	ug/m^3	NJMES91	565001.91	4226683.19	18.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00302	ug/m^3	NJMES92	565002.58	4226678.27	18.00	1.50	251.00	
PERIOD		0.00301	ug/m^3	NJMES93	565003.25	4226673.36	18.00	1.50	251.00	
PERIOD		0.00299	ug/m^3	NJMES94	565003.92	4226668.44	18.00	1.50	251.00	
PERIOD		0.00298	ug/m^3	NJMES95	565004.60	4226663.53	18.00	1.50	251.00	
PERIOD		0.00296	ug/m^3	NJMES96	565005.27	4226658.61	18.00	1.50	251.00	
PERIOD		0.00295	ug/m^3	NJMES97	565005.94	4226653.70	18.00	1.50	251.00	
PERIOD		0.00293	ug/m^3	NJMES98	565006.61	4226648.78	18.00	1.50	251.00	
PERIOD		0.00292	ug/m^3	NJMES99	565007.28	4226643.86	18.00	1.50	251.00	
PERIOD		0.00290	ug/m^3	NJMES100	565007.95	4226638.95	18.00	1.50	251.00	
PERIOD		0.00289	ug/m^3	NJMES101	565008.63	4226634.03	18.00	1.50	251.00	
PERIOD		0.00288	ug/m^3	NJMES102	565009.30	4226629.12	18.00	1.50	251.00	
PERIOD		0.00288	ug/m^3	NJMES103	565005.35	4226624.19	18.00	1.50	251.00	
PERIOD		0.00290	ug/m^3	NJMES104	565000.74	4226624.17	18.00	1.50	251.00	
PERIOD		0.00292	ug/m^3	NJMES105	564996.12	4226624.16	18.00	1.50	251.00	
PERIOD		0.00294	ug/m^3	NJMES106	564991.51	4226624.14	18.00	1.50	250.00	
PERIOD		0.00296	ug/m^3	NJMES107	564986.89	4226624.13	18.00	1.50	250.00	
PERIOD		0.00298	ug/m^3	NJMES108	564982.27	4226624.12	18.00	1.50	250.00	
PERIOD		0.00300	ug/m^3	NJMES109	564977.66	4226624.10	18.00	1.50	250.00	
PERIOD		0.00302	ug/m^3	NJMES111	564967.73	4226614.89	18.00	1.50	80.00	
PERIOD		0.00304	ug/m^3	NJMES112	564962.77	4226614.87	18.00	1.50	80.00	
PERIOD		0.00306	ug/m^3	NJMES113	564957.81	4226614.85	18.00	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00308	ug/m^3	NJMES114	564952.85	4226614.83	18.03	1.50	80.00	
PERIOD		0.00310	ug/m^3	NJMES115	564947.90	4226614.81	18.19	1.50	80.00	
PERIOD		0.00312	ug/m^3	NJMES116	564942.94	4226614.79	18.36	1.50	80.00	
PERIOD		0.00313	ug/m^3	NJMES117	564937.98	4226614.77	18.52	1.50	80.00	
PERIOD		0.00315	ug/m^3	NJMES118	564933.02	4226614.75	18.69	1.50	80.00	
PERIOD		0.00316	ug/m^3	NJMES119	564928.06	4226611.40	18.85	1.50	80.00	
PERIOD		0.00317	ug/m^3	NJMES120	564923.23	4226608.07	19.03	1.50	80.00	
PERIOD		0.00318	ug/m^3	NJMES121	564918.39	4226608.07	19.35	1.50	80.00	
PERIOD		0.00320	ug/m^3	NJMES122	564913.56	4226608.07	19.67	1.50	80.00	
PERIOD		0.00321	ug/m^3	NJMES123	564908.72	4226608.07	20.00	1.50	80.00	
PERIOD		0.00322	ug/m^3	NJMES124	564903.89	4226608.07	20.32	1.50	80.00	
PERIOD		0.00323	ug/m^3	NJMES125	564899.05	4226608.07	20.64	1.50	80.00	
PERIOD		0.00324	ug/m^3	NJMES126	564894.22	4226608.07	20.96	1.50	80.00	
PERIOD		0.00325	ug/m^3	NJMES127	564889.38	4226608.07	21.23	1.50	80.00	
PERIOD		0.00328	ug/m^3	NJMES128	564880.98	4226611.40	21.63	1.50	80.00	
PERIOD		0.00330	ug/m^3	NJMES129	564877.41	4226614.74	21.75	1.50	80.00	
PERIOD		0.00332	ug/m^3	NJMES130	564873.83	4226618.07	21.84	1.50	80.00	
PERIOD		0.00334	ug/m^3	NJMES131	564870.26	4226621.41	21.91	1.50	80.00	
PERIOD		0.00337	ug/m^3	NJMES132	564866.69	4226624.74	21.95	1.50	80.00	
PERIOD		0.00339	ug/m^3	NJMES133	564863.12	4226628.07	22.04	1.50	80.00	
PERIOD		0.00341	ug/m^3	NJMES134	564859.55	4226631.41	22.25	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00342	ug/m^3	NJMES135	564855.97	4226634.74	22.44	1.50	80.00	
PERIOD		0.00344	ug/m^3	NJMES136	564852.40	4226638.08	22.60	1.50	80.00	
PERIOD		0.00348	ug/m^3	NJMES137	564847.84	4226646.26	22.70	1.50	80.00	
PERIOD		0.00352	ug/m^3	NJMES139	564845.87	4226655.96	22.60	1.50	80.00	
PERIOD		0.00354	ug/m^3	NJMES140	564844.88	4226660.81	22.63	1.50	80.00	
PERIOD		0.00356	ug/m^3	NJMES141	564843.89	4226665.66	22.66	1.50	80.00	
PERIOD		0.00360	ug/m^3	NJMES143	564841.92	4226675.35	22.73	1.50	80.00	
PERIOD		0.00361	ug/m^3	NJMES144	564840.93	4226680.20	22.76	1.50	80.00	
PERIOD		0.00363	ug/m^3	NJMES145	564839.94	4226685.05	22.79	1.50	80.00	
PERIOD		0.00365	ug/m^3	NJMES146	564838.95	4226689.90	22.82	1.50	80.00	
PERIOD		0.00367	ug/m^3	NJMES147	564837.97	4226694.75	22.86	1.50	80.00	
PERIOD		0.00369	ug/m^3	NJMES148	564836.98	4226699.60	22.89	1.50	80.00	
PERIOD		0.00371	ug/m^3	NJMES149	564835.99	4226704.45	22.92	1.50	80.00	
PERIOD		0.00373	ug/m^3	NJMES150	564835.01	4226709.30	22.96	1.50	80.00	
PERIOD		0.00375	ug/m^3	NJMES151	564834.02	4226714.15	22.99	1.50	80.00	
PERIOD		0.00377	ug/m^3	NJMES152	564833.03	4226719.00	23.02	1.50	80.00	
PERIOD		0.00381	ug/m^3	NJMES154	564831.06	4226728.69	23.09	1.50	80.00	
PERIOD		0.00383	ug/m^3	NJMES155	564830.07	4226733.54	23.12	1.50	80.00	
PERIOD		0.00385	ug/m^3	NJMES156	564829.08	4226738.39	23.15	1.50	80.00	
PERIOD		0.00387	ug/m^3	NJMES157	564828.09	4226743.24	23.19	1.50	80.00	
PERIOD		0.00394	ug/m^3	NJMES159	564826.12	4226752.94	22.86	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00397	ug/m^3	NJMES160	564825.13	4226757.79	22.63	1.50	80.00	
PERIOD		0.00401	ug/m^3	NJMES161	564824.14	4226762.64	22.40	1.50	80.00	
PERIOD		0.00405	ug/m^3	NJMES162	564823.16	4226767.49	22.18	1.50	80.00	
PERIOD		0.00408	ug/m^3	NJMES163	564822.17	4226772.34	21.98	1.50	80.00	
PERIOD		0.00411	ug/m^3	NJMES164	564821.18	4226777.18	21.82	1.50	80.00	
PERIOD		0.00414	ug/m^3	NJMES165	564820.19	4226782.03	21.81	1.50	80.00	
PERIOD		0.00417	ug/m^3	NJMES166	564819.20	4226786.88	21.79	1.50	80.00	
PERIOD		0.00420	ug/m^3	NJMES167	564818.22	4226791.73	21.76	1.50	80.00	
PERIOD		0.00422	ug/m^3	NJMES168	564817.23	4226796.58	21.72	1.50	80.00	
PERIOD		0.00425	ug/m^3	NJMES169	564816.24	4226801.43	21.67	1.50	80.00	
PERIOD		0.00428	ug/m^3	NJMES170	564815.26	4226806.28	21.61	1.50	80.00	
PERIOD		0.00431	ug/m^3	NJMES171	564814.27	4226811.13	21.59	1.50	80.00	
PERIOD		0.00434	ug/m^3	NJMES172	564813.28	4226815.98	21.58	1.50	80.00	
PERIOD		0.00437	ug/m^3	NJMES173	564812.29	4226820.83	21.57	1.50	80.00	
PERIOD		0.00440	ug/m^3	NJMES174	564811.31	4226825.68	21.58	1.50	80.00	
PERIOD		0.00442	ug/m^3	NJMES175	564810.32	4226830.53	21.60	1.50	80.00	
PERIOD		0.00445	ug/m^3	NJMES176	564809.33	4226835.37	21.63	1.50	80.00	
PERIOD		0.00448	ug/m^3	NJMES177	564808.34	4226840.22	21.58	1.50	80.00	
PERIOD		0.00455	ug/m^3	NJMES179	564806.37	4226849.92	21.41	1.50	80.00	
PERIOD		0.00459	ug/m^3	NJMES180	564805.38	4226854.77	21.30	1.50	80.00	
PERIOD		0.00463	ug/m^3	NJMES181	564804.39	4226859.62	21.19	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00467	ug/m^3	NJMES182	564803.41	4226864.47	21.08	1.50	80.00	
PERIOD		0.00470	ug/m^3	NJMES183	564802.42	4226869.32	20.98	1.50	80.00	
PERIOD		0.00474	ug/m^3	NJMES184	564801.43	4226874.17	20.89	1.50	80.00	
PERIOD		0.00478	ug/m^3	NJMES185	564800.44	4226879.02	20.79	1.50	80.00	
PERIOD		0.00482	ug/m^3	NJMES186	564799.45	4226883.87	20.69	1.50	80.00	
PERIOD		0.00486	ug/m^3	NJMES187	564798.47	4226888.71	20.60	1.50	80.00	
PERIOD		0.00490	ug/m^3	NJMES188	564797.48	4226893.56	20.50	1.50	80.00	
PERIOD		0.00493	ug/m^3	NJMES189	564796.49	4226898.41	20.53	1.50	80.00	
PERIOD		0.00496	ug/m^3	NJMES190	564795.51	4226903.26	20.71	1.50	80.00	
PERIOD		0.00498	ug/m^3	NJMES191	564794.52	4226908.11	20.88	1.50	80.00	
PERIOD		0.00268	ug/m^3	CBCA1	565006.95	4226529.57	18.00	1.50	250.00	
PERIOD		0.00258	ug/m^3	CBCA2	565012.12	4226486.09	18.00	1.50	250.00	
PERIOD		0.00287	ug/m^3	CBCA3	564904.50	4226487.58	22.14	1.50	80.00	
PERIOD		0.00299	ug/m^3	CBCA4	564903.47	4226530.72	21.47	1.50	80.00	
PERIOD		0.00267	ug/m^3	CBCA5	565007.52	4226524.74	18.00	1.50	250.00	
PERIOD		0.00265	ug/m^3	CBCA6	565008.10	4226519.91	18.00	1.50	250.00	
PERIOD		0.00264	ug/m^3	CBCA7	565008.67	4226515.08	18.00	1.50	250.00	
PERIOD		0.00263	ug/m^3	CBCA8	565009.25	4226510.25	18.00	1.50	250.00	
PERIOD		0.00262	ug/m^3	CBCA9	565009.82	4226505.41	18.00	1.50	250.00	
PERIOD		0.00261	ug/m^3	CBCA10	565010.40	4226500.58	18.00	1.50	250.00	
PERIOD		0.00260	ug/m^3	CBCA11	565010.97	4226495.75	18.00	1.50	250.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00259	ug/m^3	CBCA12	565011.55	4226490.92	18.00	1.50	250.00	
PERIOD		0.00259	ug/m^3	CBCA13	565007.23	4226486.16	18.00	1.50	250.00	
PERIOD		0.00261	ug/m^3	CBCA14	565002.34	4226486.22	18.00	1.50	250.00	
PERIOD		0.00263	ug/m^3	CBCA15	564997.44	4226486.29	18.00	1.50	80.00	
PERIOD		0.00264	ug/m^3	CBCA16	564992.55	4226486.36	18.00	1.50	80.00	
PERIOD		0.00266	ug/m^3	CBCA17	564987.66	4226486.43	18.00	1.50	80.00	
PERIOD		0.00268	ug/m^3	CBCA18	564982.77	4226486.50	18.02	1.50	80.00	
PERIOD		0.00269	ug/m^3	CBCA19	564977.88	4226486.56	18.13	1.50	80.00	
PERIOD		0.00271	ug/m^3	CBCA20	564972.99	4226486.63	18.23	1.50	80.00	
PERIOD		0.00272	ug/m^3	CBCA21	564968.09	4226486.70	18.34	1.50	80.00	
PERIOD		0.00274	ug/m^3	CBCA22	564963.20	4226486.77	18.44	1.50	80.00	
PERIOD		0.00277	ug/m^3	CBCA24	564953.42	4226486.90	18.66	1.50	80.00	
PERIOD		0.00278	ug/m^3	CBCA25	564948.53	4226486.97	18.99	1.50	80.00	
PERIOD		0.00279	ug/m^3	CBCA26	564943.63	4226487.04	19.31	1.50	80.00	
PERIOD		0.00281	ug/m^3	CBCA27	564938.74	4226487.11	19.63	1.50	80.00	
PERIOD		0.00282	ug/m^3	CBCA28	564933.85	4226487.17	19.96	1.50	80.00	
PERIOD		0.00283	ug/m^3	CBCA29	564928.96	4226487.24	20.28	1.50	80.00	
PERIOD		0.00284	ug/m^3	CBCA30	564924.07	4226487.31	20.61	1.50	80.00	
PERIOD		0.00285	ug/m^3	CBCA31	564919.18	4226487.38	20.98	1.50	80.00	
PERIOD		0.00285	ug/m^3	CBCA32	564914.28	4226487.45	21.37	1.50	80.00	
PERIOD		0.00286	ug/m^3	CBCA33	564909.39	4226487.51	21.76	1.50	80.00	

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00288	ug/m^3	CBCA34	564904.39	4226492.37	22.09	1.50	80.00	
PERIOD		0.00289	ug/m^3	CBCA35	564904.27	4226497.17	22.05	1.50	80.00	
PERIOD		0.00290	ug/m^3	CBCA36	564904.16	4226501.96	22.00	1.50	80.00	
PERIOD		0.00292	ug/m^3	CBCA37	564904.04	4226506.75	21.95	1.50	80.00	
PERIOD		0.00293	ug/m^3	CBCA38	564903.93	4226511.55	21.86	1.50	80.00	
PERIOD		0.00295	ug/m^3	CBCA39	564903.81	4226516.34	21.76	1.50	80.00	
PERIOD		0.00296	ug/m^3	CBCA40	564903.70	4226521.13	21.67	1.50	80.00	
PERIOD		0.00297	ug/m^3	CBCA41	564903.58	4226525.93	21.57	1.50	80.00	
PERIOD		0.00298	ug/m^3	CBCA42	564908.40	4226530.67	21.11	1.50	80.00	
PERIOD		0.00297	ug/m^3	CBCA43	564913.33	4226530.61	20.75	1.50	80.00	
PERIOD		0.00296	ug/m^3	CBCA44	564918.25	4226530.56	20.40	1.50	80.00	
PERIOD		0.00295	ug/m^3	CBCA45	564923.18	4226530.50	20.04	1.50	80.00	
PERIOD		0.00294	ug/m^3	CBCA46	564928.11	4226530.45	19.70	1.50	80.00	
PERIOD		0.00293	ug/m^3	CBCA47	564933.04	4226530.39	19.38	1.50	80.00	
PERIOD		0.00292	ug/m^3	CBCA48	564937.96	4226530.34	19.05	1.50	80.00	
PERIOD		0.00291	ug/m^3	CBCA49	564942.89	4226530.28	18.72	1.50	80.00	
PERIOD		0.00289	ug/m^3	CBCA50	564947.82	4226530.23	18.39	1.50	80.00	
PERIOD		0.00288	ug/m^3	CBCA51	564952.75	4226530.17	18.06	1.50	80.00	
PERIOD		0.00286	ug/m^3	CBCA52	564957.67	4226530.12	18.00	1.50	80.00	
PERIOD		0.00284	ug/m^3	CBCA53	564962.60	4226530.06	18.00	1.50	80.00	
PERIOD		0.00282	ug/m^3	CBCA54	564967.53	4226530.01	18.00	1.50	80.00	

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00280	ug/m^3	CBCA55	564972.46	4226529.95	18.00	1.50	80.00	
PERIOD		0.00279	ug/m^3	CBCA56	564977.38	4226529.90	18.00	1.50	80.00	
PERIOD		0.00277	ug/m^3	CBCA57	564982.31	4226529.84	18.00	1.50	80.00	
PERIOD		0.00275	ug/m^3	CBCA58	564987.24	4226529.79	18.00	1.50	80.00	
PERIOD		0.00273	ug/m^3	CBCA59	564992.17	4226529.73	18.00	1.50	250.00	
PERIOD		0.00271	ug/m^3	CBCA60	564997.09	4226529.68	18.00	1.50	250.00	
PERIOD		0.00269	ug/m^3	CBCA61	565002.02	4226529.63	18.00	1.50	250.00	

PROJECT TITLE:

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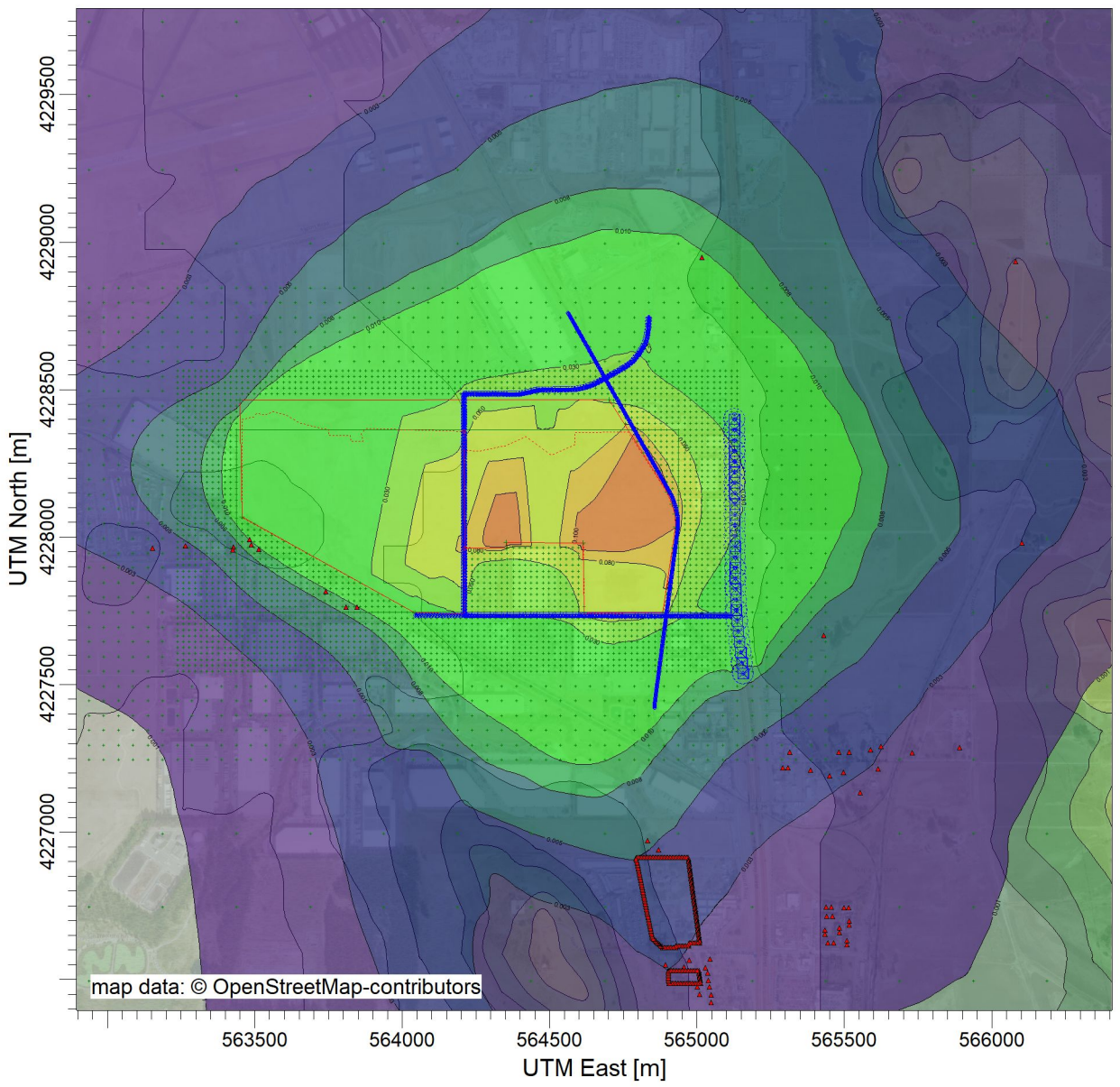

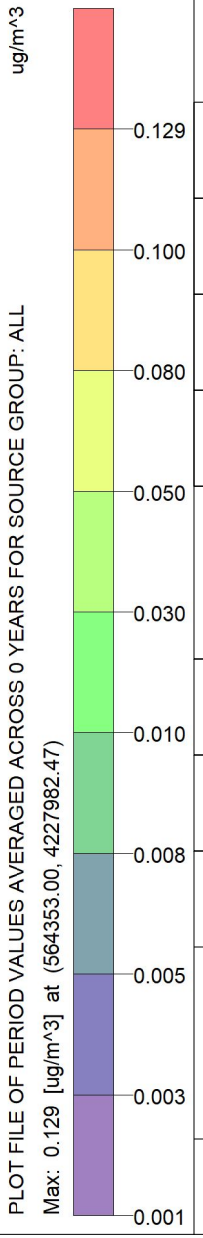

COMMENTS:

SOURCES:

9

RECEPTORS:

4827

OUTPUT TYPE:

Concentration

MAX:

0.129 ug/m^3

COMPANY NAME:

MODELER:

DATE:

9/24/2021

SCALE: 1:23,138

0 0.5 km

PROJECT NO.:

Control Pathway

Dispersion Options

Titles

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

Dispersion Options

- ☐ Regulatory Default
- ■ Non-Default Options

- ■ Elevated Terrain
- ☐ No Stack-Tip Downwash (NOSTD)
- ☐ Run in Screening Mode
- ☐ Conversion of NOx to NO2 (OLM or PVMRM)
- ☐ No Checks for Non-Sequential Met Data
- ■ Fast All Sources (FASTALL)
- ☐ Fast Area Sources (FASTAREA)
- ☐ Optimized Area Source Plume Depletion
- ☐ Gas Deposition

BETA Options:

- ☐ Capped and Horizontal Stack Releases
- ☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
- ☐ Low Wind Options

- ☐ SCIM (Sampled Chronological Input Model)
- ☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- ■ Concentration
- ☐ Total Deposition (Dry & Wet)
- ☐ Dry Deposition
- ☐ Wet Deposition

Plume Depletion

- ☐ Dry Removal
- ☐ Wet Removal

Output Warnings

- ☐ No Output Warnings
- ☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

- ☐ Month
- ■ Period
- ☐ Annual

Exponential Decay

- ☐ Yes
- ■ No

Terrain Height Options

- ☐ Flat
- ■ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

- ■ Yes
- ☐ No

Default Height = 1.50 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: 54600001 Giovannoni Logistics_Scenario 3.err

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

Polygon Area Sources

Source Type: AREA POLY

Source: PHS1 (On-Site Phase 1)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
11.00	2.40	1.60E-8		18	564212.56	4227961.55
		1.60E-8			564355.03	4227962.60
		1.60E-8			564353.97	4227981.62
		1.60E-8			564614.97	4227980.57
		1.60E-8			564617.26	4227741.88
		1.60E-8			564885.02	4227742.53
		1.60E-8			564926.24	4228037.45
		1.60E-8			564925.04	4228076.51
		1.60E-8			564915.88	4228111.98
		1.60E-8			564900.33	4228149.05
		1.60E-8			564766.46	4228356.75
		1.60E-8			564586.25	4228355.22
		1.60E-8			564586.25	4228313.99
		1.60E-8			564505.31	4228278.87
		1.60E-8			564418.27	4228339.95
		1.60E-8			564348.02	4228309.41
		1.60E-8			564262.82	4228292.10
		1.60E-8			564209.96	4228293.89

Source Pathway - Source Inputs

AERMOD

Source Type: AREA POLY

Source: PHS2 (On-site Phase 2)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
10.00	2.40	1.46E-8		21	564209.57	4228359.29
		1.46E-8			564210.78	4227740.61
		1.46E-8			564042.18	4227742.44
		1.46E-8			563456.84	4228067.27
		1.46E-8			563456.20	4228399.72
		1.46E-8			563495.17	4228407.66
		1.46E-8			563507.65	4228422.04
		1.46E-8			563534.14	4228414.09
		1.46E-8			563562.51	4228425.06
		1.46E-8			563607.91	4228413.71
		1.46E-8			563651.79	4228388.37
		1.46E-8			563710.44	4228372.45
		1.46E-8			563750.57	4228364.42
		1.46E-8			563751.55	4228343.76
		1.46E-8			563823.63	4228344.99
		1.46E-8			563825.79	4228325.52
		1.46E-8			563866.79	4228324.62
		1.46E-8			563866.00	4228328.89
		1.46E-8			563865.19	4228337.16
		1.46E-8			563860.59	4228349.92
		1.46E-8			563875.99	4228369.02

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: DEV.PH1 (Devlin - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00012		564837.18	4228744.04	15.07	2.55
			564834.90	4228711.18	15.08	2.55
			564831.66	4228686.92	14.97	2.55
			564828.13	4228667.09	14.82	2.55
			564818.89	4228646.59	14.00	2.55
			564806.96	4228627.43	14.00	2.55
			564803.34	4228621.61	14.00	2.55
			564785.60	4228599.24	13.21	2.55
			564771.13	4228587.62	13.00	2.55
			564755.00	4228575.86	13.00	2.55
			564731.14	4228561.57	13.00	2.55
			564662.04	4228524.22	12.19	2.55
			564638.89	4228513.36	12.04	2.55
			564606.61	4228504.08	12.00	2.55
			564580.75	4228500.22	12.00	2.55
			564462.16	4228498.66	11.61	2.55
			564399.11	4228484.70	11.00	2.55
			564209.86	4228485.01	10.00	2.55
			564210.68	4227739.72	10.11	2.55

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME

Source: DEV.PH2 (Devlin Road Off-Site Phase 2 Op)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00014		564210.89	4227739.18	10.11	2.55
			564209.77	4228485.17	10.00	2.55
			564399.41	4228484.52	11.00	2.55
			564463.05	4228498.80	11.64	2.55
			564538.38	4228499.45	12.00	2.55
			564579.95	4228500.10	12.00	2.55
			564606.57	4228504.00	12.00	2.55
			564638.40	4228513.09	12.04	2.55
			564659.83	4228522.83	12.10	2.55
			564731.91	4228561.80	13.00	2.55
			564766.63	4228583.16	13.00	2.55
			564784.29	4228597.51	13.17	2.55
			564803.06	4228621.25	14.00	2.55
			564819.62	4228648.30	14.00	2.55
			564827.90	4228666.60	14.82	2.55
			564832.29	4228690.53	14.99	2.55
			564834.68	4228709.28	14.98	2.55
			564837.74	4228744.21	15.07	2.55
			564836.98	4228744.21	15.07	2.55

Source Type: LINE VOLUME

Source: GREEN.PH1 (Green Island Rd - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00007		564209.52	4227734.18	10.01	2.55
			565109.19	4227732.73	18.99	2.55

Source Pathway - Source Inputs

AERMOD

Source Type: LINE VOLUME

Source: GREEN.PH2 (Green Island Road Off-site Ph 2 Op)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
10.00	0.00010		564044.35	4227734.42	9.74	2.55
			565109.93	4227732.71	18.99	2.55

Source Type: LINE VOLUME

Source: HWY29.PH1 (Highway 29 - Operation)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
36.00	0.00006		565127.07	4228417.80	16.10	3.40
			565128.48	4227999.25	18.00	3.40
			565133.01	4227743.08	19.07	3.40
			565159.16	4227514.07	19.06	3.40

Source Type: LINE VOLUME

Source: HWY29.PH2 (Highway 29 Off-site Ph 2 Op)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
36.00	0.00007		565127.67	4228418.04	16.10	2.55
			565129.85	4227839.68	19.00	2.55
			565134.89	4227733.13	19.00	2.55
			565150.65	4227594.12	19.47	2.55
			565159.57	4227514.30	19.06	2.55

Source Pathway - Source Inputs

Source Type: LINE VOLUME
Source: RAIL.PH1 (Railroad)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
3.12	4.50E-6		564562.63	4228760.49	13.00	0.00
			564911.88	4228144.12	15.00	0.00
			564920.45	4228124.05	15.00	0.00
			564927.68	4228100.19	15.00	0.00
			564933.72	4228073.99	15.29	0.00
			564934.90	4228052.65	15.39	0.00
			564934.99	4228033.96	15.23	0.00
			564932.62	4228011.86	16.03	0.00
			564926.58	4227967.15	16.00	0.00
			564889.12	4227684.38	16.00	0.00
			564856.43	4227436.79	15.05	0.00
			564855.27	4227419.35	15.10	0.00

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006506	564210.88	4227744.18	10.24	2.55	9.53E-7	10.00		4.65	2.37
	L0006507	564210.87	4227754.18	10.24	2.55	9.53E-7	10.00		4.65	2.37
	L0006508	564210.85	4227764.18	10.24	2.55	9.53E-7	10.00		4.65	2.37
	L0006509	564210.84	4227774.18	10.44	2.55	9.53E-7	10.00		4.65	2.37
	L0006510	564210.82	4227784.18	10.69	2.55	9.53E-7	10.00		4.65	2.37
	L0006511	564210.81	4227794.18	10.95	2.55	9.53E-7	10.00		4.65	2.37
	L0006512	564210.79	4227804.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006513	564210.78	4227814.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006514	564210.76	4227824.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006515	564210.75	4227834.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006516	564210.73	4227844.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006517	564210.72	4227854.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006518	564210.70	4227864.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006519	564210.69	4227874.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006520	564210.67	4227884.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006521	564210.66	4227894.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006522	564210.64	4227904.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006523	564210.63	4227914.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006524	564210.61	4227924.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006525	564210.60	4227934.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006526	564210.58	4227944.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006527	564210.57	4227954.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006528	564210.55	4227964.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006529	564210.54	4227974.18	11.00	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006530	564210.52	4227984.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006531	564210.51	4227994.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006532	564210.49	4228004.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006533	564210.48	4228014.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006534	564210.46	4228024.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006535	564210.45	4228034.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006536	564210.43	4228044.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006537	564210.42	4228054.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006538	564210.40	4228064.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006539	564210.39	4228074.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006540	564210.37	4228084.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006541	564210.36	4228094.18	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006542	564210.34	4228104.18	10.79	2.55	9.53E-7	10.00		4.65	2.37
	L0006543	564210.33	4228114.18	10.54	2.55	9.53E-7	10.00		4.65	2.37
	L0006544	564210.31	4228124.18	10.28	2.55	9.53E-7	10.00		4.65	2.37
	L0006545	564210.30	4228134.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006546	564210.28	4228144.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006547	564210.27	4228154.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006548	564210.26	4228164.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006549	564210.24	4228174.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006550	564210.23	4228184.18	10.22	2.55	9.53E-7	10.00		4.65	2.37
	L0006551	564210.21	4228194.18	10.16	2.55	9.53E-7	10.00		4.65	2.37
	L0006552	564210.20	4228204.18	10.09	2.55	9.53E-7	10.00		4.65	2.37
	L0006553	564210.18	4228214.18	10.02	2.55	9.53E-7	10.00		4.65	2.37
	L0006554	564210.17	4228224.18	10.00	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006555	564210.15	4228234.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006556	564210.14	4228244.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006557	564210.12	4228254.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006558	564210.11	4228264.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006559	564210.09	4228274.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006560	564210.08	4228284.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006561	564210.06	4228294.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006562	564210.05	4228304.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006563	564210.03	4228314.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006564	564210.02	4228324.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006565	564210.00	4228334.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006566	564209.99	4228344.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006567	564209.97	4228354.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006568	564209.96	4228364.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006569	564209.94	4228374.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006570	564209.93	4228384.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006571	564209.91	4228394.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006572	564209.90	4228404.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006573	564209.88	4228414.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006574	564209.87	4228424.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006575	564209.85	4228434.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006576	564209.84	4228444.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006577	564209.82	4228454.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006578	564209.81	4228464.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006579	564209.79	4228474.18	10.00	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006580	564209.78	4228484.18	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006581	564218.79	4228485.14	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006582	564228.79	4228485.10	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006583	564238.79	4228485.07	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006584	564248.79	4228485.03	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006585	564258.79	4228485.00	10.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006586	564268.79	4228484.96	10.17	2.55	9.53E-7	10.00		4.65	2.37
	L0006587	564278.79	4228484.93	10.50	2.55	9.53E-7	10.00		4.65	2.37
	L0006588	564288.79	4228484.90	10.84	2.55	9.53E-7	10.00		4.65	2.37
	L0006589	564298.79	4228484.86	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006590	564308.79	4228484.83	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006591	564318.79	4228484.79	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006592	564328.79	4228484.76	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006593	564338.79	4228484.72	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006594	564348.79	4228484.69	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006595	564358.79	4228484.66	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006596	564368.79	4228484.62	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006597	564378.79	4228484.59	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006598	564388.79	4228484.55	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006599	564398.79	4228484.52	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006600	564408.56	4228486.57	11.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006601	564418.32	4228488.76	11.01	2.55	9.53E-7	10.00		4.65	2.37
	L0006602	564428.08	4228490.95	11.08	2.55	9.53E-7	10.00		4.65	2.37
	L0006603	564437.83	4228493.14	11.18	2.55	9.53E-7	10.00		4.65	2.37
	L0006604	564447.59	4228495.33	11.39	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006605	564457.35	4228497.52	11.66	2.55	9.53E-7	10.00		4.65	2.37
	L0006606	564467.20	4228498.84	11.87	2.55	9.53E-7	10.00		4.65	2.37
	L0006607	564477.20	4228498.93	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006608	564487.20	4228499.01	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006609	564497.20	4228499.10	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006610	564507.20	4228499.18	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006611	564517.20	4228499.27	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006612	564527.20	4228499.36	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006613	564537.20	4228499.44	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006614	564547.20	4228499.59	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006615	564557.20	4228499.75	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006616	564567.20	4228499.90	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006617	564577.20	4228500.06	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006618	564587.12	4228501.15	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006619	564597.02	4228502.60	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006620	564606.90	4228504.09	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006621	564616.52	4228506.84	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006622	564626.13	4228509.59	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006623	564635.75	4228512.33	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006624	564644.99	4228516.09	12.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006625	564654.09	4228520.23	12.14	2.55	9.53E-7	10.00		4.65	2.37
	L0006626	564663.08	4228524.59	12.50	2.55	9.53E-7	10.00		4.65	2.37
	L0006627	564671.88	4228529.35	12.78	2.55	9.53E-7	10.00		4.65	2.37
	L0006628	564680.68	4228534.10	12.96	2.55	9.53E-7	10.00		4.65	2.37
	L0006629	564689.48	4228538.86	13.00	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006630	564698.27	4228543.61	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006631	564707.07	4228548.37	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006632	564715.87	4228553.12	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006633	564724.66	4228557.88	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006634	564733.41	4228562.72	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006635	564741.93	4228567.96	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006636	564750.45	4228573.20	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006637	564758.96	4228578.44	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006638	564767.40	4228583.79	13.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006639	564775.16	4228590.10	13.02	2.55	9.53E-7	10.00		4.65	2.37
	L0006640	564782.93	4228596.40	13.21	2.55	9.53E-7	10.00		4.65	2.37
	L0006641	564789.40	4228603.97	13.48	2.55	9.53E-7	10.00		4.65	2.37
	L0006642	564795.61	4228611.82	13.78	2.55	9.53E-7	10.00		4.65	2.37
	L0006643	564801.81	4228619.66	13.97	2.55	9.53E-7	10.00		4.65	2.37
	L0006644	564807.23	4228628.05	14.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006645	564812.45	4228636.58	14.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006646	564817.67	4228645.11	14.14	2.55	9.53E-7	10.00		4.65	2.37
	L0006647	564822.20	4228654.00	14.37	2.55	9.53E-7	10.00		4.65	2.37
	L0006648	564826.32	4228663.11	14.68	2.55	9.53E-7	10.00		4.65	2.37
	L0006649	564829.01	4228672.67	14.84	2.55	9.53E-7	10.00		4.65	2.37
	L0006650	564830.82	4228682.51	14.90	2.55	9.53E-7	10.00		4.65	2.37
	L0006651	564832.52	4228692.36	14.96	2.55	9.53E-7	10.00		4.65	2.37
	L0006652	564833.79	4228702.28	15.00	2.55	9.53E-7	10.00		4.65	2.37
	L0006653	564834.94	4228712.21	15.04	2.55	9.53E-7	10.00		4.65	2.37
	L0006654	564835.81	4228722.17	15.07	2.55	9.53E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH2	L0006655	564836.68	4228732.14	15.10	2.55	9.53E-7	10.00		4.65	2.37
	L0006656	564837.56	4228742.10	15.13	2.55	9.53E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH2	L0006657	564049.35	4227734.41	9.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006658	564059.35	4227734.39	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006659	564069.35	4227734.38	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006660	564079.35	4227734.36	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006661	564089.35	4227734.35	10.01	2.55	9.38E-7	10.00		4.65	2.37
	L0006662	564099.35	4227734.33	10.03	2.55	9.38E-7	10.00		4.65	2.37
	L0006663	564109.35	4227734.31	10.06	2.55	9.38E-7	10.00		4.65	2.37
	L0006664	564119.35	4227734.30	10.07	2.55	9.38E-7	10.00		4.65	2.37
	L0006665	564129.35	4227734.28	10.07	2.55	9.38E-7	10.00		4.65	2.37
	L0006666	564139.35	4227734.27	10.07	2.55	9.38E-7	10.00		4.65	2.37
	L0006667	564149.35	4227734.25	10.05	2.55	9.38E-7	10.00		4.65	2.37
	L0006668	564159.35	4227734.23	10.03	2.55	9.38E-7	10.00		4.65	2.37
	L0006669	564169.35	4227734.22	10.01	2.55	9.38E-7	10.00		4.65	2.37
	L0006670	564179.35	4227734.20	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006671	564189.35	4227734.19	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006672	564199.35	4227734.17	10.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006673	564209.35	4227734.15	10.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006674	564219.35	4227734.14	10.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006675	564229.35	4227734.12	10.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006676	564239.35	4227734.11	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006677	564249.35	4227734.09	11.00	2.55	9.38E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH2	L0006678	564259.35	4227734.07	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006679	564269.35	4227734.06	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006680	564279.35	4227734.04	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006681	564289.35	4227734.03	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006682	564299.35	4227734.01	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006683	564309.35	4227733.99	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006684	564319.35	4227733.98	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006685	564329.35	4227733.96	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006686	564339.35	4227733.95	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006687	564349.35	4227733.93	11.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006688	564359.35	4227733.91	11.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006689	564369.35	4227733.90	11.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006690	564379.35	4227733.88	11.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006691	564389.35	4227733.87	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006692	564399.35	4227733.85	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006693	564409.35	4227733.83	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006694	564419.35	4227733.82	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006695	564429.35	4227733.80	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006696	564439.35	4227733.79	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006697	564449.35	4227733.77	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006698	564459.35	4227733.75	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006699	564469.35	4227733.74	12.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006700	564479.35	4227733.72	12.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006701	564489.35	4227733.71	12.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006702	564499.35	4227733.69	12.86	2.55	9.38E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH2	L0006703	564509.35	4227733.67	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006704	564519.35	4227733.66	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006705	564529.35	4227733.64	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006706	564539.35	4227733.63	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006707	564549.35	4227733.61	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006708	564559.35	4227733.59	13.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006709	564569.35	4227733.58	13.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006710	564579.35	4227733.56	13.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006711	564589.35	4227733.55	13.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006712	564599.35	4227733.53	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006713	564609.35	4227733.51	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006714	564619.35	4227733.50	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006715	564629.35	4227733.48	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006716	564639.35	4227733.47	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006717	564649.35	4227733.45	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006718	564659.35	4227733.43	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006719	564669.35	4227733.42	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006720	564679.35	4227733.40	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006721	564689.35	4227733.39	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006722	564699.35	4227733.37	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006723	564709.35	4227733.35	14.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006724	564719.35	4227733.34	14.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006725	564729.35	4227733.32	14.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006726	564739.35	4227733.31	14.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006727	564749.35	4227733.29	15.00	2.55	9.38E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH2	L0006728	564759.35	4227733.27	15.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006729	564769.35	4227733.26	15.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006730	564779.35	4227733.24	15.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006731	564789.35	4227733.23	15.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006732	564799.35	4227733.21	15.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006733	564809.35	4227733.19	15.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006734	564819.35	4227733.18	15.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006735	564829.35	4227733.16	15.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006736	564839.35	4227733.15	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006737	564849.35	4227733.13	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006738	564859.35	4227733.11	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006739	564869.35	4227733.10	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006740	564879.35	4227733.08	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006741	564889.35	4227733.07	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006742	564899.35	4227733.05	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006743	564909.35	4227733.03	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006744	564919.35	4227733.02	16.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006745	564929.35	4227733.00	16.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006746	564939.35	4227732.99	16.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006747	564949.35	4227732.97	16.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006748	564959.35	4227732.95	17.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006749	564969.35	4227732.94	17.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006750	564979.35	4227732.92	17.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006751	564989.35	4227732.91	17.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006752	564999.35	4227732.89	17.52	2.55	9.38E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH2	L0006753	565009.35	4227732.87	17.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006754	565019.35	4227732.86	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006755	565029.35	4227732.84	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006756	565039.35	4227732.83	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006757	565049.35	4227732.81	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006758	565059.35	4227732.79	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006759	565069.35	4227732.78	18.00	2.55	9.38E-7	10.00		4.65	2.37
	L0006760	565079.35	4227732.76	18.19	2.55	9.38E-7	10.00		4.65	2.37
	L0006761	565089.35	4227732.74	18.52	2.55	9.38E-7	10.00		4.65	2.37
	L0006762	565099.35	4227732.73	18.86	2.55	9.38E-7	10.00		4.65	2.37
	L0006763	565109.35	4227732.71	19.00	2.55	9.38E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.PH2	L0006764	565127.74	4228400.04	15.83	2.55	3.00E-6	36.00		16.74	2.37
	L0006765	565127.88	4228364.04	15.81	2.55	3.00E-6	36.00		16.74	2.37
	L0006766	565128.01	4228328.04	15.81	2.55	3.00E-6	36.00		16.74	2.37
	L0006767	565128.15	4228292.04	15.82	2.55	3.00E-6	36.00		16.74	2.37
	L0006768	565128.28	4228256.04	15.94	2.55	3.00E-6	36.00		16.74	2.37
	L0006769	565128.42	4228220.04	16.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006770	565128.55	4228184.04	16.07	2.55	3.00E-6	36.00		16.74	2.37
	L0006771	565128.69	4228148.04	17.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006772	565128.82	4228112.04	17.40	2.55	3.00E-6	36.00		16.74	2.37
	L0006773	565128.96	4228076.04	17.84	2.55	3.00E-6	36.00		16.74	2.37
	L0006774	565129.10	4228040.04	17.98	2.55	3.00E-6	36.00		16.74	2.37
	L0006775	565129.23	4228004.04	18.00	2.55	3.00E-6	36.00		16.74	2.37

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.PH2	L0006776	565129.37	4227968.04	18.23	2.55	3.00E-6	36.00		16.74	2.37
	L0006777	565129.50	4227932.04	18.93	2.55	3.00E-6	36.00		16.74	2.37
	L0006778	565129.64	4227896.04	19.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006779	565129.77	4227860.04	19.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006780	565130.59	4227824.06	19.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006781	565132.29	4227788.10	19.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006782	565133.99	4227752.14	19.00	2.55	3.00E-6	36.00		16.74	2.37
	L0006783	565136.80	4227716.27	19.10	2.55	3.00E-6	36.00		16.74	2.37
	L0006784	565140.86	4227680.50	19.24	2.55	3.00E-6	36.00		16.74	2.37
	L0006785	565144.91	4227644.73	19.37	2.55	3.00E-6	36.00		16.74	2.37
	L0006786	565148.97	4227608.96	19.51	2.55	3.00E-6	36.00		16.74	2.37
	L0006787	565152.99	4227573.18	19.36	2.55	3.00E-6	36.00		16.74	2.37
	L0006788	565156.99	4227537.40	19.00	2.55	3.00E-6	36.00		16.74	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0006789	564563.39	4228759.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006790	564564.93	4228756.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006791	564566.47	4228753.70	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006792	564568.01	4228750.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006793	564569.55	4228748.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006794	564571.09	4228745.56	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006795	564572.62	4228742.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006796	564574.16	4228740.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006797	564575.70	4228737.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006798	564577.24	4228734.70	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0006799	564578.78	4228731.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006800	564580.31	4228729.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006801	564581.85	4228726.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006802	564583.39	4228723.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006803	564584.93	4228721.13	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006804	564586.47	4228718.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006805	564588.00	4228715.70	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006806	564589.54	4228712.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006807	564591.08	4228710.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006808	564592.62	4228707.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006809	564594.16	4228704.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006810	564595.70	4228702.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006811	564597.23	4228699.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006812	564598.77	4228696.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006813	564600.31	4228693.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006814	564601.85	4228691.27	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006815	564603.39	4228688.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006816	564604.92	4228685.84	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006817	564606.46	4228683.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006818	564608.00	4228680.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006819	564609.54	4228677.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006820	564611.08	4228674.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006821	564612.61	4228672.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006822	564614.15	4228669.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006823	564615.69	4228666.84	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0006824	564617.23	4228664.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006825	564618.77	4228661.41	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006826	564620.31	4228658.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006827	564621.84	4228655.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006828	564623.38	4228653.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006829	564624.92	4228650.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006830	564626.46	4228647.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006831	564628.00	4228645.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006832	564629.53	4228642.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006833	564631.07	4228639.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006834	564632.61	4228636.98	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006835	564634.15	4228634.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006836	564635.69	4228631.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006837	564637.23	4228628.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006838	564638.76	4228626.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006839	564640.30	4228623.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006840	564641.84	4228620.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006841	564643.38	4228617.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006842	564644.92	4228615.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006843	564646.45	4228612.55	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006844	564647.99	4228609.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006845	564649.53	4228607.12	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006846	564651.07	4228604.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006847	564652.61	4228601.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006848	564654.14	4228598.97	13.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0006849	564655.68	4228596.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006850	564657.22	4228593.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006851	564658.76	4228590.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006852	564660.30	4228588.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006853	564661.84	4228585.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006854	564663.37	4228582.69	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006855	564664.91	4228579.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006856	564666.45	4228577.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006857	564667.99	4228574.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006858	564669.53	4228571.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006859	564671.06	4228569.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006860	564672.60	4228566.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006861	564674.14	4228563.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006862	564675.68	4228560.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006863	564677.22	4228558.26	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006864	564678.76	4228555.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006865	564680.29	4228552.83	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006866	564681.83	4228550.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006867	564683.37	4228547.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006868	564684.91	4228544.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006869	564686.45	4228541.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006870	564687.98	4228539.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006871	564689.52	4228536.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006872	564691.06	4228533.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006873	564692.60	4228531.11	13.00	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006874	564694.14	4228528.40	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006875	564695.67	4228525.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006876	564697.21	4228522.97	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006877	564698.75	4228520.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006878	564700.29	4228517.54	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006879	564701.83	4228514.82	12.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006880	564703.37	4228512.11	12.95	0.00	9.74E-9	3.12		1.45	2.27
	L0006881	564704.90	4228509.39	12.93	0.00	9.74E-9	3.12		1.45	2.27
	L0006882	564706.44	4228506.68	12.92	0.00	9.74E-9	3.12		1.45	2.27
	L0006883	564707.98	4228503.97	12.92	0.00	9.74E-9	3.12		1.45	2.27
	L0006884	564709.52	4228501.25	12.93	0.00	9.74E-9	3.12		1.45	2.27
	L0006885	564711.06	4228498.54	12.95	0.00	9.74E-9	3.12		1.45	2.27
	L0006886	564712.59	4228495.82	12.98	0.00	9.74E-9	3.12		1.45	2.27
	L0006887	564714.13	4228493.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006888	564715.67	4228490.39	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006889	564717.21	4228487.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006890	564718.75	4228484.96	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006891	564720.28	4228482.25	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006892	564721.82	4228479.53	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006893	564723.36	4228476.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006894	564724.90	4228474.11	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006895	564726.44	4228471.39	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006896	564727.98	4228468.68	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006897	564729.51	4228465.96	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006898	564731.05	4228463.25	13.00	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006899	564732.59	4228460.53	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006900	564734.13	4228457.82	13.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006901	564735.67	4228455.10	13.02	0.00	9.74E-9	3.12		1.45	2.27
	L0006902	564737.20	4228452.39	13.07	0.00	9.74E-9	3.12		1.45	2.27
	L0006903	564738.74	4228449.68	13.15	0.00	9.74E-9	3.12		1.45	2.27
	L0006904	564740.28	4228446.96	13.24	0.00	9.74E-9	3.12		1.45	2.27
	L0006905	564741.82	4228444.25	13.35	0.00	9.74E-9	3.12		1.45	2.27
	L0006906	564743.36	4228441.53	13.48	0.00	9.74E-9	3.12		1.45	2.27
	L0006907	564744.90	4228438.82	13.58	0.00	9.74E-9	3.12		1.45	2.27
	L0006908	564746.43	4228436.10	13.67	0.00	9.74E-9	3.12		1.45	2.27
	L0006909	564747.97	4228433.39	13.76	0.00	9.74E-9	3.12		1.45	2.27
	L0006910	564749.51	4228430.67	13.85	0.00	9.74E-9	3.12		1.45	2.27
	L0006911	564751.05	4228427.96	13.94	0.00	9.74E-9	3.12		1.45	2.27
	L0006912	564752.59	4228425.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006913	564754.12	4228422.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006914	564755.66	4228419.82	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006915	564757.20	4228417.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006916	564758.74	4228414.39	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006917	564760.28	4228411.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006918	564761.81	4228408.96	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006919	564763.35	4228406.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006920	564764.89	4228403.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006921	564766.43	4228400.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006922	564767.97	4228398.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006923	564769.51	4228395.39	14.00	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006924	564771.04	4228392.67	13.99	0.00	9.74E-9	3.12		1.45	2.27
	L0006925	564772.58	4228389.96	13.99	0.00	9.74E-9	3.12		1.45	2.27
	L0006926	564774.12	4228387.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006927	564775.66	4228384.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006928	564777.20	4228381.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006929	564778.73	4228379.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006930	564780.27	4228376.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006931	564781.81	4228373.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006932	564783.35	4228370.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006933	564784.89	4228368.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006934	564786.43	4228365.53	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006935	564787.96	4228362.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006936	564789.50	4228360.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006937	564791.04	4228357.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006938	564792.58	4228354.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006939	564794.12	4228351.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006940	564795.65	4228349.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006941	564797.19	4228346.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006942	564798.73	4228343.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006943	564800.27	4228341.10	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006944	564801.81	4228338.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006945	564803.34	4228335.67	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006946	564804.88	4228332.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006947	564806.42	4228330.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006948	564807.96	4228327.52	14.00	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006949	564809.50	4228324.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006950	564811.04	4228322.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006951	564812.57	4228319.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006952	564814.11	4228316.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006953	564815.65	4228313.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006954	564817.19	4228311.24	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006955	564818.73	4228308.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006956	564820.26	4228305.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006957	564821.80	4228303.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006958	564823.34	4228300.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006959	564824.88	4228297.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006960	564826.42	4228294.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006961	564827.95	4228292.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006962	564829.49	4228289.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006963	564831.03	4228286.81	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006964	564832.57	4228284.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006965	564834.11	4228281.38	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006966	564835.65	4228278.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006967	564837.18	4228275.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006968	564838.72	4228273.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006969	564840.26	4228270.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006970	564841.80	4228267.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006971	564843.34	4228265.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006972	564844.87	4228262.37	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006973	564846.41	4228259.66	14.00	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006974	564847.95	4228256.95	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006975	564849.49	4228254.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006976	564851.03	4228251.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006977	564852.57	4228248.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006978	564854.10	4228246.09	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006979	564855.64	4228243.37	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006980	564857.18	4228240.66	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006981	564858.72	4228237.94	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006982	564860.26	4228235.23	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006983	564861.79	4228232.52	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006984	564863.33	4228229.80	14.00	0.00	9.74E-9	3.12		1.45	2.27
	L0006985	564864.87	4228227.09	14.03	0.00	9.74E-9	3.12		1.45	2.27
	L0006986	564866.41	4228224.37	14.07	0.00	9.74E-9	3.12		1.45	2.27
	L0006987	564867.95	4228221.66	14.12	0.00	9.74E-9	3.12		1.45	2.27
	L0006988	564869.48	4228218.94	14.18	0.00	9.74E-9	3.12		1.45	2.27
	L0006989	564871.02	4228216.23	14.25	0.00	9.74E-9	3.12		1.45	2.27
	L0006990	564872.56	4228213.51	14.36	0.00	9.74E-9	3.12		1.45	2.27
	L0006991	564874.10	4228210.80	14.47	0.00	9.74E-9	3.12		1.45	2.27
	L0006992	564875.64	4228208.08	14.56	0.00	9.74E-9	3.12		1.45	2.27
	L0006993	564877.18	4228205.37	14.65	0.00	9.74E-9	3.12		1.45	2.27
	L0006994	564878.71	4228202.66	14.73	0.00	9.74E-9	3.12		1.45	2.27
	L0006995	564880.25	4228199.94	14.80	0.00	9.74E-9	3.12		1.45	2.27
	L0006996	564881.79	4228197.23	14.85	0.00	9.74E-9	3.12		1.45	2.27
	L0006997	564883.33	4228194.51	14.90	0.00	9.74E-9	3.12		1.45	2.27
	L0006998	564884.87	4228191.80	14.95	0.00	9.74E-9	3.12		1.45	2.27

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RAIL.PH1	L0006999	564886.40	4228189.08	14.98	0.00	9.74E-9	3.12		1.45	2.27
	L0007000	564887.94	4228186.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007001	564889.48	4228183.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007002	564891.02	4228180.94	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007003	564892.56	4228178.23	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007004	564894.10	4228175.51	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007005	564895.63	4228172.80	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007006	564897.17	4228170.08	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007007	564898.71	4228167.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007008	564900.25	4228164.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007009	564901.79	4228161.94	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007010	564903.32	4228159.22	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007011	564904.86	4228156.51	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007012	564906.40	4228153.79	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007013	564907.94	4228151.08	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007014	564909.48	4228148.37	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007015	564911.01	4228145.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007016	564912.42	4228142.87	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007017	564913.64	4228140.00	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007018	564914.87	4228137.13	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007019	564916.09	4228134.26	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007020	564917.32	4228131.39	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007021	564918.54	4228128.52	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007022	564919.77	4228125.65	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007023	564920.85	4228122.73	15.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007024	564921.76	4228119.75	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007025	564922.66	4228116.76	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007026	564923.56	4228113.77	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007027	564924.47	4228110.79	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007028	564925.37	4228107.80	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007029	564926.28	4228104.82	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007030	564927.18	4228101.83	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007031	564927.99	4228098.82	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007032	564928.70	4228095.78	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007033	564929.40	4228092.74	15.02	0.00	9.74E-9	3.12		1.45	2.27
	L0007034	564930.10	4228089.70	15.05	0.00	9.74E-9	3.12		1.45	2.27
	L0007035	564930.80	4228086.66	15.08	0.00	9.74E-9	3.12		1.45	2.27
	L0007036	564931.50	4228083.62	15.11	0.00	9.74E-9	3.12		1.45	2.27
	L0007037	564932.20	4228080.58	15.15	0.00	9.74E-9	3.12		1.45	2.27
	L0007038	564932.90	4228077.54	15.19	0.00	9.74E-9	3.12		1.45	2.27
	L0007039	564933.61	4228074.50	15.24	0.00	9.74E-9	3.12		1.45	2.27
	L0007040	564933.87	4228071.40	15.28	0.00	9.74E-9	3.12		1.45	2.27
	L0007041	564934.04	4228068.28	15.32	0.00	9.74E-9	3.12		1.45	2.27
	L0007042	564934.21	4228065.17	15.35	0.00	9.74E-9	3.12		1.45	2.27
	L0007043	564934.38	4228062.05	15.36	0.00	9.74E-9	3.12		1.45	2.27
	L0007044	564934.55	4228058.93	15.36	0.00	9.74E-9	3.12		1.45	2.27
	L0007045	564934.73	4228055.82	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0007046	564934.90	4228052.70	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0007047	564934.91	4228049.58	15.37	0.00	9.74E-9	3.12		1.45	2.27
	L0007048	564934.93	4228046.46	15.38	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007049	564934.94	4228043.34	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0007050	564934.96	4228040.22	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0007051	564934.97	4228037.10	15.38	0.00	9.74E-9	3.12		1.45	2.27
	L0007052	564934.99	4228033.98	15.42	0.00	9.74E-9	3.12		1.45	2.27
	L0007053	564934.66	4228030.88	15.48	0.00	9.74E-9	3.12		1.45	2.27
	L0007054	564934.32	4228027.78	15.54	0.00	9.74E-9	3.12		1.45	2.27
	L0007055	564933.99	4228024.68	15.60	0.00	9.74E-9	3.12		1.45	2.27
	L0007056	564933.66	4228021.58	15.66	0.00	9.74E-9	3.12		1.45	2.27
	L0007057	564933.33	4228018.47	15.72	0.00	9.74E-9	3.12		1.45	2.27
	L0007058	564932.99	4228015.37	15.79	0.00	9.74E-9	3.12		1.45	2.27
	L0007059	564932.66	4228012.27	15.86	0.00	9.74E-9	3.12		1.45	2.27
	L0007060	564932.26	4228009.18	15.93	0.00	9.74E-9	3.12		1.45	2.27
	L0007061	564931.84	4228006.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007062	564931.42	4228002.99	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007063	564931.00	4227999.90	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007064	564930.59	4227996.81	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007065	564930.17	4227993.72	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007066	564929.75	4227990.62	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007067	564929.33	4227987.53	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007068	564928.92	4227984.44	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007069	564928.50	4227981.35	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007070	564928.08	4227978.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007071	564927.66	4227975.16	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007072	564927.25	4227972.07	16.02	0.00	9.74E-9	3.12		1.45	2.27
	L0007073	564926.83	4227968.98	16.03	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007074	564926.41	4227965.89	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0007075	564926.00	4227962.79	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0007076	564925.59	4227959.70	16.04	0.00	9.74E-9	3.12		1.45	2.27
	L0007077	564925.18	4227956.61	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0007078	564924.78	4227953.52	16.03	0.00	9.74E-9	3.12		1.45	2.27
	L0007079	564924.37	4227950.42	16.02	0.00	9.74E-9	3.12		1.45	2.27
	L0007080	564923.96	4227947.33	16.01	0.00	9.74E-9	3.12		1.45	2.27
	L0007081	564923.55	4227944.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007082	564923.14	4227941.14	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007083	564922.73	4227938.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007084	564922.32	4227934.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007085	564921.91	4227931.86	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007086	564921.50	4227928.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007087	564921.09	4227925.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007088	564920.68	4227922.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007089	564920.27	4227919.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007090	564919.86	4227916.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007091	564919.45	4227913.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007092	564919.04	4227910.21	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007093	564918.63	4227907.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007094	564918.22	4227904.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007095	564917.81	4227900.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007096	564917.40	4227897.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007097	564916.99	4227894.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007098	564916.58	4227891.66	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007099	564916.17	4227888.56	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007100	564915.76	4227885.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007101	564915.35	4227882.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007102	564914.94	4227879.28	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007103	564914.53	4227876.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007104	564914.12	4227873.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007105	564913.71	4227870.01	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007106	564913.30	4227866.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007107	564912.89	4227863.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007108	564912.48	4227860.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007109	564912.07	4227857.63	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007110	564911.66	4227854.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007111	564911.25	4227851.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007112	564910.84	4227848.35	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007113	564910.43	4227845.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007114	564910.02	4227842.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007115	564909.61	4227839.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007116	564909.21	4227835.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007117	564908.80	4227832.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007118	564908.39	4227829.80	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007119	564907.98	4227826.70	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007120	564907.57	4227823.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007121	564907.16	4227820.52	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007122	564906.75	4227817.42	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007123	564906.34	4227814.33	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

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Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007124	564905.93	4227811.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007125	564905.52	4227808.15	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007126	564905.11	4227805.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007127	564904.70	4227801.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007128	564904.29	4227798.87	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007129	564903.88	4227795.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007130	564903.47	4227792.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007131	564903.06	4227789.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007132	564902.65	4227786.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007133	564902.24	4227783.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007134	564901.83	4227780.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007135	564901.42	4227777.22	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007136	564901.01	4227774.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007137	564900.60	4227771.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007138	564900.19	4227767.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007139	564899.78	4227764.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007140	564899.37	4227761.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007141	564898.96	4227758.66	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007142	564898.55	4227755.57	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007143	564898.14	4227752.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007144	564897.73	4227749.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007145	564897.32	4227746.29	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007146	564896.91	4227743.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007147	564896.50	4227740.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007148	564896.09	4227737.01	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007149	564895.68	4227733.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007150	564895.27	4227730.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007151	564894.86	4227727.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007152	564894.45	4227724.64	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007153	564894.04	4227721.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007154	564893.63	4227718.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007155	564893.23	4227715.36	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007156	564892.82	4227712.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007157	564892.41	4227709.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007158	564892.00	4227706.08	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007159	564891.59	4227702.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007160	564891.18	4227699.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007161	564890.77	4227696.80	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007162	564890.36	4227693.71	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007163	564889.95	4227690.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007164	564889.54	4227687.52	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007165	564889.13	4227684.43	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007166	564888.72	4227681.33	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007167	564888.31	4227678.24	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007168	564887.90	4227675.15	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007169	564887.49	4227672.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007170	564887.09	4227668.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007171	564886.68	4227665.87	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007172	564886.27	4227662.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007173	564885.86	4227659.68	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007174	564885.45	4227656.59	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007175	564885.04	4227653.50	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007176	564884.64	4227650.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007177	564884.23	4227647.31	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007178	564883.82	4227644.22	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007179	564883.41	4227641.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007180	564883.00	4227638.03	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007181	564882.59	4227634.94	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007182	564882.19	4227631.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007183	564881.78	4227628.75	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007184	564881.37	4227625.66	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007185	564880.96	4227622.56	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007186	564880.55	4227619.47	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007187	564880.14	4227616.38	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007188	564879.73	4227613.28	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007189	564879.33	4227610.19	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007190	564878.92	4227607.10	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007191	564878.51	4227604.00	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007192	564878.10	4227600.91	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007193	564877.69	4227597.82	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007194	564877.28	4227594.73	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007195	564876.88	4227591.63	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007196	564876.47	4227588.54	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007197	564876.06	4227585.45	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007198	564875.65	4227582.35	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007199	564875.24	4227579.26	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007200	564874.83	4227576.17	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007201	564874.43	4227573.07	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007202	564874.02	4227569.98	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007203	564873.61	4227566.89	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007204	564873.20	4227563.79	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007205	564872.79	4227560.70	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007206	564872.38	4227557.61	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007207	564871.98	4227554.51	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007208	564871.57	4227551.42	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007209	564871.16	4227548.33	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007210	564870.75	4227545.23	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007211	564870.34	4227542.14	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007212	564869.93	4227539.05	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007213	564869.52	4227535.96	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007214	564869.12	4227532.86	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007215	564868.71	4227529.77	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007216	564868.30	4227526.68	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007217	564867.89	4227523.58	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007218	564867.48	4227520.49	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007219	564867.07	4227517.40	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007220	564866.67	4227514.30	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007221	564866.26	4227511.21	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007222	564865.85	4227508.12	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007223	564865.44	4227505.02	16.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

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RAIL.PH1	L0007224	564865.03	4227501.93	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007225	564864.62	4227498.84	16.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007226	564864.22	4227495.74	15.98	0.00	9.74E-9	3.12		1.45	2.27
	L0007227	564863.81	4227492.65	15.88	0.00	9.74E-9	3.12		1.45	2.27
	L0007228	564863.40	4227489.56	15.77	0.00	9.74E-9	3.12		1.45	2.27
	L0007229	564862.99	4227486.46	15.66	0.00	9.74E-9	3.12		1.45	2.27
	L0007230	564862.58	4227483.37	15.55	0.00	9.74E-9	3.12		1.45	2.27
	L0007231	564862.17	4227480.28	15.44	0.00	9.74E-9	3.12		1.45	2.27
	L0007232	564861.77	4227477.19	15.34	0.00	9.74E-9	3.12		1.45	2.27
	L0007233	564861.36	4227474.09	15.24	0.00	9.74E-9	3.12		1.45	2.27
	L0007234	564860.95	4227471.00	15.14	0.00	9.74E-9	3.12		1.45	2.27
	L0007235	564860.54	4227467.91	15.05	0.00	9.74E-9	3.12		1.45	2.27
	L0007236	564860.13	4227464.81	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007237	564859.72	4227461.72	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007238	564859.32	4227458.63	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007239	564858.91	4227455.53	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007240	564858.50	4227452.44	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007241	564858.09	4227449.35	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007242	564857.68	4227446.25	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007243	564857.27	4227443.16	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007244	564856.86	4227440.07	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007245	564856.46	4227436.97	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007246	564856.24	4227433.86	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007247	564856.03	4227430.75	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007248	564855.82	4227427.64	15.00	0.00	9.74E-9	3.12		1.45	2.27

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
RAIL.PH1	L0007249	564855.61	4227424.52	15.00	0.00	9.74E-9	3.12		1.45	2.27
	L0007250	564855.41	4227421.41	15.00	0.00	9.74E-9	3.12		1.45	2.27

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH1	L0007251	564836.84	4228739.05	15.11	2.55	8.09E-7	10.00		4.65	2.37
	L0007252	564836.14	4228729.07	15.08	2.55	8.09E-7	10.00		4.65	2.37
	L0007253	564835.45	4228719.10	15.06	2.55	8.09E-7	10.00		4.65	2.37
	L0007254	564834.62	4228709.13	15.03	2.55	8.09E-7	10.00		4.65	2.37
	L0007255	564833.30	4228699.22	14.99	2.55	8.09E-7	10.00		4.65	2.37
	L0007256	564831.98	4228689.31	14.94	2.55	8.09E-7	10.00		4.65	2.37
	L0007257	564830.33	4228679.45	14.89	2.55	8.09E-7	10.00		4.65	2.37
	L0007258	564828.58	4228669.60	14.83	2.55	8.09E-7	10.00		4.65	2.37
	L0007259	564825.07	4228660.30	14.57	2.55	8.09E-7	10.00		4.65	2.37
	L0007260	564820.96	4228651.18	14.29	2.55	8.09E-7	10.00		4.65	2.37
	L0007261	564816.27	4228642.38	14.09	2.55	8.09E-7	10.00		4.65	2.37
	L0007262	564810.98	4228633.89	14.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007263	564805.70	4228625.40	14.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007264	564799.90	4228617.27	13.92	2.55	8.09E-7	10.00		4.65	2.37
	L0007265	564793.69	4228609.44	13.70	2.55	8.09E-7	10.00		4.65	2.37
	L0007266	564787.47	4228601.60	13.39	2.55	8.09E-7	10.00		4.65	2.37
	L0007267	564780.15	4228594.87	13.13	2.55	8.09E-7	10.00		4.65	2.37
	L0007268	564772.36	4228588.60	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007269	564764.32	4228582.65	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007270	564756.24	4228576.76	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007271	564747.74	4228571.51	13.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

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DEV.PH1	L0007272	564739.16	4228566.37	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007273	564730.56	4228561.26	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007274	564721.77	4228556.51	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007275	564712.97	4228551.75	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007276	564704.17	4228547.00	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007277	564695.38	4228542.24	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007278	564686.58	4228537.49	13.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007279	564677.78	4228532.73	12.91	2.55	8.09E-7	10.00		4.65	2.37
	L0007280	564668.98	4228527.97	12.70	2.55	8.09E-7	10.00		4.65	2.37
	L0007281	564660.13	4228523.33	12.40	2.55	8.09E-7	10.00		4.65	2.37
	L0007282	564651.08	4228519.08	12.09	2.55	8.09E-7	10.00		4.65	2.37
	L0007283	564642.03	4228514.83	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007284	564632.61	4228511.55	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007285	564623.00	4228508.79	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007286	564613.39	4228506.03	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007287	564603.70	4228503.64	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007288	564593.81	4228502.17	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007289	564583.91	4228500.69	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007290	564573.95	4228500.13	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007291	564563.95	4228500.00	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007292	564553.95	4228499.87	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007293	564543.95	4228499.74	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007294	564533.95	4228499.60	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007295	564523.95	4228499.47	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007296	564513.96	4228499.34	12.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

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DEV.PH1	L0007297	564503.96	4228499.21	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007298	564493.96	4228499.08	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007299	564483.96	4228498.95	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007300	564473.96	4228498.82	12.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007301	564463.96	4228498.68	11.81	2.55	8.09E-7	10.00		4.65	2.37
	L0007302	564454.15	4228496.89	11.58	2.55	8.09E-7	10.00		4.65	2.37
	L0007303	564444.39	4228494.73	11.30	2.55	8.09E-7	10.00		4.65	2.37
	L0007304	564434.63	4228492.57	11.15	2.55	8.09E-7	10.00		4.65	2.37
	L0007305	564424.86	4228490.40	11.05	2.55	8.09E-7	10.00		4.65	2.37
	L0007306	564415.10	4228488.24	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007307	564405.34	4228486.08	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007308	564395.49	4228484.71	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007309	564385.49	4228484.72	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007310	564375.49	4228484.74	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007311	564365.49	4228484.76	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007312	564355.49	4228484.77	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007313	564345.49	4228484.79	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007314	564335.49	4228484.80	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007315	564325.49	4228484.82	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007316	564315.49	4228484.84	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007317	564305.49	4228484.85	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007318	564295.49	4228484.87	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007319	564285.49	4228484.88	10.73	2.55	8.09E-7	10.00		4.65	2.37
	L0007320	564275.49	4228484.90	10.39	2.55	8.09E-7	10.00		4.65	2.37
	L0007321	564265.49	4228484.92	10.06	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

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DEV.PH1	L0007322	564255.49	4228484.93	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007323	564245.49	4228484.95	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007324	564235.49	4228484.97	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007325	564225.49	4228484.98	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007326	564215.49	4228485.00	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007327	564209.86	4228480.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007328	564209.87	4228470.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007329	564209.88	4228460.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007330	564209.89	4228450.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007331	564209.91	4228440.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007332	564209.92	4228430.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007333	564209.93	4228420.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007334	564209.94	4228410.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007335	564209.95	4228400.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007336	564209.96	4228390.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007337	564209.97	4228380.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007338	564209.98	4228370.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007339	564209.99	4228360.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007340	564210.00	4228350.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007341	564210.02	4228340.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007342	564210.03	4228330.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007343	564210.04	4228320.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007344	564210.05	4228310.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007345	564210.06	4228300.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007346	564210.07	4228290.64	10.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH1	L0007347	564210.08	4228280.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007348	564210.09	4228270.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007349	564210.10	4228260.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007350	564210.11	4228250.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007351	564210.13	4228240.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007352	564210.14	4228230.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007353	564210.15	4228220.64	10.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007354	564210.16	4228210.64	10.04	2.55	8.09E-7	10.00		4.65	2.37
	L0007355	564210.17	4228200.64	10.11	2.55	8.09E-7	10.00		4.65	2.37
	L0007356	564210.18	4228190.64	10.19	2.55	8.09E-7	10.00		4.65	2.37
	L0007357	564210.19	4228180.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007358	564210.20	4228170.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007359	564210.21	4228160.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007360	564210.22	4228150.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007361	564210.24	4228140.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007362	564210.25	4228130.64	10.22	2.55	8.09E-7	10.00		4.65	2.37
	L0007363	564210.26	4228120.64	10.37	2.55	8.09E-7	10.00		4.65	2.37
	L0007364	564210.27	4228110.64	10.63	2.55	8.09E-7	10.00		4.65	2.37
	L0007365	564210.28	4228100.64	10.89	2.55	8.09E-7	10.00		4.65	2.37
	L0007366	564210.29	4228090.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007367	564210.30	4228080.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007368	564210.31	4228070.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007369	564210.32	4228060.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007370	564210.33	4228050.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007371	564210.35	4228040.64	11.00	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH1	L0007372	564210.36	4228030.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007373	564210.37	4228020.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007374	564210.38	4228010.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007375	564210.39	4228000.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007376	564210.40	4227990.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007377	564210.41	4227980.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007378	564210.42	4227970.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007379	564210.43	4227960.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007380	564210.44	4227950.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007381	564210.46	4227940.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007382	564210.47	4227930.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007383	564210.48	4227920.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007384	564210.49	4227910.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007385	564210.50	4227900.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007386	564210.51	4227890.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007387	564210.52	4227880.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007388	564210.53	4227870.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007389	564210.54	4227860.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007390	564210.56	4227850.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007391	564210.57	4227840.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007392	564210.58	4227830.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007393	564210.59	4227820.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007394	564210.60	4227810.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007395	564210.61	4227800.64	11.00	2.55	8.09E-7	10.00		4.65	2.37
	L0007396	564210.62	4227790.64	10.86	2.55	8.09E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
DEV.PH1	L0007397	564210.63	4227780.64	10.60	2.55	8.09E-7	10.00		4.65	2.37
	L0007398	564210.64	4227770.64	10.34	2.55	8.09E-7	10.00		4.65	2.37
	L0007399	564210.65	4227760.64	10.23	2.55	8.09E-7	10.00		4.65	2.37
	L0007400	564210.67	4227750.64	10.23	2.55	8.09E-7	10.00		4.65	2.37
	L0007401	564210.68	4227740.64	10.23	2.55	8.09E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH1	L0007402	564214.52	4227734.17	10.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007403	564224.52	4227734.16	10.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007404	564234.52	4227734.14	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007405	564244.52	4227734.13	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007406	564254.52	4227734.11	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007407	564264.52	4227734.09	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007408	564274.52	4227734.08	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007409	564284.52	4227734.06	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007410	564294.52	4227734.05	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007411	564304.52	4227734.03	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007412	564314.52	4227734.01	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007413	564324.52	4227734.00	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007414	564334.52	4227733.98	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007415	564344.52	4227733.96	11.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007416	564354.52	4227733.95	11.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007417	564364.52	4227733.93	11.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007418	564374.52	4227733.92	11.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007419	564384.52	4227733.90	12.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH1	L0007420	564394.52	4227733.88	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007421	564404.52	4227733.87	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007422	564414.52	4227733.85	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007423	564424.52	4227733.84	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007424	564434.52	4227733.82	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007425	564444.52	4227733.80	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007426	564454.52	4227733.79	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007427	564464.52	4227733.77	12.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007428	564474.52	4227733.76	12.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007429	564484.52	4227733.74	12.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007430	564494.52	4227733.72	12.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007431	564504.52	4227733.71	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007432	564514.52	4227733.69	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007433	564524.52	4227733.67	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007434	564534.52	4227733.66	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007435	564544.52	4227733.64	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007436	564554.52	4227733.63	13.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007437	564564.52	4227733.61	13.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007438	564574.52	4227733.59	13.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007439	564584.52	4227733.58	13.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007440	564594.52	4227733.56	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007441	564604.52	4227733.55	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007442	564614.52	4227733.53	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007443	564624.52	4227733.51	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007444	564634.52	4227733.50	14.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH1	L0007445	564644.52	4227733.48	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007446	564654.52	4227733.47	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007447	564664.52	4227733.45	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007448	564674.52	4227733.43	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007449	564684.52	4227733.42	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007450	564694.52	4227733.40	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007451	564704.52	4227733.38	14.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007452	564714.52	4227733.37	14.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007453	564724.52	4227733.35	14.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007454	564734.52	4227733.34	14.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007455	564744.52	4227733.32	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007456	564754.52	4227733.30	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007457	564764.52	4227733.29	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007458	564774.52	4227733.27	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007459	564784.52	4227733.26	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007460	564794.52	4227733.24	15.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007461	564804.52	4227733.22	15.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007462	564814.52	4227733.21	15.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007463	564824.52	4227733.19	15.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007464	564834.52	4227733.18	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007465	564844.52	4227733.16	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007466	564854.52	4227733.14	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007467	564864.52	4227733.13	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007468	564874.52	4227733.11	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007469	564884.52	4227733.10	16.00	2.55	8.06E-7	10.00		4.65	2.37

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
GREEN.PH1	L0007470	564894.52	4227733.08	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007471	564904.52	4227733.06	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007472	564914.52	4227733.05	16.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007473	564924.52	4227733.03	16.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007474	564934.52	4227733.01	16.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007475	564944.52	4227733.00	16.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007476	564954.52	4227732.98	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007477	564964.52	4227732.97	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007478	564974.52	4227732.95	17.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007479	564984.52	4227732.93	17.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007480	564994.52	4227732.92	17.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007481	565004.52	4227732.90	17.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007482	565014.52	4227732.89	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007483	565024.52	4227732.87	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007484	565034.52	4227732.85	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007485	565044.52	4227732.84	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007486	565054.52	4227732.82	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007487	565064.52	4227732.81	18.00	2.55	8.06E-7	10.00		4.65	2.37
	L0007488	565074.52	4227732.79	18.03	2.55	8.06E-7	10.00		4.65	2.37
	L0007489	565084.52	4227732.77	18.36	2.55	8.06E-7	10.00		4.65	2.37
	L0007490	565094.52	4227732.76	18.69	2.55	8.06E-7	10.00		4.65	2.37
	L0007491	565104.52	4227732.74	19.00	2.55	8.06E-7	10.00		4.65	2.37

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.PH1	L0007492	565127.13	4228399.80	15.81	3.40	2.54E-6	36.00		16.74	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HWY29.PH1	L0007493	565127.26	4228363.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007494	565127.38	4228327.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007495	565127.50	4228291.80	15.79	3.40	2.54E-6	36.00		16.74	3.16
	L0007496	565127.62	4228255.80	15.94	3.40	2.54E-6	36.00		16.74	3.16
	L0007497	565127.74	4228219.80	16.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007498	565127.86	4228183.80	16.08	3.40	2.54E-6	36.00		16.74	3.16
	L0007499	565127.98	4228147.80	17.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007500	565128.10	4228111.80	17.39	3.40	2.54E-6	36.00		16.74	3.16
	L0007501	565128.22	4228075.80	17.82	3.40	2.54E-6	36.00		16.74	3.16
	L0007502	565128.34	4228039.80	17.98	3.40	2.54E-6	36.00		16.74	3.16
	L0007503	565128.46	4228003.80	18.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007504	565129.04	4227967.81	18.24	3.40	2.54E-6	36.00		16.74	3.16
	L0007505	565129.67	4227931.81	18.93	3.40	2.54E-6	36.00		16.74	3.16
	L0007506	565130.31	4227895.82	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007507	565130.94	4227859.82	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007508	565131.58	4227823.83	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007509	565132.22	4227787.83	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007510	565132.85	4227751.84	19.00	3.40	2.54E-6	36.00		16.74	3.16
	L0007511	565136.10	4227716.02	19.08	3.40	2.54E-6	36.00		16.74	3.16
	L0007512	565140.18	4227680.25	19.22	3.40	2.54E-6	36.00		16.74	3.16
	L0007513	565144.27	4227644.48	19.35	3.40	2.54E-6	36.00		16.74	3.16
	L0007514	565148.35	4227608.71	19.49	3.40	2.54E-6	36.00		16.74	3.16
	L0007515	565152.44	4227572.95	19.35	3.40	2.54E-6	36.00		16.74	3.16
	L0007516	565156.52	4227537.18	19.00	3.40	2.54E-6	36.00		16.74	3.16

Source Pathway - Source Inputs

AERMOD

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	563846.99	4227763.17		9.00	
2	563152.88	4227961.87		10.03	
3	563514.22	4227959.26		10.45	
4	563487.56	4227974.48		10.12	
5	563482.14	4227991.20		10.97	
6	563427.00	4227966.19		10.00	
7	563425.95	4227956.25		10.00	
8	563265.64	4227970.13		9.00	
9	562505.78	4227951.68		3.18	
10	563810.19	4227762.07		9.00	
11	563740.68	4227815.91		9.00	
12	564832.15	4226970.55		18.57	
13	564869.92	4226938.63		17.38	
14	565044.27	4226568.58		18.00	
15	564973.13	4226565.86		18.00	
16	564955.94	4226541.29		18.00	
17	564893.17	4226549.81		22.03	
18	565028.87	4226540.35		18.00	
19	565035.66	4226521.39		18.00	
20	565038.10	4226497.30		18.00	
21	565000.82	4226474.49		18.00	
22	565008.62	4226449.37		18.00	
23	565042.99	4226474.21		18.00	
24	565049.05	4226447.64		18.00	
25	565049.05	4226421.36		18.00	
26	565437.70	4226745.61		20.00	
27	565456.18	4226744.45		20.00	
28	565498.35	4226743.87		21.00	
29	565514.23	4226744.16		21.00	
30	565441.17	4226713.84		20.00	

31	565459.65	4226713.55	20.00
32	565517.12	4226698.53	21.00
33	565516.25	4226683.80	21.00
34	565482.47	4226674.27	20.63
35	565483.33	4226658.68	20.66
36	565433.95	4226666.19	20.00
37	565434.24	4226653.48	20.00
38	565444.63	4226624.31	20.00
39	565463.98	4226624.31	20.01
40	565509.03	4226631.82	21.00
41	565509.03	4226617.38	21.00
42	565314.45	4227270.70	20.00
43	565291.64	4227217.62	19.00
44	565309.08	4227218.00	19.00
45	565384.70	4227209.41	20.00
46	565449.84	4227190.61	20.00
47	565496.35	4227202.46	20.28
48	565481.62	4227270.05	21.00
49	565516.57	4227270.92	21.00
50	565553.69	4227134.21	22.00
51	565613.85	4227214.51	22.01
52	565588.48	4227278.18	22.85
53	565625.01	4227289.45	24.49
54	565729.83	4227269.14	29.12
55	565890.63	4227286.35	34.23
56	565430.90	4227667.38	23.64
57	565017.44	4228947.47	20.67
58	566101.79	4227980.30	40.54
59	566081.49	4228935.03	70.63
60	564793.53	4226912.96	21.04
61	564970.33	4226914.23	16.00
62	565009.97	4226624.20	18.00
63	564973.04	4226624.09	18.00
64	564972.69	4226614.91	18.00
65	564928.06	4226614.73	18.85
66	564928.06	4226608.07	18.85
67	564884.55	4226608.07	21.49
68	564848.83	4226641.41	22.74

69	564798.44	4226913.00	20.81
70	564803.35	4226913.03	20.57
71	564808.26	4226913.07	20.32
72	564813.17	4226913.10	20.07
73	564818.09	4226913.14	19.81
74	564823.00	4226913.17	19.56
75	564827.91	4226913.21	19.30
76	564832.82	4226913.24	19.04
77	564837.73	4226913.28	18.86
78	564842.64	4226913.31	18.70
79	564847.55	4226913.35	18.54
80	564852.46	4226913.38	18.37
81	564857.37	4226913.42	18.21
82	564862.29	4226913.45	18.05
83	564867.20	4226913.49	17.88
84	564872.11	4226913.52	17.72
85	564877.02	4226913.56	17.56
86	564881.93	4226913.60	17.39
87	564886.84	4226913.63	17.23
88	564891.75	4226913.67	17.06
89	564896.66	4226913.70	16.90
90	564901.57	4226913.74	16.74
91	564906.49	4226913.77	16.57
92	564911.40	4226913.81	16.41
93	564916.31	4226913.84	16.25
94	564921.22	4226913.88	16.08
95	564926.13	4226913.91	16.00
96	564931.04	4226913.95	16.00
97	564935.95	4226913.98	16.00
98	564940.86	4226914.02	16.00
99	564945.77	4226914.05	16.00
100	564950.69	4226914.09	16.00
101	564955.60	4226914.12	16.00
102	564960.51	4226914.16	16.00
103	564965.42	4226914.20	16.00
104	564971.00	4226909.31	16.00
105	564971.67	4226904.40	16.00
106	564972.35	4226899.48	16.00

107	564973.02	4226894.57	16.00
108	564973.69	4226889.65	16.00
109	564974.36	4226884.74	16.00
110	564975.03	4226879.82	16.00
111	564975.70	4226874.90	16.00
112	564976.38	4226869.99	16.00
113	564977.05	4226865.07	16.00
114	564977.72	4226860.16	16.00
115	564978.39	4226855.24	16.00
116	564979.06	4226850.33	16.00
117	564979.74	4226845.41	16.00
118	564980.41	4226840.49	16.00
119	564981.08	4226835.58	16.00
120	564981.75	4226830.66	16.01
121	564982.42	4226825.75	16.01
122	564983.10	4226820.83	16.01
123	564983.77	4226815.92	16.00
124	564984.44	4226811.00	16.00
125	564985.11	4226806.08	16.01
126	564985.78	4226801.17	16.17
127	564986.45	4226796.25	16.33
128	564987.13	4226791.34	16.50
129	564987.80	4226786.42	16.66
130	564988.47	4226781.50	16.83
131	564989.14	4226776.59	16.99
132	564989.81	4226771.67	17.00
133	564990.49	4226766.76	17.00
134	564991.16	4226761.84	17.00
135	564991.83	4226756.93	17.00
136	564992.50	4226752.01	17.00
137	564993.17	4226747.09	17.00
138	564993.85	4226742.18	17.00
139	564994.52	4226737.26	17.00
140	564995.19	4226732.35	17.00
141	564995.86	4226727.43	17.00
142	564996.53	4226722.52	17.00
143	564997.20	4226717.60	17.00
144	564997.88	4226712.68	17.12

145	564998.55	4226707.77	17.28
146	564999.22	4226702.85	17.45
147	564999.89	4226697.94	17.61
148	565000.56	4226693.02	17.77
149	565001.24	4226688.11	17.94
150	565001.91	4226683.19	18.00
151	565002.58	4226678.27	18.00
152	565003.25	4226673.36	18.00
153	565003.92	4226668.44	18.00
154	565004.60	4226663.53	18.00
155	565005.27	4226658.61	18.00
156	565005.94	4226653.70	18.00
157	565006.61	4226648.78	18.00
158	565007.28	4226643.86	18.00
159	565007.95	4226638.95	18.00
160	565008.63	4226634.03	18.00
161	565009.30	4226629.12	18.00
162	565005.35	4226624.19	18.00
163	565000.74	4226624.17	18.00
164	564996.12	4226624.16	18.00
165	564991.51	4226624.15	18.00
166	564986.89	4226624.13	18.00
167	564982.27	4226624.12	18.00
168	564977.66	4226624.10	18.00
169	564972.87	4226619.50	18.00
170	564967.73	4226614.89	18.00
171	564962.77	4226614.87	18.00
172	564957.81	4226614.85	18.00
173	564952.85	4226614.83	18.03
174	564947.90	4226614.81	18.19
175	564942.94	4226614.79	18.36
176	564937.98	4226614.77	18.52
177	564933.02	4226614.75	18.69
178	564928.06	4226611.40	18.85
179	564923.23	4226608.07	19.03
180	564918.39	4226608.07	19.35
181	564913.56	4226608.07	19.67
182	564908.72	4226608.07	20.00

183	564903.89	4226608.07	20.32
184	564899.05	4226608.07	20.64
185	564894.22	4226608.07	20.96
186	564889.38	4226608.07	21.23
187	564880.98	4226611.40	21.63
188	564877.41	4226614.74	21.75
189	564873.83	4226618.07	21.84
190	564870.26	4226621.41	21.91
191	564866.69	4226624.74	21.95
192	564863.12	4226628.07	22.04
193	564859.55	4226631.41	22.25
194	564855.97	4226634.74	22.44
195	564852.40	4226638.08	22.60
196	564847.84	4226646.26	22.70
197	564846.86	4226651.11	22.66
198	564845.87	4226655.96	22.60
199	564844.88	4226660.81	22.63
200	564843.89	4226665.66	22.66
201	564842.91	4226670.51	22.69
202	564841.92	4226675.35	22.73
203	564840.93	4226680.20	22.76
204	564839.94	4226685.05	22.79
205	564838.96	4226689.90	22.82
206	564837.97	4226694.75	22.86
207	564836.98	4226699.60	22.89
208	564835.99	4226704.45	22.92
209	564835.01	4226709.30	22.96
210	564834.02	4226714.15	22.99
211	564833.03	4226719.00	23.02
212	564832.04	4226723.85	23.05
213	564831.06	4226728.69	23.09
214	564830.07	4226733.54	23.12
215	564829.08	4226738.39	23.15
216	564828.09	4226743.24	23.19
217	564827.11	4226748.09	23.11
218	564826.12	4226752.94	22.86
219	564825.13	4226757.79	22.63
220	564824.14	4226762.64	22.40

221	564823.16	4226767.49	22.18
222	564822.17	4226772.34	21.98
223	564821.18	4226777.19	21.82
224	564820.19	4226782.03	21.81
225	564819.21	4226786.88	21.79
226	564818.22	4226791.73	21.76
227	564817.23	4226796.58	21.72
228	564816.24	4226801.43	21.67
229	564815.26	4226806.28	21.61
230	564814.27	4226811.13	21.59
231	564813.28	4226815.98	21.58
232	564812.29	4226820.83	21.57
233	564811.31	4226825.68	21.58
234	564810.32	4226830.53	21.60
235	564809.33	4226835.37	21.63
236	564808.34	4226840.22	21.58
237	564807.36	4226845.07	21.50
238	564806.37	4226849.92	21.41
239	564805.38	4226854.77	21.30
240	564804.39	4226859.62	21.19
241	564803.41	4226864.47	21.08
242	564802.42	4226869.32	20.98
243	564801.43	4226874.17	20.89
244	564800.44	4226879.02	20.79
245	564799.46	4226883.87	20.69
246	564798.47	4226888.71	20.60
247	564797.48	4226893.56	20.50
248	564796.49	4226898.41	20.53
249	564795.51	4226903.26	20.71
250	564794.52	4226908.11	20.88
251	565006.95	4226529.57	18.00
252	565012.12	4226486.09	18.00
253	564904.50	4226487.58	22.14
254	564903.47	4226530.72	21.47
255	565007.52	4226524.74	18.00
256	565008.10	4226519.91	18.00
257	565008.67	4226515.08	18.00
258	565009.25	4226510.25	18.00

259	565009.82	4226505.41	18.00
260	565010.40	4226500.58	18.00
261	565010.97	4226495.75	18.00
262	565011.55	4226490.92	18.00
263	565007.23	4226486.16	18.00
264	565002.34	4226486.23	18.00
265	564997.44	4226486.29	18.00
266	564992.55	4226486.36	18.00
267	564987.66	4226486.43	18.00
268	564982.77	4226486.50	18.02
269	564977.88	4226486.56	18.13
270	564972.99	4226486.63	18.23
271	564968.09	4226486.70	18.34
272	564963.20	4226486.77	18.44
273	564958.31	4226486.84	18.55
274	564953.42	4226486.90	18.66
275	564948.53	4226486.97	18.99
276	564943.63	4226487.04	19.31
277	564938.74	4226487.11	19.63
278	564933.85	4226487.17	19.96
279	564928.96	4226487.24	20.28
280	564924.07	4226487.31	20.61
281	564919.18	4226487.38	20.98
282	564914.28	4226487.45	21.37
283	564909.39	4226487.51	21.76
284	564904.39	4226492.37	22.09
285	564904.27	4226497.17	22.05
286	564904.16	4226501.96	22.00
287	564904.04	4226506.75	21.95
288	564903.93	4226511.55	21.86
289	564903.81	4226516.34	21.76
290	564903.70	4226521.13	21.67
291	564903.58	4226525.93	21.57
292	564908.40	4226530.67	21.11
293	564913.33	4226530.61	20.75
294	564918.25	4226530.56	20.40
295	564923.18	4226530.50	20.04
296	564928.11	4226530.45	19.70

297	564933.04	4226530.39	19.38
298	564937.96	4226530.34	19.05
299	564942.89	4226530.28	18.72
300	564947.82	4226530.23	18.39
301	564952.75	4226530.17	18.06
302	564957.67	4226530.12	18.00
303	564962.60	4226530.06	18.00
304	564967.53	4226530.01	18.00
305	564972.46	4226529.95	18.00
306	564977.38	4226529.90	18.00
307	564982.31	4226529.84	18.00
308	564987.24	4226529.79	18.00
309	564992.17	4226529.73	18.00
310	564997.09	4226529.68	18.00
311	565002.02	4226529.63	18.00

Plant Boundary Receptors

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	FENCEINT	Cartesian plant boundary Intermediate Receptors

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.SF
Format Type: Default AERMET format

Profile Met Data

Filename: C:\Users\lpark\Desktop\COMPLETED PROJECTS\5476.0001 American Canyon Inn\HRA\724955\724955.PF
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 4.30 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2009			
Upper Air		2009			

Data Period

Data Period to Process

Start Date: 1/1/2009 Start Hour: 1 End Date: 1/2/2014 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Sensitive Receptor Summary

C:\Lakes\AERMOD View\54600001 Giovannoni Logistics_Scenario 1\546000

PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.04060	ug/m^3	R1	563846.99	4227763.17	9.00	1.50	9.00	
PERIOD		0.01030	ug/m^3	R2	563152.88	4227961.87	10.03	1.50	10.03	
PERIOD		0.03858	ug/m^3	R3	563514.22	4227959.26	10.45	1.50	10.45	
PERIOD		0.03706	ug/m^3	R4	563487.56	4227974.48	10.12	1.50	10.12	
PERIOD		0.03908	ug/m^3	R5	563482.14	4227991.20	10.97	1.50	10.97	
PERIOD		0.02566	ug/m^3	R6	563427.00	4227966.19	10.00	1.50	10.00	
PERIOD		0.02461	ug/m^3	R7	563425.95	4227956.25	10.00	1.50	10.00	
PERIOD		0.01335	ug/m^3	R8	563265.64	4227970.13	9.00	1.50	9.00	
PERIOD		0.00453	ug/m^3	R9	562505.78	4227951.68	3.18	1.50	3.18	
PERIOD		0.03656	ug/m^3	R10	563810.19	4227762.07	9.00	1.50	9.00	
PERIOD		0.03915	ug/m^3	R11	563740.68	4227815.91	9.00	1.50	9.00	
PERIOD		0.00758	ug/m^3	R12	564832.15	4226970.55	18.57	1.50	80.00	
PERIOD		0.00708	ug/m^3	R13	564869.92	4226938.63	17.38	1.50	80.00	
PERIOD		0.00408	ug/m^3	R14	565044.27	4226568.58	18.00	1.50	251.00	
PERIOD		0.00433	ug/m^3	R15	564973.13	4226565.86	18.00	1.50	80.00	
PERIOD		0.00431	ug/m^3	R16	564955.94	4226541.29	18.00	1.50	80.00	
PERIOD		0.00444	ug/m^3	R17	564893.17	4226549.81	22.03	1.50	80.00	
PERIOD		0.00403	ug/m^3	R18	565028.87	4226540.35	18.00	1.50	251.00	
PERIOD		0.00395	ug/m^3	R19	565035.66	4226521.39	18.00	1.50	251.00	
PERIOD		0.00386	ug/m^3	R20	565038.10	4226497.30	18.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00391	ug/m^3	R21	565000.82	4226474.49	18.00	1.50	80.00	
PERIOD		0.00380	ug/m^3	R22	565008.62	4226449.37	18.00	1.50	250.00	
PERIOD		0.00377	ug/m^3	R23	565042.99	4226474.21	18.00	1.50	251.00	
PERIOD		0.00367	ug/m^3	R24	565049.05	4226447.64	18.00	1.50	251.00	
PERIOD		0.00360	ug/m^3	R25	565049.05	4226421.36	18.00	1.50	251.00	
PERIOD		0.00337	ug/m^3	R26	565437.70	4226745.61	20.00	1.50	265.00	
PERIOD		0.00334	ug/m^3	R27	565456.18	4226744.45	20.00	1.50	265.00	
PERIOD		0.00325	ug/m^3	R28	565498.35	4226743.87	21.00	1.50	265.00	
PERIOD		0.00323	ug/m^3	R29	565514.23	4226744.16	21.00	1.50	265.00	
PERIOD		0.00327	ug/m^3	R30	565441.17	4226713.84	20.00	1.50	265.00	
PERIOD		0.00324	ug/m^3	R31	565459.65	4226713.55	20.00	1.50	265.00	
PERIOD		0.00310	ug/m^3	R32	565517.12	4226698.53	21.00	1.50	265.00	
PERIOD		0.00305	ug/m^3	R33	565516.25	4226683.80	21.00	1.50	265.00	
PERIOD		0.00308	ug/m^3	R34	565482.46	4226674.27	20.63	1.50	265.00	
PERIOD		0.00303	ug/m^3	R35	565483.33	4226658.68	20.66	1.50	265.00	
PERIOD		0.00314	ug/m^3	R36	565433.95	4226666.19	20.00	1.50	265.00	
PERIOD		0.00311	ug/m^3	R37	565434.24	4226653.48	20.00	1.50	265.00	
PERIOD		0.00301	ug/m^3	R38	565444.63	4226624.31	20.00	1.50	265.00	
PERIOD		0.00298	ug/m^3	R39	565463.98	4226624.31	20.01	1.50	265.00	
PERIOD		0.00292	ug/m^3	R40	565509.03	4226631.82	21.00	1.50	265.00	
PERIOD		0.00288	ug/m^3	R41	565509.03	4226617.38	21.00	1.50	265.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00640	ug/m^3	R42	565314.45	4227270.70	20.00	1.50	251.00	
PERIOD		0.00615	ug/m^3	R43	565291.64	4227217.62	19.00	1.50	251.00	
PERIOD		0.00607	ug/m^3	R44	565309.08	4227218.00	19.00	1.50	251.00	
PERIOD		0.00562	ug/m^3	R45	565384.70	4227209.41	20.00	1.50	265.00	
PERIOD		0.00527	ug/m^3	R46	565449.84	4227190.61	20.00	1.50	265.00	
PERIOD		0.00515	ug/m^3	R47	565496.35	4227202.46	20.28	1.50	265.00	
PERIOD		0.00557	ug/m^3	R48	565481.62	4227270.05	21.00	1.50	265.00	
PERIOD		0.00543	ug/m^3	R49	565516.57	4227270.92	21.00	1.50	265.00	
PERIOD		0.00454	ug/m^3	R50	565553.69	4227134.21	22.00	1.50	265.00	
PERIOD		0.00471	ug/m^3	R51	565613.85	4227214.51	22.01	1.50	265.00	
PERIOD		0.00506	ug/m^3	R52	565588.48	4227278.18	22.85	1.50	265.00	
PERIOD		0.00487	ug/m^3	R53	565625.01	4227289.45	24.49	1.50	265.00	
PERIOD		0.00412	ug/m^3	R54	565729.83	4227269.14	29.12	1.50	265.00	
PERIOD		0.00344	ug/m^3	R55	565890.63	4227286.35	34.23	1.50	265.00	
PERIOD		0.00991	ug/m^3	R56	565430.90	4227667.38	23.64	1.50	251.00	
PERIOD		0.01499	ug/m^3	R57	565017.44	4228947.47	20.67	1.50	20.67	
PERIOD		0.00555	ug/m^3	R58	566101.79	4227980.30	40.54	1.50	265.00	
PERIOD		0.00366	ug/m^3	R59	566081.49	4228935.03	70.63	1.50	70.63	
PERIOD		0.00716	ug/m^3	NJMES1	564793.53	4226912.96	21.04	1.50	80.00	
PERIOD		0.00620	ug/m^3	NJMES2	564970.33	4226914.23	16.00	1.50	251.00	
PERIOD		0.00441	ug/m^3	NJMES3	565009.97	4226624.20	18.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00457	ug/m^3	NJMES4	564973.04	4226624.09	18.00	1.50	250.00	
PERIOD		0.00453	ug/m^3	NJMES5	564972.69	4226614.91	18.00	1.50	80.00	
PERIOD		0.00470	ug/m^3	NJMES6	564928.06	4226614.73	18.85	1.50	80.00	
PERIOD		0.00467	ug/m^3	NJMES7	564928.06	4226608.07	18.85	1.50	80.00	
PERIOD		0.00475	ug/m^3	NJMES8	564884.55	4226608.07	21.49	1.50	80.00	
PERIOD		0.00498	ug/m^3	NJMES9	564848.83	4226641.41	22.74	1.50	80.00	
PERIOD		0.00715	ug/m^3	NJMES10	564798.44	4226913.00	20.81	1.50	80.00	
PERIOD		0.00713	ug/m^3	NJMES11	564803.35	4226913.03	20.57	1.50	80.00	
PERIOD		0.00712	ug/m^3	NJMES12	564808.26	4226913.07	20.32	1.50	80.00	
PERIOD		0.00710	ug/m^3	NJMES13	564813.17	4226913.10	20.07	1.50	80.00	
PERIOD		0.00709	ug/m^3	NJMES14	564818.09	4226913.14	19.81	1.50	80.00	
PERIOD		0.00707	ug/m^3	NJMES15	564823.00	4226913.17	19.56	1.50	80.00	
PERIOD		0.00705	ug/m^3	NJMES16	564827.91	4226913.21	19.30	1.50	80.00	
PERIOD		0.00704	ug/m^3	NJMES17	564832.82	4226913.24	19.04	1.50	80.00	
PERIOD		0.00701	ug/m^3	NJMES18	564837.73	4226913.28	18.86	1.50	80.00	
PERIOD		0.00699	ug/m^3	NJMES19	564842.64	4226913.31	18.70	1.50	80.00	
PERIOD		0.00696	ug/m^3	NJMES20	564847.55	4226913.35	18.54	1.50	80.00	
PERIOD		0.00694	ug/m^3	NJMES21	564852.46	4226913.38	18.37	1.50	80.00	
PERIOD		0.00691	ug/m^3	NJMES22	564857.37	4226913.42	18.21	1.50	80.00	
PERIOD		0.00689	ug/m^3	NJMES23	564862.29	4226913.45	18.05	1.50	80.00	
PERIOD		0.00686	ug/m^3	NJMES24	564867.20	4226913.49	17.88	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00684	ug/m^3	NJMES25	564872.11	4226913.52	17.72	1.50	80.00	
PERIOD		0.00681	ug/m^3	NJMES26	564877.02	4226913.56	17.56	1.50	80.00	
PERIOD		0.00678	ug/m^3	NJMES27	564881.93	4226913.60	17.39	1.50	80.00	
PERIOD		0.00675	ug/m^3	NJMES28	564886.84	4226913.63	17.23	1.50	80.00	
PERIOD		0.00673	ug/m^3	NJMES29	564891.75	4226913.67	17.06	1.50	80.00	
PERIOD		0.00670	ug/m^3	NJMES30	564896.66	4226913.70	16.90	1.50	80.00	
PERIOD		0.00667	ug/m^3	NJMES31	564901.57	4226913.74	16.74	1.50	80.00	
PERIOD		0.00664	ug/m^3	NJMES32	564906.49	4226913.77	16.57	1.50	80.00	
PERIOD		0.00661	ug/m^3	NJMES33	564911.40	4226913.81	16.41	1.50	80.00	
PERIOD		0.00658	ug/m^3	NJMES34	564916.31	4226913.84	16.25	1.50	80.00	
PERIOD		0.00655	ug/m^3	NJMES35	564921.22	4226913.88	16.08	1.50	80.00	
PERIOD		0.00652	ug/m^3	NJMES36	564926.13	4226913.91	16.00	1.50	250.00	
PERIOD		0.00648	ug/m^3	NJMES37	564931.04	4226913.95	16.00	1.50	250.00	
PERIOD		0.00645	ug/m^3	NJMES38	564935.95	4226913.98	16.00	1.50	250.00	
PERIOD		0.00641	ug/m^3	NJMES39	564940.86	4226914.02	16.00	1.50	250.00	
PERIOD		0.00637	ug/m^3	NJMES40	564945.77	4226914.05	16.00	1.50	251.00	
PERIOD		0.00634	ug/m^3	NJMES41	564950.69	4226914.09	16.00	1.50	251.00	
PERIOD		0.00630	ug/m^3	NJMES42	564955.60	4226914.12	16.00	1.50	251.00	
PERIOD		0.00627	ug/m^3	NJMES43	564960.51	4226914.16	16.00	1.50	251.00	
PERIOD		0.00623	ug/m^3	NJMES44	564965.42	4226914.20	16.00	1.50	251.00	
PERIOD		0.00616	ug/m^3	NJMES45	564971.00	4226909.31	16.00	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00612	ug/m^3	NJMES46	564971.67	4226904.40	16.00	1.50	251.00	
PERIOD		0.00608	ug/m^3	NJMES47	564972.35	4226899.48	16.00	1.50	251.00	
PERIOD		0.00605	ug/m^3	NJMES48	564973.02	4226894.57	16.00	1.50	251.00	
PERIOD		0.00601	ug/m^3	NJMES49	564973.69	4226889.65	16.00	1.50	251.00	
PERIOD		0.00597	ug/m^3	NJMES50	564974.36	4226884.74	16.00	1.50	251.00	
PERIOD		0.00594	ug/m^3	NJMES51	564975.03	4226879.82	16.00	1.50	251.00	
PERIOD		0.00590	ug/m^3	NJMES52	564975.70	4226874.90	16.00	1.50	251.00	
PERIOD		0.00587	ug/m^3	NJMES53	564976.38	4226869.99	16.00	1.50	251.00	
PERIOD		0.00583	ug/m^3	NJMES54	564977.05	4226865.07	16.00	1.50	251.00	
PERIOD		0.00580	ug/m^3	NJMES55	564977.72	4226860.16	16.00	1.50	251.00	
PERIOD		0.00576	ug/m^3	NJMES56	564978.39	4226855.24	16.00	1.50	251.00	
PERIOD		0.00573	ug/m^3	NJMES57	564979.06	4226850.33	16.00	1.50	251.00	
PERIOD		0.00569	ug/m^3	NJMES58	564979.74	4226845.41	16.00	1.50	251.00	
PERIOD		0.00566	ug/m^3	NJMES59	564980.41	4226840.49	16.00	1.50	251.00	
PERIOD		0.00563	ug/m^3	NJMES60	564981.08	4226835.58	16.00	1.50	251.00	
PERIOD		0.00560	ug/m^3	NJMES61	564981.75	4226830.66	16.01	1.50	251.00	
PERIOD		0.00556	ug/m^3	NJMES62	564982.42	4226825.75	16.01	1.50	251.00	
PERIOD		0.00553	ug/m^3	NJMES63	564983.10	4226820.83	16.01	1.50	251.00	
PERIOD		0.00550	ug/m^3	NJMES64	564983.77	4226815.92	16.00	1.50	251.00	
PERIOD		0.00547	ug/m^3	NJMES65	564984.44	4226811.00	16.00	1.50	251.00	
PERIOD		0.00544	ug/m^3	NJMES66	564985.11	4226806.08	16.01	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00540	ug/m^3	NJMES67	564985.78	4226801.17	16.17	1.50	251.00	
PERIOD		0.00537	ug/m^3	NJMES68	564986.45	4226796.25	16.33	1.50	251.00	
PERIOD		0.00533	ug/m^3	NJMES69	564987.13	4226791.34	16.50	1.50	251.00	
PERIOD		0.00529	ug/m^3	NJMES70	564987.80	4226786.42	16.66	1.50	251.00	
PERIOD		0.00526	ug/m^3	NJMES71	564988.47	4226781.50	16.83	1.50	251.00	
PERIOD		0.00522	ug/m^3	NJMES72	564989.14	4226776.59	16.99	1.50	251.00	
PERIOD		0.00520	ug/m^3	NJMES73	564989.81	4226771.67	17.00	1.50	251.00	
PERIOD		0.00517	ug/m^3	NJMES74	564990.49	4226766.76	17.00	1.50	251.00	
PERIOD		0.00514	ug/m^3	NJMES75	564991.16	4226761.84	17.00	1.50	251.00	
PERIOD		0.00511	ug/m^3	NJMES76	564991.83	4226756.93	17.00	1.50	251.00	
PERIOD		0.00508	ug/m^3	NJMES77	564992.50	4226752.01	17.00	1.50	251.00	
PERIOD		0.00506	ug/m^3	NJMES78	564993.17	4226747.09	17.00	1.50	251.00	
PERIOD		0.00503	ug/m^3	NJMES79	564993.85	4226742.18	17.00	1.50	251.00	
PERIOD		0.00500	ug/m^3	NJMES80	564994.52	4226737.26	17.00	1.50	251.00	
PERIOD		0.00498	ug/m^3	NJMES81	564995.19	4226732.35	17.00	1.50	251.00	
PERIOD		0.00495	ug/m^3	NJMES82	564995.86	4226727.43	17.00	1.50	251.00	
PERIOD		0.00492	ug/m^3	NJMES83	564996.53	4226722.51	17.00	1.50	251.00	
PERIOD		0.00490	ug/m^3	NJMES84	564997.20	4226717.60	17.00	1.50	251.00	
PERIOD		0.00487	ug/m^3	NJMES85	564997.88	4226712.68	17.12	1.50	251.00	
PERIOD		0.00484	ug/m^3	NJMES86	564998.55	4226707.77	17.28	1.50	251.00	
PERIOD		0.00481	ug/m^3	NJMES87	564999.22	4226702.85	17.45	1.50	251.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00478	ug/m^3	NJMES88	564999.89	4226697.94	17.61	1.50	251.00	
PERIOD		0.00475	ug/m^3	NJMES89	565000.56	4226693.02	17.77	1.50	251.00	
PERIOD		0.00471	ug/m^3	NJMES90	565001.24	4226688.11	17.94	1.50	251.00	
PERIOD		0.00469	ug/m^3	NJMES91	565001.91	4226683.19	18.00	1.50	251.00	
PERIOD		0.00466	ug/m^3	NJMES92	565002.58	4226678.27	18.00	1.50	251.00	
PERIOD		0.00464	ug/m^3	NJMES93	565003.25	4226673.36	18.00	1.50	251.00	
PERIOD		0.00462	ug/m^3	NJMES94	565003.92	4226668.44	18.00	1.50	251.00	
PERIOD		0.00459	ug/m^3	NJMES95	565004.60	4226663.53	18.00	1.50	251.00	
PERIOD		0.00457	ug/m^3	NJMES96	565005.27	4226658.61	18.00	1.50	251.00	
PERIOD		0.00455	ug/m^3	NJMES97	565005.94	4226653.70	18.00	1.50	251.00	
PERIOD		0.00452	ug/m^3	NJMES98	565006.61	4226648.78	18.00	1.50	251.00	
PERIOD		0.00450	ug/m^3	NJMES99	565007.28	4226643.86	18.00	1.50	251.00	
PERIOD		0.00448	ug/m^3	NJMES100	565007.95	4226638.95	18.00	1.50	251.00	
PERIOD		0.00446	ug/m^3	NJMES101	565008.63	4226634.03	18.00	1.50	251.00	
PERIOD		0.00443	ug/m^3	NJMES102	565009.30	4226629.12	18.00	1.50	251.00	
PERIOD		0.00443	ug/m^3	NJMES103	565005.35	4226624.19	18.00	1.50	251.00	
PERIOD		0.00445	ug/m^3	NJMES104	565000.74	4226624.17	18.00	1.50	251.00	
PERIOD		0.00447	ug/m^3	NJMES105	564996.12	4226624.16	18.00	1.50	251.00	
PERIOD		0.00449	ug/m^3	NJMES106	564991.51	4226624.14	18.00	1.50	250.00	
PERIOD		0.00451	ug/m^3	NJMES107	564986.89	4226624.13	18.00	1.50	250.00	
PERIOD		0.00453	ug/m^3	NJMES108	564982.27	4226624.12	18.00	1.50	250.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00455	ug/m^3	NJMES109	564977.66	4226624.10	18.00	1.50	250.00	
PERIOD		0.00455	ug/m^3	NJMES110	564972.87	4226619.50	18.00	1.50	250.00	
PERIOD		0.00455	ug/m^3	NJMES111	564967.73	4226614.89	18.00	1.50	80.00	
PERIOD		0.00458	ug/m^3	NJMES112	564962.77	4226614.87	18.00	1.50	80.00	
PERIOD		0.00460	ug/m^3	NJMES113	564957.81	4226614.85	18.00	1.50	80.00	
PERIOD		0.00462	ug/m^3	NJMES114	564952.85	4226614.83	18.03	1.50	80.00	
PERIOD		0.00463	ug/m^3	NJMES115	564947.90	4226614.81	18.19	1.50	80.00	
PERIOD		0.00465	ug/m^3	NJMES116	564942.94	4226614.79	18.36	1.50	80.00	
PERIOD		0.00467	ug/m^3	NJMES117	564937.98	4226614.77	18.52	1.50	80.00	
PERIOD		0.00468	ug/m^3	NJMES118	564933.02	4226614.75	18.69	1.50	80.00	
PERIOD		0.00469	ug/m^3	NJMES119	564928.06	4226611.40	18.85	1.50	80.00	
PERIOD		0.00469	ug/m^3	NJMES120	564923.23	4226608.07	19.03	1.50	80.00	
PERIOD		0.00470	ug/m^3	NJMES121	564918.39	4226608.07	19.35	1.50	80.00	
PERIOD		0.00471	ug/m^3	NJMES122	564913.56	4226608.07	19.67	1.50	80.00	
PERIOD		0.00471	ug/m^3	NJMES123	564908.72	4226608.07	20.00	1.50	80.00	
PERIOD		0.00472	ug/m^3	NJMES124	564903.89	4226608.07	20.32	1.50	80.00	
PERIOD		0.00473	ug/m^3	NJMES125	564899.05	4226608.07	20.64	1.50	80.00	
PERIOD		0.00473	ug/m^3	NJMES126	564894.22	4226608.07	20.96	1.50	80.00	
PERIOD		0.00474	ug/m^3	NJMES127	564889.38	4226608.07	21.23	1.50	80.00	
PERIOD		0.00477	ug/m^3	NJMES128	564880.98	4226611.40	21.63	1.50	80.00	
PERIOD		0.00480	ug/m^3	NJMES129	564877.41	4226614.74	21.75	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00482	ug/m^3	NJMES130	564873.83	4226618.07	21.84	1.50	80.00	
PERIOD		0.00485	ug/m^3	NJMES131	564870.26	4226621.41	21.91	1.50	80.00	
PERIOD		0.00488	ug/m^3	NJMES132	564866.69	4226624.74	21.95	1.50	80.00	
PERIOD		0.00490	ug/m^3	NJMES133	564863.12	4226628.07	22.04	1.50	80.00	
PERIOD		0.00492	ug/m^3	NJMES134	564859.55	4226631.41	22.25	1.50	80.00	
PERIOD		0.00494	ug/m^3	NJMES135	564855.97	4226634.74	22.44	1.50	80.00	
PERIOD		0.00496	ug/m^3	NJMES136	564852.40	4226638.08	22.60	1.50	80.00	
PERIOD		0.00501	ug/m^3	NJMES137	564847.84	4226646.26	22.70	1.50	80.00	
PERIOD		0.00505	ug/m^3	NJMES138	564846.86	4226651.11	22.66	1.50	80.00	
PERIOD		0.00508	ug/m^3	NJMES139	564845.87	4226655.96	22.60	1.50	80.00	
PERIOD		0.00510	ug/m^3	NJMES140	564844.88	4226660.81	22.63	1.50	80.00	
PERIOD		0.00513	ug/m^3	NJMES141	564843.89	4226665.66	22.66	1.50	80.00	
PERIOD		0.00516	ug/m^3	NJMES142	564842.91	4226670.51	22.69	1.50	80.00	
PERIOD		0.00518	ug/m^3	NJMES143	564841.92	4226675.35	22.73	1.50	80.00	
PERIOD		0.00521	ug/m^3	NJMES144	564840.93	4226680.20	22.76	1.50	80.00	
PERIOD		0.00524	ug/m^3	NJMES145	564839.94	4226685.05	22.79	1.50	80.00	
PERIOD		0.00526	ug/m^3	NJMES146	564838.95	4226689.90	22.82	1.50	80.00	
PERIOD		0.00529	ug/m^3	NJMES147	564837.97	4226694.75	22.86	1.50	80.00	
PERIOD		0.00532	ug/m^3	NJMES148	564836.98	4226699.60	22.89	1.50	80.00	
PERIOD		0.00535	ug/m^3	NJMES149	564835.99	4226704.45	22.92	1.50	80.00	
PERIOD		0.00537	ug/m^3	NJMES150	564835.01	4226709.30	22.96	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00540	ug/m^3	NJMES151	564834.02	4226714.15	22.99	1.50	80.00	
PERIOD		0.00543	ug/m^3	NJMES152	564833.03	4226719.00	23.02	1.50	80.00	
PERIOD		0.00546	ug/m^3	NJMES153	564832.04	4226723.85	23.05	1.50	80.00	
PERIOD		0.00549	ug/m^3	NJMES154	564831.06	4226728.69	23.09	1.50	80.00	
PERIOD		0.00552	ug/m^3	NJMES155	564830.07	4226733.54	23.12	1.50	80.00	
PERIOD		0.00555	ug/m^3	NJMES156	564829.08	4226738.39	23.15	1.50	80.00	
PERIOD		0.00558	ug/m^3	NJMES157	564828.09	4226743.24	23.19	1.50	80.00	
PERIOD		0.00562	ug/m^3	NJMES158	564827.11	4226748.09	23.11	1.50	80.00	
PERIOD		0.00567	ug/m^3	NJMES159	564826.12	4226752.94	22.86	1.50	80.00	
PERIOD		0.00572	ug/m^3	NJMES160	564825.13	4226757.79	22.63	1.50	80.00	
PERIOD		0.00577	ug/m^3	NJMES161	564824.14	4226762.64	22.40	1.50	80.00	
PERIOD		0.00582	ug/m^3	NJMES162	564823.16	4226767.49	22.18	1.50	80.00	
PERIOD		0.00588	ug/m^3	NJMES163	564822.17	4226772.34	21.98	1.50	80.00	
PERIOD		0.00592	ug/m^3	NJMES164	564821.18	4226777.18	21.82	1.50	80.00	
PERIOD		0.00596	ug/m^3	NJMES165	564820.19	4226782.03	21.81	1.50	80.00	
PERIOD		0.00600	ug/m^3	NJMES166	564819.20	4226786.88	21.79	1.50	80.00	
PERIOD		0.00604	ug/m^3	NJMES167	564818.22	4226791.73	21.76	1.50	80.00	
PERIOD		0.00608	ug/m^3	NJMES168	564817.23	4226796.58	21.72	1.50	80.00	
PERIOD		0.00612	ug/m^3	NJMES169	564816.24	4226801.43	21.67	1.50	80.00	
PERIOD		0.00616	ug/m^3	NJMES170	564815.26	4226806.28	21.61	1.50	80.00	
PERIOD		0.00620	ug/m^3	NJMES171	564814.27	4226811.13	21.59	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00624	ug/m^3	NJMES172	564813.28	4226815.98	21.58	1.50	80.00	
PERIOD		0.00628	ug/m^3	NJMES173	564812.29	4226820.83	21.57	1.50	80.00	
PERIOD		0.00632	ug/m^3	NJMES174	564811.31	4226825.68	21.58	1.50	80.00	
PERIOD		0.00636	ug/m^3	NJMES175	564810.32	4226830.53	21.60	1.50	80.00	
PERIOD		0.00640	ug/m^3	NJMES176	564809.33	4226835.37	21.63	1.50	80.00	
PERIOD		0.00644	ug/m^3	NJMES177	564808.34	4226840.22	21.58	1.50	80.00	
PERIOD		0.00649	ug/m^3	NJMES178	564807.36	4226845.07	21.50	1.50	80.00	
PERIOD		0.00654	ug/m^3	NJMES179	564806.37	4226849.92	21.41	1.50	80.00	
PERIOD		0.00659	ug/m^3	NJMES180	564805.38	4226854.77	21.30	1.50	80.00	
PERIOD		0.00664	ug/m^3	NJMES181	564804.39	4226859.62	21.19	1.50	80.00	
PERIOD		0.00670	ug/m^3	NJMES182	564803.41	4226864.47	21.08	1.50	80.00	
PERIOD		0.00675	ug/m^3	NJMES183	564802.42	4226869.32	20.98	1.50	80.00	
PERIOD		0.00680	ug/m^3	NJMES184	564801.43	4226874.17	20.89	1.50	80.00	
PERIOD		0.00685	ug/m^3	NJMES185	564800.44	4226879.02	20.79	1.50	80.00	
PERIOD		0.00691	ug/m^3	NJMES186	564799.45	4226883.87	20.69	1.50	80.00	
PERIOD		0.00696	ug/m^3	NJMES187	564798.47	4226888.71	20.60	1.50	80.00	
PERIOD		0.00702	ug/m^3	NJMES188	564797.48	4226893.56	20.50	1.50	80.00	
PERIOD		0.00706	ug/m^3	NJMES189	564796.49	4226898.41	20.53	1.50	80.00	
PERIOD		0.00709	ug/m^3	NJMES190	564795.51	4226903.26	20.71	1.50	80.00	
PERIOD		0.00713	ug/m^3	NJMES191	564794.52	4226908.11	20.88	1.50	80.00	
PERIOD		0.00407	ug/m^3	CBCA1	565006.95	4226529.57	18.00	1.50	250.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00391	ug/m^3	CBCA2	565012.12	4226486.09	18.00	1.50	250.00	
PERIOD		0.00416	ug/m^3	CBCA3	564904.50	4226487.58	22.14	1.50	80.00	
PERIOD		0.00435	ug/m^3	CBCA4	564903.47	4226530.72	21.47	1.50	80.00	
PERIOD		0.00405	ug/m^3	CBCA5	565007.52	4226524.74	18.00	1.50	250.00	
PERIOD		0.00403	ug/m^3	CBCA6	565008.10	4226519.91	18.00	1.50	250.00	
PERIOD		0.00402	ug/m^3	CBCA7	565008.67	4226515.08	18.00	1.50	250.00	
PERIOD		0.00400	ug/m^3	CBCA8	565009.25	4226510.25	18.00	1.50	250.00	
PERIOD		0.00398	ug/m^3	CBCA9	565009.82	4226505.41	18.00	1.50	250.00	
PERIOD		0.00396	ug/m^3	CBCA10	565010.40	4226500.58	18.00	1.50	250.00	
PERIOD		0.00394	ug/m^3	CBCA11	565010.97	4226495.75	18.00	1.50	250.00	
PERIOD		0.00393	ug/m^3	CBCA12	565011.55	4226490.92	18.00	1.50	250.00	
PERIOD		0.00392	ug/m^3	CBCA13	565007.23	4226486.16	18.00	1.50	250.00	
PERIOD		0.00394	ug/m^3	CBCA14	565002.34	4226486.22	18.00	1.50	250.00	
PERIOD		0.00396	ug/m^3	CBCA15	564997.44	4226486.29	18.00	1.50	80.00	
PERIOD		0.00397	ug/m^3	CBCA16	564992.55	4226486.36	18.00	1.50	80.00	
PERIOD		0.00399	ug/m^3	CBCA17	564987.66	4226486.43	18.00	1.50	80.00	
PERIOD		0.00401	ug/m^3	CBCA18	564982.77	4226486.50	18.02	1.50	80.00	
PERIOD		0.00402	ug/m^3	CBCA19	564977.88	4226486.56	18.13	1.50	80.00	
PERIOD		0.00404	ug/m^3	CBCA20	564972.99	4226486.63	18.23	1.50	80.00	
PERIOD		0.00405	ug/m^3	CBCA21	564968.09	4226486.70	18.34	1.50	80.00	
PERIOD		0.00407	ug/m^3	CBCA22	564963.20	4226486.77	18.44	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00408	ug/m^3	CBCA23	564958.31	4226486.84	18.55	1.50	80.00	
PERIOD		0.00410	ug/m^3	CBCA24	564953.42	4226486.90	18.66	1.50	80.00	
PERIOD		0.00411	ug/m^3	CBCA25	564948.53	4226486.97	18.99	1.50	80.00	
PERIOD		0.00411	ug/m^3	CBCA26	564943.63	4226487.04	19.31	1.50	80.00	
PERIOD		0.00412	ug/m^3	CBCA27	564938.74	4226487.11	19.63	1.50	80.00	
PERIOD		0.00413	ug/m^3	CBCA28	564933.85	4226487.17	19.96	1.50	80.00	
PERIOD		0.00414	ug/m^3	CBCA29	564928.96	4226487.24	20.28	1.50	80.00	
PERIOD		0.00414	ug/m^3	CBCA30	564924.07	4226487.31	20.61	1.50	80.00	
PERIOD		0.00415	ug/m^3	CBCA31	564919.18	4226487.38	20.98	1.50	80.00	
PERIOD		0.00415	ug/m^3	CBCA32	564914.28	4226487.45	21.37	1.50	80.00	
PERIOD		0.00416	ug/m^3	CBCA33	564909.39	4226487.51	21.76	1.50	80.00	
PERIOD		0.00418	ug/m^3	CBCA34	564904.39	4226492.37	22.09	1.50	80.00	
PERIOD		0.00420	ug/m^3	CBCA35	564904.27	4226497.17	22.05	1.50	80.00	
PERIOD		0.00422	ug/m^3	CBCA36	564904.16	4226501.96	22.00	1.50	80.00	
PERIOD		0.00424	ug/m^3	CBCA37	564904.04	4226506.75	21.95	1.50	80.00	
PERIOD		0.00426	ug/m^3	CBCA38	564903.93	4226511.55	21.86	1.50	80.00	
PERIOD		0.00428	ug/m^3	CBCA39	564903.81	4226516.34	21.76	1.50	80.00	
PERIOD		0.00431	ug/m^3	CBCA40	564903.70	4226521.13	21.67	1.50	80.00	
PERIOD		0.00433	ug/m^3	CBCA41	564903.58	4226525.93	21.57	1.50	80.00	
PERIOD		0.00435	ug/m^3	CBCA42	564908.40	4226530.67	21.11	1.50	80.00	
PERIOD		0.00434	ug/m^3	CBCA43	564913.33	4226530.61	20.75	1.50	80.00	

Sensitive Receptor Summary

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PM2.5 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	Receptor ID	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		0.00434	ug/m^3	CBCA44	564918.25	4226530.56	20.40	1.50	80.00	
PERIOD		0.00433	ug/m^3	CBCA45	564923.18	4226530.50	20.04	1.50	80.00	
PERIOD		0.00432	ug/m^3	CBCA46	564928.11	4226530.45	19.70	1.50	80.00	
PERIOD		0.00431	ug/m^3	CBCA47	564933.04	4226530.39	19.38	1.50	80.00	
PERIOD		0.00431	ug/m^3	CBCA48	564937.96	4226530.34	19.05	1.50	80.00	
PERIOD		0.00430	ug/m^3	CBCA49	564942.89	4226530.28	18.72	1.50	80.00	
PERIOD		0.00429	ug/m^3	CBCA50	564947.82	4226530.23	18.39	1.50	80.00	
PERIOD		0.00428	ug/m^3	CBCA51	564952.75	4226530.17	18.06	1.50	80.00	
PERIOD		0.00426	ug/m^3	CBCA52	564957.67	4226530.12	18.00	1.50	80.00	
PERIOD		0.00424	ug/m^3	CBCA53	564962.60	4226530.06	18.00	1.50	80.00	
PERIOD		0.00422	ug/m^3	CBCA54	564967.53	4226530.01	18.00	1.50	80.00	
PERIOD		0.00420	ug/m^3	CBCA55	564972.46	4226529.95	18.00	1.50	80.00	
PERIOD		0.00418	ug/m^3	CBCA56	564977.38	4226529.90	18.00	1.50	80.00	
PERIOD		0.00416	ug/m^3	CBCA57	564982.31	4226529.84	18.00	1.50	80.00	
PERIOD		0.00414	ug/m^3	CBCA58	564987.24	4226529.79	18.00	1.50	80.00	
PERIOD		0.00413	ug/m^3	CBCA59	564992.17	4226529.73	18.00	1.50	250.00	
PERIOD		0.00411	ug/m^3	CBCA60	564997.09	4226529.68	18.00	1.50	250.00	
PERIOD		0.00409	ug/m^3	CBCA61	565002.02	4226529.63	18.00	1.50	250.00	

PROJECT TITLE:

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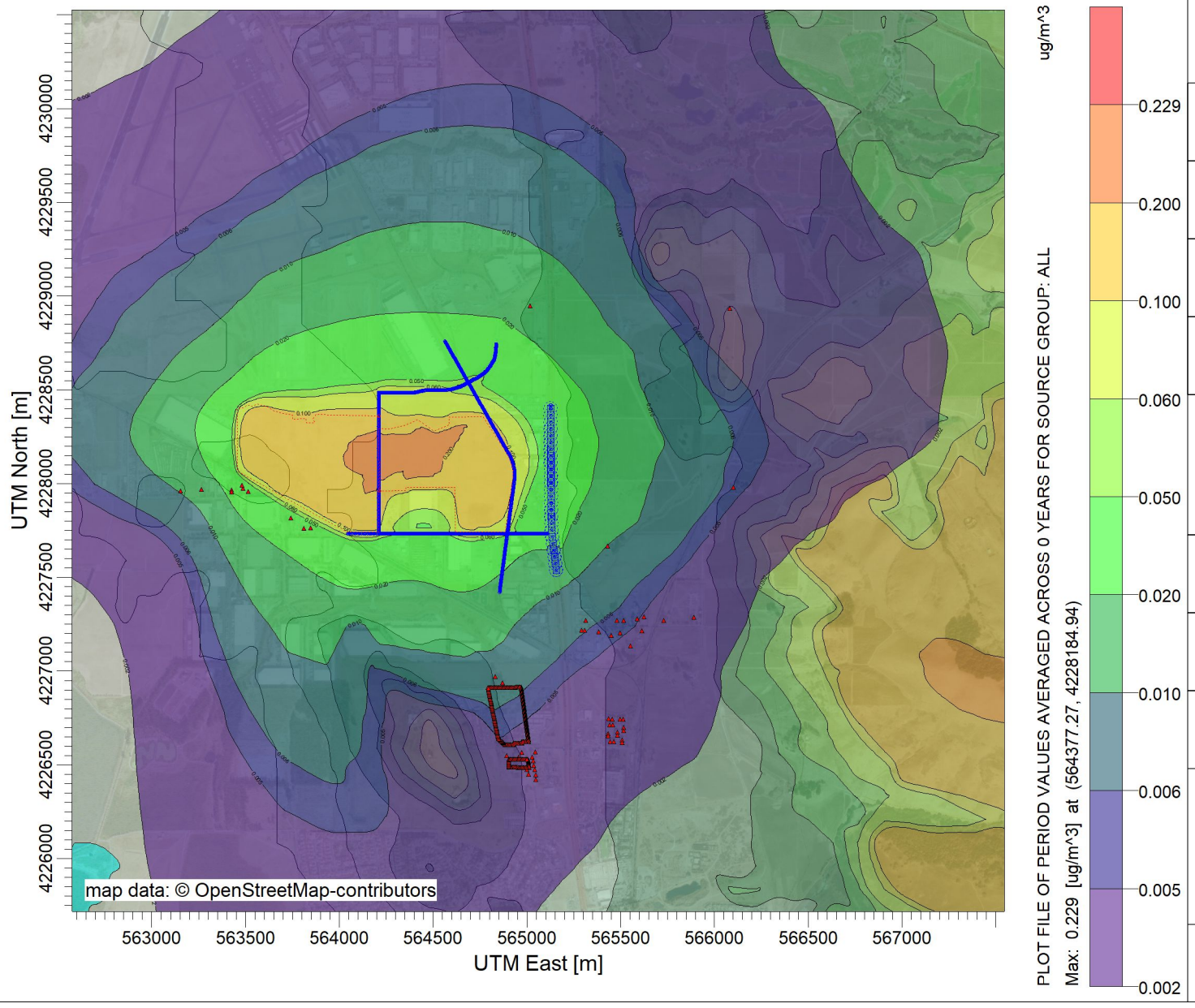

COMMENTS:

SOURCES:

9

RECEPTORS:

6933

OUTPUT TYPE:

Concentration

MAX:

0.229 ug/m^3

COMPANY NAME:

MODELER:

DATE:

9/24/2021

SCALE: 1:32,741

0 1 km

PROJECT NO.:

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Appendix C:
Biological Resources Supporting Information

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BIOLOGICAL RESOURCES REPORT
GIOVANNONI LOGISTICS CENTER
AMERICAN CANYON, CALIFORNIA

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May 2021

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ATTACHMENT 2. Tables

Table 1. Plant Species Observed on the Project Site

Table 2. Special Status Plants with Potential to Occur in the Vicinity of the Project Site, American Canyon, California

Table 3. Special Status Animal Species that Have Been Reported in the Vicinity of the Project Site, American Canyon, California

Table 4. Status Code Definitions for Table 2 & 3

ATTACHMENT 3. Habitat Assessment for the California Red-legged Frog at the Proposed Giovannoni Logistics Project Site, American Canyon, California. Prepared by Mark Jennings of Rana Resources for Huffman-Broadway Group, Inc. March 11, 2021

ATTACHMENT 4. USACE Approved jurisdictional Determination Map

This report should be cited as: Huffman-Broadway Group, Inc. 2021. *Biological Resources Report, Giovannoni Logistics Center, American Canyon, California.* San Rafael, California. 52 pp. plus attachments. Prepared for Buzz Oates Construction, Inc., Sacramento, California. May 2021.

1.0 INTRODUCTION

On behalf of Buzz Oates Construction, Inc., Huffman-Broadway Group, Inc. (HBG) has prepared a Biological Resources Report for the Giovannoni Logistics Center Project in the City of American Canyon, California. The approximately 207.8-acre Giovannoni Logistics Center Project (Project Site), also referred to as the Study Area, is located in the northwestern portion of the City of American Canyon, Napa County, California. It is expected that this Biological Resources Report will be used in decision-making with respect to the documentation necessary for the project pursuant to the California Environmental Quality Act (CEQA).

The applicant, Buzz Oates Construction, Inc., is proposing to develop an approximately 2.4 million square foot logistics center and a wetland preserve as open space on approximately 199.5 acres out of the 207.8-acre Project Site. The Devlin Road and Vine Trail Extension Project is currently being developed by the City of American Canyon on the remaining 8.3 acres of the 207.8-acres Project Site. . The applicant has developed site design-level plans for the Giovannoni Logistics Center Project on approximately 113.6 acres of the Project Site. These site-design level plans include development on the approximately 68.8 acre area east of the Devlin Road extension and wetland mitigation plans on an approximately 44.8 acre Wetland Preserve (together referred to herein as the "Project"). The development on the 68.8 areas will support two high cube warehouse buildings totaling 1,069,904 squarefeet. Buildings A would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade level roll up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users. The approximately 44.8 acre wetland preserve will be used to offset wetland impacts associated with the Project, and additional wetland impacts that may occur in the future as part of the possible development of a second phase of the project (referred to herein as the "Phase 2"). If built out, Phase 2 is anticipated to encompass the approximately 85.9-acre area west of Devlin Road and is conceptually proposed to develop the remaining 1.3 million square feet of high cube warehouse space. This Phase 2 project, if constructed, would commence sometime after the proposed Project is completed.

Accordingly, the City of American Canyon's environmental review process pursuant to CEQA will evaluate the proposed project east of Devlin Road with a Project Specific Level of analysis and the second phase west of Devlin Road at a Program Level. The analysis for the proposed Project is independent from the Giovannoni Logistics Center Project Phase 2 (referred to herein as "Phase 2"). When and if Phase 2 moves forward, an addendum to the EIR will need to be conducted and Phase 2 will be re-evaluated based on the specifics and any new environmental or CEQA issues that will need to be assessed.

The objective of this study was to provide a determination of the potential for the Study Area (the entire 207.8-acre Project Site) to support sensitive habitats as defined by state or federal regulation and/or pursuant to the California Environmental Quality Act (CEQA) or for the Study Area to support special status species of flora and fauna. This evaluation also includes an

evaluation to determine whether the proposed construction would result in impacts to sensitive habitats or special status species, recommends mitigation measures necessary to mitigate impacts to levels of insignificance as defined by CEQA, and identifies needs for regulatory permits from state and federal agencies.

HBG's analysis included a review of pertinent literature on habitat characteristics of the site, including species of plants and animals expected to utilize the Project Site and a review of planning documents referencing ecological aspects of the site. These documents included previously prepared biological studies pertaining to the site, including an aquatic resources delineation prepared by Monk & Associates (2016) and surveys for federally listed vernal pool brachiopods conducted by LSA Associates (2016) and Monk & Associates (2017). HBG's work included a Habitat Assessment for the federally listed threatened California red-legged frog prepared by Dr. Mark Jennings, and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season.

Also relevant to the biological evaluation were Biological Resource Reports prepared by Monk & Associates for two separate Initial Study/Mitigated Negative Declarations prepared by the City of American Canyon for projects with shared elements to the subject project. These include Biological Resource Reports for the Devlin Road and Vine Trail Extension Project (Monk & Associates 2018) (currently being constructed by the City of American Canyon on 8.3 acres of the Giovannoni Project Site) and the Green Island Road Reconstruction and Widening Project (Monk & Associates 2019).. HBG's work also included an updated review of the California Natural Diversity Data Base (CNDDB) to determine if populations of endangered, threatened, or rare species have occurred on the site historically or are currently known to exist in the project vicinity and included additional field surveys of the site conducted by HBG biologists between December 2020 and April 2021. Additional field reviews will be conducted during the spring and summer of 2021 for the purpose of completing rare plant surveys within the Study Area.

2.0 PROPOSED PROJECT

2.1 Project Location

The 207.8-acre Project Site is located in the northwestern portion of the City of American Canyon, Napa County, California. A regional location map for the Project Site is shown in Figure 1 and the area in the vicinity of the site is shown in Figure 2. The semi-rectangular Project Site is bounded by industrial development in the Green Island Business Park to the west, the Napa Logistics Project and Devlin Road to the north, the Napa Branch Line of the Southern Pacific Railroad to the east, and Green Island Road, a stone supply business, and a wine distribution warehouse to the south. State Highway 29 is located just to the east of the site and the Napa River is less than one mile to the west.

Figure 3 shows the location of the Project Site on the Cuttings Wharf, California, United States Geological Survey 7.5-minute topographic quadrangles, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West). An aerial image of the Project Site with the US Army Corps of Engineers (USACE) verified wetlands is provided on Figure 4.

2.2 Project Description

2.2.1 Land Use Activities and Designations

The 207.8-acre Project Site is currently undeveloped land and is the largest undeveloped site in the City of American Canyon. The Project Site has sat vacant for decades with the City of American Canyon annexing the property into the City in 2005. The Project Site gently slopes from east to west with an elevation ranging from 35 feet to 50 feet above mean sea level. The West Napa Fault bisects the Project Site in a northwest/southeast direction. The Project Site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial" and is within the boundaries of the Napa County Airport Land Use Compatibility Plan.

The City of American Canyon is currently constructing an extension of Devlin Road bisecting the Project Site[1]. The Devlin Road and Vine Trail Extension project extends approximately 2,800 linear feet from Green Island Road to a completed segment of Devlin Road within the Napa Logistics Park, closing a gap in the City's roadway network. The extension is contemplated by the City of American Canyon General Plan Circulation Element as an Industrial Collector. The extended Devlin Road will be a two-lane roadway with a walking trail, box culvert, and bioretention cells. An extension of the Napa Valley Vine Trail is a component of the Devlin Road extension. Construction of the Devlin Road and Vine Trail Extension project began in the spring of 2021with completion anticipated by the end of 2021..

[1] The Devlin Road extension will encompass approximately 8.3-acres of the 207.8-acre Project Site.

An additional related but separate project by the City of American Canyon is the Green Island Road Reconstruction and Widening Project. Green Island Road would be widened and a new Green Island Road/Devlin Road intersection with turn lanes would be constructed. Anticipated start of construction is 2022.

2.2.2 Proposed Project

The applicant, Buzz Oates Construction, Inc., is proposing to develop an approximately 2.4 million square foot logistics center and a wetland preserve as dedicated open space on approximately 199.5 acres out of the 207.8-acre Project Site. In conjunction with the proposed Project, the City of American Canyon is currently constructing an extension of Devlin Road that will encompass approximately 8.3-acres of the 207.8-acre overall Project Site.
The applicant has developed site design-level plans on the approximately 68.8 acre area east of the Devlin Road extension and wetland mitigation plans on an approximately 44.8 acre Wetland Preserve for a 113.6 acre Project. These site design-level plans for 68.8-acre the portion of the site east of Devlin Road along with the approximately 44.8-acre Wetland Preserve are shown in Figure 5. Building A will have 36' in clearance height and provide 601,383 ground square feet (GSF). Building A will be rail-served by the adjacent Napa Branch Line and equipped with 126 dock positions, 4 grade level roll up doors, 215 trailer parking stalls 12'x55', and 432 vehicle stalls. Building B will have 36' in clearance height and provide 468,521 GSF. Building B will be equipped with 100 dock positions, 4 grade level roll up doors, 148 trailer parking stalls 12'x55', and 442 vehicle stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

A Phase 2 project, anticipated on the 85.9-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high cube warehouse. This Phase 2 project would commence sometime after the proposed Project is completed. The conceptual plan for development area of this Phase 2 in the portion of the site west of Devlin Road is shown in Figure 6. If and when Phase 2 is pursued, work would commence once the proposed Project is completed. Accordingly, the environmental review process conducted by the City of American Canyon pursuant to CEQA will evaluate the proposed Project at a Project Specific level of analysis and Phase 2 at a Program level.

Driveway access to the proposed Project and Phase 2 would be taken from Devlin Road and Green Island Road.

A summary of land uses for the entire Project Site is shown in Table 1.

Table 1. Land Uses for 207.8-acres Project Site			
Phase / Land Use	**Acres**	**Building / Square Feet**	**End Use / Characteristics**
Project (Site Design Level Plans)	68.8	A / 601,383	High Cube Warehouse / 36 feet clear height
		B / 468,521	High Cube Warehouse / 36 feet clear height
	44.8	NA	Wetland Preserve: Will be used to fully mitigate for wetland impacts associated with the Project and to fully, or in part, mitigate for wetland impacts associated with Phase 2.
Phase 2 (Program Level)	85.9	1.3 million	High Cube Warehouse
Devlin Road Extension	8.3	NA	Implemented by City of American Canyon
Total	**207.8**	**2.4 million**	**NA**
Note: Acreage and square footage calculations sourced from CBG Civil Engineers.			

As part of the Project, an approximately 44.8-Acre Wetland Preserve fronting the northern boundary will be preserved, and the preservation site will be used to create approximately 0.992-acre of wetlands (2:1 ratio) to offset wetland impacts associated with the Project, and an additional approximately 3.7-acres of wetlands (1:1 ratio) will be created to offset wetland impacts that may occur in the future as part of Phase 2, assuming Phase 2 is built out. The Conceptual Wetland Mitigation Plan and associated map for the general location of mitigation wetlands in relation to the Project Site and existing wetlands is discussed in detail in Section 5. The Wetland Preserve would create a contiguous open space area with the adjoining 37-acre Napa Logistics Park Wetland Preserve. Figure 5 shows the plans for site-design level development of the proposed Project east of Devlin Road; conceptual plans for future development of Phase 2 west of Devlin Road are shown on Figure 6. An approximately 44.8-acre Wetland Preserve will protect existing seasonal wetlands and vernal pools, protect foraging habitat for raptors, and support established wetlands to offset wetland impacts associated with the Project and Phase 2.

The proposed Project and Phase 2 requires a Use Permit, Tentative Parcel Map, Design Permits, and a Lot Line Adjustment from the City of American Canyon.

3.0 REGULATORY BACKGROUND

The following is a description of federal, state, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

3.1 Federal Regulations

Clean Water Act-Section 404

The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the U.S. Environmental Protection Agency (US EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b) (1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative" (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and "other waters of the U.S." Wetlands and other waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands as "…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (US EPA regulations at 40 CFR § 230.3(t); Corps' regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps' 1987 Wetlands Delineation Manual (1987 Manual); the Corps' 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the high tide line…"or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters" (33 C.F.R.§328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R.§328.3(d)).

SWANCC and Rapanos. In the U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC), No. 99-1178 (2001),* some isolated wetlands may be excluded from the Corps' Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Subsequent to SWANCC, the U.S. Supreme Court decided on *Rapanos v. United States* and *Carabell v. United States*, 126 U.S. 2208 (2006) (herein referred to as Rapanos) which resulted in 2007, guidance was given to US EPA regions and Corps districts to implement the Supreme Court's decision which addresses the jurisdiction over waters of the U.S. under the Clean Water Act. The Rapanos guidance requires the Corps to conduct detailed analysis of the functions and values of wetlands and other waters of the U.S. potentially onsite and in some cases offsite, to determine if there is a nexus to traditional navigable waters and to evaluate the significance of the nexus to the traditional navigable water. Neither the Court nor the recently-issued guidance draw a clear line with respect to the geographic reach of jurisdiction, particularly in drainages where flows are ephemeral and where wetlands are adjacent to but not directly abutting relatively permanent water.

Navigable Waters Protection Rule. In 2020, the Trump Administration obtained approval of the Navigable Waters Protection Rule (NWPR) that altered the reach of the nation's Clean Water Act. The NWPR has four categories of jurisdictional waters and twelve categories of excluded waters/features. There is no standalone interstate waters category and no case-specific significant nexus analysis. Key changes were made for defining tributary, adjacent wetland, ditches, lakes, ponds, and impoundments. New definitions for defining typical year versus normal, perennial, intermittent, ephemeral, snowpack, and ditches. No change was made to the definition of wetlands or the methodology for defining wetlands. Under the NWPR, WOTUS

includes 1) territorial seas and traditional navigable waters; 2) tributaries; 3) lakes and ponds, and impoundments of jurisdictional waters; and 4) adjacent wetlands.

Clean Water Act-NPDES Requirements

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related storm water discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board has developed a general construction storm water permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering storm water and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that site design provide no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development ("LID") design features. The Construction General Permit is implemented and enforced by California's nine Regional Water Quality Control Boards.

The State Regional Water Quality Control Boards (SWQCB) have also adopted requirements for NPDES storm water permits for medium and large municipalities, and the State Water Resources Control Board has adopted a General Permit for the discharge of storm water from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan (SWMP) to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

The FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting,

shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term "harm" in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Additionally, FESA prohibits the destruction or adverse modification of designated critical habitat. In the Service's regulations at 50 CFR 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or "incidental" taking or killing of migratory birds. In response to the Trump Administration's attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in

favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court. On his first day in office, new President Joe Biden placed Trump's changes to the MBTA on hold, pending further review.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

3.2 State Regulations

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Control Act

Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCB). A water quality certification from a RWQCB must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States"; all surface waters that are not "waters of the United States, e.g. non-jurisdictional wetlands; groundwater; and the territorial seas.

The State Water Resources Control Board's *State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State* adopted April 2, 2019 (the Procedures) along with the *Implementation Guidance for the Procedures* dated April 2020 (the Implementation Guidance) defines a wetland as an area that *under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or*

shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, state that the permitting authority (e.g. State Water Quality Control Board) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters, but these delineations will be verified by SWQCB's Regional Water Quality Control Board staff during application review. Similarly, if the Corps does not require a delineation, but similar information is prepared for CDFW, the applicant can submit that information to the Water Boards, who will determine if it is sufficient for the Water Board's purposes. In addition, as a matter of policy, the SWQCB/RWQCBs consider wetlands and waters determined to be non-jurisdictional by the Corps/USEPA under SWANCC or Rapanos guidance or the NWPR to remain jurisdictional as waters of the State subject to SWQCB/RWQCB jurisdiction.

The Procedures along with the Interim Guidance also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acres. The Procedures require an alternatives analyses to be completed in accordance with a three tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction storm water permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a RWQCB must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that 'overriding considerations" exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires that such projects implement an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy. CDFW requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

California Department of Fish and Wildlife-Lake and Streambed Alteration Agreement
Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically defined by the Fish and Game Code but CDFW takes jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Department of Fish and Wildlife-Fish and Game Code Section 3503, 3503.5 and 3513. The State of California also incorporates the protection of nongame birds and birds of prey, including their nests, in Sections 3503, 3503.5, and 3513 of the California Fish and Game Code. Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. In December of 2018, California issued new guidance specifying that state law includes "a prohibition on incidental take of migratory birds, notwithstanding any federal reinterpretation of the Migratory Bird Treaty Act" by the Department of Interior.

California Department of Fish and Wildlife Fish- Sensitive Plant Communities.
CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities, as well as special status species (including species of special concern), is kept by CDFW as part of the California Natural Diversity Data Base (CNDDB). All known occurrences of sensitive habitats are mapped onto 7.5 minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDB. Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife- Species of Special Concern
CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of "Species of Special Concern" developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife- Fully Protected Animal Species
The classification of Fully Protected was an effort by the State of California in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Species classified as Fully Protected Species by the CDFW may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2014: https://www.cnps.org/cnps/rareplants/inventory/). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review, especially for those plant species including in Lists 1 and 2. The following identifies the definitions of the CNPS listings: https://www.cnps.org/cnps/rareplants/ranking.php

California Rare Plant Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A:	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B:	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3:	Plants about which more information is needed – a review list.
California Rare Plant Rank 4:	Plants of limited distribution – a watch list.

3.3 City of American Canyon Policies

City of American Canyon General Plan

In addition to federal and state regulations, the development of the property must be accomplished consistent with the land use designations and natural resource and other policies of the City of American Canyon General Plan. The objectives and policies of the City General Plan related to Biological Resources are under the Goal 8 of the Plan, which is "Protect and preserve the significant habitats, plants and wildlife that exist in the City and its Planning Area." Relevant objectives intended to obtain the overall goal and policies of the City related to biological resources are listed below:

Objective 8.1: Maintain data and information regarding areas of significant biological value within the Planning Area to facilitate resource conservation and the appropriate management of development.

> Policy 8.1.1: Acquire and maintain the most current information available regarding the status and location of sensitive biological elements (species and natural communities) within the City and, as appropriate, within the Sphere of Influence and Urban Limit Line.
>
> Policy 8.1.4: Regularly monitor and review developments proposed within the City's Planning Area to assess their impacts on local biological resources and to recommend

appropriate mitigation measures that the developer and/or government agency can implement.

Objective 8.2: Balance the preservation of natural habitat areas, including coastal saltmarsh, mixed hardwood forest, oak savannah, and wetland and riparian habitats, with new development in the City.

Policy 8.2.1: Land use applications for developments located within sensitive habitats, including coastal saltmarsh, mixed hardwood forest, oak savannah, and riparian habitats or with areas potentially occupied by vernal pools shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources, and possible measures to reduce any identifiable impacts. In addition to examining the General Plan for information on these sensitive habitats, an on-site assessment shall be conducted by a City approved qualified biologist to determine if sensitive habitats exist on-site. In instances where the potential for significant impacts exists, the applicant must submit a Biological Assessment Report prepared by a qualified professional.

Objective 8.3: Protect natural drainages and riparian corridors within the City of American Canyon Planning Area.

Policy 8.3.1: Review proposed developments in wetlands and riparian habitats to evaluate their conformance with the following policies and standards:

a. The development plan shall fully consider the nature of existing biological resources and all reasonable measures shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.

b. Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an unfeasible project, in which case habitat shall be replaced in accord with subsection "g" (below).

c. Where riparian corridors are retained, they shall be protected by an adequate buffer width of a minimum 100-foot protection zone from the edge of the tree, shrub, or herb canopy.

d. Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate and feasible.

e. Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages, or corridors from built environment.

f. Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages or corridors are avoided where feasible.

g. Future development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.

h. Future development shall mitigate unavoidable adverse impacts to waters of the United States and waters of the State, wetlands, and riparian habitats (pursuant to the Federal Clean Water Act, Porter-Cologne Water Quality Control Act and the California Fish and Game Code, Section 1600 et seq.) by replacement on an in-kind basis. Furthermore, replacement shall be based on a ratio determined by the California Department of Fish and Game, and/or US Army Corps of Engineers in order to account for the potentially diminished habitat values of replacement habitat. Such replacement should occur on the original development site, whenever possible. Alternatively, replacement can be affected, subject to state and federal regulatory approval, by creation or restoration of replacement habitats elsewhere (offsite but preferably within the City's Planning Area), protected in perpetuity by provision for an appropriate conservation easement or dedication.

Policy 8.3.6: Preserve and integrate the City's natural drainages in new development, as opposed to their channelization or undergrounding, emphasizing opportunities for the development of pedestrian paths and greenbelts along their lengths throughout the City.

Objective 8.4: Protect local vernal pools as well as the habitats of endangered species living within the City of American Canyon's Planning Area.

Policy 8.4.1: Require that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools for projects located within the City of American Canyon's Planning Area.

Policy 8.4.3: Encourage activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering.

4.0 EXISTING BIOLOGICAL SETTING

The 207.8-acre Project Site is located in the northwestern portion of the City of American Canyon, Napa County, California. A regional location map for the Project Site is shown in Figure 1 and the area in the vicinity of the site is shown in Figure 2. Figure 3 shows the location of the Project Site on the Cuttings Wharf, California, United States Geological Survey 7.5-minute topographic quadrangle, Township 4 North, Range 4 West, Sections 13 and 14 (Latitude 38° 11' 50" North; Longitude 122° 15' 36" West).

Figure 4 is an aerial photograph of the Project Site that portrays existing site conditions and the surrounding land uses. The Project Site is bound by industrial development in the Green Island Business Park to the west, the Napa Logistics Project and Devlin Road to the north, and the Napa Branch Line of the Southern Pacific Railroad to the east. A wine distribution warehouse is to the southeast and a stone supply business to the southwest.

The description of the biological setting for the property is based on field visits to the site by HBG Senior Environmental Scientist Gary Deghi, Senior Wetland Scientist Robert Perrera, and Wildlife Biologist Emilie Strauss between December of 2020 and April of 2021. In addition, HBG independently reviewed and incorporated a number of studies previously prepared for the Project Site by other consultants and conducted additional specialized studies using species experts as part of work in preparing this document.

Previously prepared biological studies pertaining to the site included an aquatic resources delineation prepared by Monk & Associates (2016) and surveys for federally listed vernal pool brachiopods conducted by both LSA Associates (2016) and Monk & Associates (2017). HBG included a Habitat Assessment for the federally listed threatened California red-legged frog prepared by Dr. Mark Jennings and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season. Also relevant to the biological evaluation were Biological Resource Reports prepared by Monk & Associates for two separate Initial Study/Mitigated Negative Declarations prepared by the City of American Canyon for projects with project boundaries either shared with or adjacent to the Project Site. These include Biological Resource Reports for the Devlin Road Extension Project (Monk & Associates 2018) and the Green Island Road Reconstruction and Widening Project (Monk & Associates 2019).

4.1 Climate

The Project Site is located in the City of American Canyon, which is part of the greater north San Francisco Bay area. Like other portions of northern California, American Canyon experiences a Mediterranean climate characterized by warm, dry summers and cool, wet winters. The project area typically exhibits annual low/high temperatures between 40 and 80 degrees Fahrenheit and an annual average rainfall of approximately 20 inches.

4.2 Hydrology

The 207.8-acre Project Site is currently undeveloped land with a range of elevations between 35 and 50 feet msl. The headwaters of No Name Creek occurs within the northwestern portion

of the Project Site. The Project Site gently slopes from east to west at about zero to two percent to the northwestern corner of the property where No Name Creek flows off the site through the Napa Logistics wetland preserve and is hydrologically connected to Fagan Slough which flows into the Napa River. The majority of wetlands that occur throughout the site and are supported by direct precipitation.

As shown on Figure 7 the Study Area primarily lies within the USGS Hydrologic Unit Code (HUC) 10-digit subwatershed of the Tulucay Creek-Frontal San Pablo Bay Estuaries (1805000204).

4.3 Topography and Soils

The majority of the Project Site is relatively flat at approximately 40 feet mean sea level and a total elevation variance of 30 feet. The Project Site generally slopes at about zero to two percent with two highpoints to the southeast and southwest of the gradually sloping north toward No Name Creek. Although the remaining portions of the Project Site are relatively flat, grazing and inundation in topographic low areas has created a hummocky landscape with depressional microrelief. As a result, there are small seasonal wetlands and swales scattered throughout the site. Other large, and deep wetlands occur on the eastern and southern portions of the site. In the southeastern portion of the Project Site a berm confines surface water sheet flows creating several inundated depressional features.

Soil survey information for the Project Site was obtained from the National Resources Conservation Service Web Soil Survey (NRCS 2021). Three different soil types were mapped by NRCS within the Project Site. The mapped soil units include: Clear Lake clay drained (116), 0 to 2 percent slopes, Haire loam (146), 2 to 9 percent slopes, and Haire clay loam (148), 2 to 9 percent slopes (USDA 1972). A soil map for the Project Site is shown in Figure 8.

The Clear Lake series consists of poorly drained soils on old alluvial fans and basins. Elevation is 25 to 2000 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 35 inches and the mean annual temperature is 59 to 63 degrees. Clear Lake clay drained soil is classified as a hydric soil (i.e., those soils that form in wetlands) by the NRCS.

The Haire Loam series consists of moderately well-drained soils, slow to rapid runoff, and very slow permeability on alluvial fans and terraces. Elevation is 20 to 2,402 feet. These soils formed in alluvium derived from sedimentary rock. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual temperature is 57 to 61 degrees Fahrenheit. Haire Loam soil is not classified as hydric soil (i.e., those that form in wetlands) by the NRCS.

The Haire clay loam series consists of moderately well-drained soils, with high run off, on alluvium derived from sedimentary rock. Elevation is 20 to 2402 feet. The plant cover is annual grasses and forbs. The mean annual precipitation is 25 to 30 inches and the mean annual

temperature is 57 to 61 degrees Fahrenheit. Haire Clay Loam is not classified as a hydric soil (i.e., those that form in wetlands) by the NRCS.

4.4 Plant Communities

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation communities and habitats at the Project Site were identified based on the currently accepted List of Vegetation Alliances and Associations or Natural Communities (CDFW 2010). The list is based on A Manual of California Vegetation, Second Edition (Sawyer et al 2009), which is the National Vegetation Classification applied to California. The Project Site contains two habitat types: Non-native Grassland and Coastal and Valley Freshwater Marsh in the form of seasonal wetlands and swales. This identification of habitat types on the property matches the findings of Monk & Associates as stated in their wetland delineation technical letter report submitted to the USACE (Monk & Associates 2016). An inventory of plant species found on the Giovannoni property during biological studies conducted by Monk & Associates is provided in Attachment 2, Table 1.

Non-native annual grasslands. Non-native annual grasslands, dominated by introduced annual grasses and forbs, comprise the predominant habitat types on the property. The dominant species in the grasslands were identified when Monk & Associates conducted their aquatic resources delineation on the Project Site and report in their technical report submitted to the Corps of Engineers (Monk & Associates 2016). Dominant non-native annual grass species on the project site include Italian ryegrass (*Festuca perennis*), Mediterranean barely (*Hordeum marinum* ssp. *gussoneanum*), medusa head (*Elymus caput-medusae*), and soft chess (*Bromus hordeaceus*). Common non-native forbs found on the Project Site include bird's foot trefoil (*Lotus corniculatus*), subterranean clover (*Trifolium subterranean*), broad-leaf filaree (*Erodium botrys*), English plantain (*Plantago lanceolata*), yellow glandweed (*Parentucellia viscosa*), Mediterranean linseed (*Bellardia trixago*), spring vetch (*Vicia sativa*), and bristly ox-tongue (*Helminthotheca echioides*). Native forbs and wildflowers were also present and include yellow owl's clover (*Triphysaria versicolor* ssp. *faucibarbata*), hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*), and coastal tarweed (*Deinandra corymbosa*). Other common species noted by HBG biologists during winter surveys in 2020 included species such as Harding grass (*Phalaris aquatica),* rip-gut brome (*Bromus diandrus*), field bindweed (*Convolvulus arvensis*), and sweet fennel (*Foeniculum vulgare*). Other species included scattered coyote brush (*Baccharis pilularis*) and Himalaya berry (*Rubus armeniacus*), especially around the edges of the property.

Seasonal Wetlands and Swales. Seasonal wetlands on the property are vegetated with a variety of native and non-native species adapted for life in saturated soil conditions. Monk & Associates noted the vegetation in the seasonal wetlands and swales as being dominated by primarily native species such as annual semaphore grass (*Pleuropogon californicus* var. *californicus*), creeping spikerush (*Eleocharis macrostachya*), iris-leaved rush (*Juncus xiphioides*), California coyote thistle (*Eryngium aristulatum* var. *aristulatum*), meadow barley (*Hordeum brachyantherum*), smooth goldfields (*Lasthenia glaberrima*), Great Valley popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), and wavy stemmed popcorn flower (*P. undulatus*),

along with a few non-native wetland species such as rabbit's foot grass (*Polypogon monspeliensis*) and brass buttons (*Cotula coronopifolia*). Other plants noted in the seasonal wetlands during winter surveys conducted by HBG included species such as annual hairgrass (*Descampsia danthanoides*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), saltgrass (*Distichlis spicata*), pennyroyal (*Mentha pulegium*), rough cocklebur (*Xanthium strumarium*), tall flat-sedge (*Cyperus eragrostis*), and swamp timothy (*Crypsis schoenoides*), and in some areas of deeper inundation, broadleaf cattail (*Typha latifolia*).

4.5 Animal Populations

The Project Site provides limited habitat for wildlife species, mostly those adapted to open areas and farm fields and disturbed environments. Grasses and herbaceous plants within the Project Site provide limited nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. Seasonal wetlands provide wildlife with a seasonal water source that supports various animal species during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. No Name Creek would be considered a wildlife corridor, but the property is nearly entirely surrounded by development so the extent of wildlife corridors on the property is limited.

A number of wildlife species were documented during a winter season survey conducted at the Project Site by wildlife biologist Gary Deghi of HBG on December 10, 2020. All species documented at the site are common to abundant in the region and would be expected in the non-native grasslands and seasonal wetlands present at the site. Bird species documented included various species adapted to grasslands and open areas including Canada goose (*Branta canadensis*), California gull (*Larus californicus*), mourning dove (*Zenaida macroura),* Eurasian collared-dove (*Streptopelia decaocto*), rock pigeon (*Columba livia*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), black phoebe (Sayo*rnis nigricans*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), red-winged blackbird (*Agelaius phoeniceus),* and western meadowlark (*Sturnella neglecta*). Other species in taller vegetation and landscaping around the edges of the site and just off-site included California scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos)*, European starling (*Sturnis vulgaris*), white-crowned sparrow (*Zonotrichia leucophrys*), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). Raptors (birds of prey) observed foraging over the grasslands and wetlands of the Project Site were fairly common during the winter survey and included American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), Northern harrier (*Circus hudsonius*), and turkey vulture (*Cathartes aura*).

HBG wildlife biologist Emilie Strauss conducted a spring season site reconnaissance on April 16, 2021 on the Project Site. Many of the bird species observed included species observed during the winter, but additional resident species observed during the April visit included ring-necked pheasant (*Phasianus colchicus*), great blue heron (*Ardea herodia*), great egret (*Ardea alba*), and killdeer (*Charadrius vociferus*). Additional species added during the spring survey included

spring arrivals of migrant species. Breeding season raptor observations included foraging Northern harrier (a state designated species of special concern for nesting habitat that was also observed foraging over the site in winter), as well as foraging by state listed threatened Swainson's hawk (*Buteo swainsoni*). A California Fully Protected golden eagle (*Aquila chrysaetos*) was also observed over the Project Site being harassed by the Swainson's hawk and flying low exhibiting foraging behavior. These three special status raptor species have nested in this part of Napa County in the past, and it is entirely possible these individuals could be nesting somewhere in the vicinity of the Project Site. HBG wildlife biologist Emilie Strauss drove about 10 miles of local roads surrounding the Project Site to inspect trees for raptor nest structures. No Swainson's hawk nest structures were observed. Additional species observed in the spring survey included cliff swallow (*Petrochelidon pyrrhonota*) and barn swallow (*Hirundo rustica*).

During their biological studies related to the Green Island Road Widening and Devlin Road Extension Projects in 2018 and 2019, Monk & Associates observed several species of waterfowl and shorebirds in the on-site seasonal wetlands. These species were not observed during the December 10, 2020 or April 16, 2021 surveys by HBG as surface ponding was lacking on the site then due to the paucity of rain. These species included mallard (*Anas platyrhynchos*), American wigeon (*Anas americana),* greater yellowlegs (*Tringa melanoleuca*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), and Wilson's snipe (*Gallinago delicata*).

No amphibians were documented on the property by HBG, but Pacific treefrog (*Pseudacris regilla*) was noted by Monk & Associates biologists while studying the Green Island Road Extension. Reptile sightings at the site by HBG included western fence lizard (*Sceloperus occidentalis);* other reptiles likely include Pacific gopher snake (*Pituophis catenifer)* and common garter snake (*Thamnophis sirtalis elegans)*. Observed evidence of mammals on the site by HBG were black-tailed jackrabbit (*Lepus californicus*), dens of Botta's pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*), several California ground squirrels (*Otospermophilus beecheyi*) in a rubble pile in the southwestern portion of the site, and three mule deer (*Odocoileus hemionus*) in the southeastern portion of the property. Monk & Associates apparently observed raccoon (*Procyon lotor*) while conducting studies for the Devlin Road Extension Project. Other expected mammals would be those adapted to disturbed, urban environments such as Virginia opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and striped skunk, (*Mephitis mephitis*).

4.6 Wetlands

Aquatic Resources Delineation Methodology. Monk & Associates conducted an aquatic resources delineation on the Project Site in 2016. Field work for the delineation was conducted during the period of April 15 to May 26, 2016. Monk & Associates biologists used the Corps' 1987 Wetlands Delineation Manual in conjunction with the regional supplement for the Arid West Region to prepare this wetland delineation. A jurisdictional determination request and the Draft Aquatic Resources Delineation Map were prepared in compliance with the Corps' 2016 Minimum Standards for Acceptance of Aquatic Resources Delineation Reports and the

2016 Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Monk & Associates 2016).

Vegetation, hydrology, and soils information were taken at 142 data points. Data points were mapped using a Trimble Pro-XR Global Positioning System (GPS) having sub-meter accuracy. The delineation map was made from the GPS files using ArcMap 10.2. All spatial data were projected into the California State Plane, NAD 83 coordinate system, Zone 2. Using GPS technology, the boundaries (within 30 inches) of each delineated wetland was transferred to an aerial photograph of the Project Site (Monk & Associates 2016).

Aquatic Resources Delineation Results. The Aquatic Resources Delineation map prepared by Monk & Associates was submitted to the San Francisco District of the USACE on August 29, 2016 and was confirmed by letter from the USACE dated November 8, 2016. The wetlands found on the Project Site as mapped by Monk & Associates (2016) and verified by the USACE are provided in Attachment 4. The mapped areas classified as wetlands exhibited a dominance of hydrophytic vegetation, as well as hydric soils and wetland hydrology. Hydrological indicators in mapped wetlands included the presence of oxidized rhizospheres along living roots (C3), surface soil cracks (B6), algal matting (Biotic Crust B12), aquatic invertebrates (B13), and vegetation suppression (indicating long-term inundation) within these wetland areas. Evidence of hydric soils included Redox Dark Surface F6 and Depleted Matrix F3 as defined in the approved regional supplement for the Arid West Region and the Field Indicators of Hydric Soils in the United States (Monk & Associates 2016).

The majority of the seasonal wetlands on the Project Site gradually drain north toward No Name Creek. No Name Creek, within the Project Site, does not exhibit an ordinary high water mark, and is therefore categorized as a seasonal wetland. No Name Creek flows off the Project Site to the west before draining into Fagan Slough, a tidal water of the United States. Fagan Slough is tributary to the Napa River, a traditional navigable water (TNW) that flows to San Pablo Bay. Therefore, the 11.93 acres of seasonal wetlands in the north and southwest corner of the site are regulated as “waters of the U.S.” pursuant to Section 404 of the Clean Water Act and are subject to USACE jurisdiction (see Attachment 4). Several features in the southeastern portion of the Project Site are mapped as “isolated” seasonal wetlands since they do not have hydrologic connectivity to any water of the U.S. The “isolated” features are contained within discreet topographic depressions, surrounded by uplands and berms that are higher in elevation, thereby isolating these features from any water of the U.S. A total of 0.84 acre of “isolated” features that are mapped on the Project Site are not subject to USACE jurisdiction as shown on Exhibit 6.

The total area of USACE jurisdictional wetlands mapped on the Project Site is 11.93 acres. The total area of “isolated” wetlands mapped on the Project Site is 0.84 acre. HBG has determined that the areas mapped as isolated wetlands and not subject to jurisdiction of the USACE under the federal Clean Water Act would be subject to the wetland criteria of the state Porter-Cologne Water Quality Control Act and the jurisdiction of the San Francisco Bay Regional Water

Quality Control Board as a Water of the State. A total of 12.77 acres of wetlands would be subject to the regulatory jurisdiction of the San Francisco Bay RWQCB (SFBRWQCB) as Waters of the State. The portion of the Project Site along the northern boundary of the site contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the California Department of Fish and Wildlife (CDFW) under Fish and Game Code Section 1602.

4.7 Special Status Species

Special status species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. The California Environmental Quality Act (CEQA) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of Regulations Section 15380. Special status species also include those species listed by CDFW as Species of Concern which face extirpation in California if current population and habitat trends continue, those listed as Fully Protected by CDFW (a designation that provides additional protection to those animals that are rare or face possible extinction), and bird species designated as Bird Species of Conservation Concern by the USFWS. These state and federal Species of Concern must be evaluated in the context of evaluation under CEQA, which also requires evaluation of impacts to plant species on California Native Plant Society (CNPS) Lists 1 and 2. Special status species included in CEQA review also include bat species that have been designated with conservation priority by the Western Bat Working Group.

The CDFW maintains records for the distribution and known occurrences of special status species and sensitive habitats in the California Natural Diversity Database (CNDDB). The CNDDB is organized into map areas based on 7.5 minute topographic quadrangle maps produced by the USGS. All known occurrences of special status species are mapped onto quadrangle maps maintained by the CNDDB. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The Project Site is within the encompasses Cuttings Wharf 7.5 minute quadrangle map.

Tables 2 and 3 in Attachment 2 present a list of special status plants and animals, respectively, that have been reported by the CNDDB in the project vicinity within 10 miles of the site. An evaluation of the potential for all potential sensitive species to occur at the site is included in Tables 2 and 3 in Attachment 2. Key species are discussed below.

4.7.1 Special Status Plant Species

A list of special status plants with potential to occur on the Project Site was developed from the CNDDB. A complete list of special status plant species occurring in the vicinity of the property is included in Table 2 in Attachment 2. The table includes all species of flora mentioned in the CNDDB within approximately ten miles of the site.

A number of special status plant species listed in Table 2 in Attachment 2 are known to occur in the Napa area. No special-status plants have been mapped on or adjacent the Project Site. However, according to the CNPS' Inventory and the California Department of Fish and Wildlife's (CDFW) CNDDB, a number of special-status plant species are known to occur in the Project Site vicinity. No special-status plants were identified on the Project Site by Monk & Associates while conducting various studies on the property in 2016, including an aquatic resources delineation and other evaluations conducted during the March to July flowering season of 2016. However, these studies did not constitute protocol surveys. Therefore, HBG has retained Dr. Brent Helm to conduct protocol rare plant surveys during the 2021 flowering season. These surveys are currently underway, and a special status plant survey report is expected to be completed by July of 2021.

4.7.2 Special Status Animal Species

Animal species noted in the CNDDB as occurring within a 10-mile radius of the site, or that are known to occur in the general vicinity based on the knowledge of HBG biologists, are discussed in Table 3 in Attachment 2. A number of special status animal species are noted in the CNDDB as occurring in the general vicinity of the Project Site with habitat requirements similar to the habitats present on the Project Site. These species include vernal pool fairy shrimp (*Branchinecta lynchi*), California red-legged frog (CRLF, *Rana draytonii),* Western pond turtle (*Emmys marmorata*), Swainson's hawk (*Buteo swainsoni*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus hudsonius*), burrowing owl (*Athene cunicularia*) and tricolored blackbird (*Aegelaius tricolor*). These species are discussed in detail below. CDFW is also concerned over rapid declines in populations of monarch butterflies (*Danuas plexippus*), and a discussion of this species in relation to the proposed project is also included below.

None of the other animal species discussed in the table have the potential to occur on the site. This finding is made based on the habitat requirements of species listed in the table and is based on field review of habitats present at the site and the immediate vicinity and an evaluation of the suitability of on-site habitats to support these species.

Monarch Butterfly

Background. The monarch (*Danuas plexippus*) is designated as a California Terrestrial and Vernal Pool Invertebrate of Conservation Priority and has recently been advanced as a candidate species for listing under the federal Endangered Species Act. The species is well-known for its north-south migrations from Canada to Mexico which span the lives of several generations. Monarch butterfly winter roost sites, typically used between October and February, extend along the West Coast from Mendocino County in northern California, south to Baja California in Mexico. Winter roosts consist of hundreds or thousands of monarchs in wind-protected tree groves close to sources of nectar and water. On the California coast, these roosts usually form in eucalyptus, but Monterey pine and Monterey cypress groves are also used. Monarch populations across North America have fallen by as much as 90 percent in the last two decades and in February 2015, the USFWS showed that nearly a billion monarchs had vanished from overwintering sites since 1990. The larval host plant for monarchs is milkweeds,

primarily milkweeds of the genus *Asclepias*. The main reason for the decline has been attributed to herbicides used by farmers and homeowners on milkweed, the butterfly's larval host plant.

Occurrence in the Project Area. No trees are present on the Project Site so there is no possibility for the presence of a monarch overwintering site on the Project Site. Several biological investigators have studied the Project Site and none have reported the presence of milkweed plants, primarily of the genus *Asclepias*, that serve as the larval host plant for monarchs. Monk & Associates prepared an inventory of plants present on the Giovannoni site as part of a wetland delineation conducted at the site in 2016 (this list is included herein as Table 1 in Attachment 2), and no milkweed plants of the genus *Asclepias* are noted in the table. No suitable habitat for monarch butterflies is found on the site. As part of Dr. Brent Helm's protocol rare plant surveys he is currently conducting, any observations of milkweed plants of the genus *Asclepias* will be recorded. The presence of an individual monarch butterfly at the site would be purely incidental and not related to the presence of larval host plants for breeding or of suitable overwintering sites.

Vernal Pool Fairy Shrimp

Background. Vernal pool fairy shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was originally designated on August 6, 2003 (Federal Register 68: 46683-46867), and the designation was revised on August 11, 2005. Critical habitat unit designations by individual fairy shrimp species were published on February 10, 2006 (Federal Register 71:7117). The project site is approximately 0.40-mile southeast of designated critical habitat.

The vernal pool fairy shrimp (*Branchinecta lynchi*) is a small aquatic crustacean that ranges in size from ½ to one inch long that is federally listed as a threatened species. Fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 2005).

Vernal pool fairy shrimp populations are presently known from localities in California, extending from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, and along the central coast range from northern Solano County to Pinnacles National Park in San Benito County. Disjunct populations are located near Soda Lake in San Luis Obispo County, in the mountain grasslands of northern Santa Barbara County, on the Santa Rosa Plateau in Riverside County, and near Rancho California in Riverside County. Vernal pool fairy shrimp mature quickly and can persist in short-lived shallow pools and longer lasting pools that remain later in the spring. This species inhabits pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed

grasslands, but sometimes in sandstone rock outcrops and alkaline vernal pools. The water in these pools has low total dissolved solids, conductivity, alkalinity, and chloride.

Occurrence in the Project Area. Formal protocol surveys for vernal pool brachiopods, including the federally listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*), were conducted on the Project Site with negative findings. Surveys were conducted following USFWS survey protocol (USFWS 2015) as approved by the USFWS on August 18, 2016. Wet season surveys were completed by Monk & Associates (Monk and Associates 2017) between November 2016, when it could be documented that wetland features on the property had at least 1 inch of standing water, and the end of February 2017. Dry season surveys were conducted by LSA Associates (LSA 2016) during the summer of 2016. No vernal pool brachiopods or their cysts were found during the wet season and dry season protocol surveys conducted at the Project Site. Although vernal pool seasonal wetlands occur on the Project Site, based on the results of the protocol surveys conducted, it can be definitively stated that the federally listed threatened vernal pool fairy shrimp does not occur on the Project Site.

California Red-legged Frog

Background. The California red-legged frog (CRLF, *Rana draytonii)* is a federally threatened species and California Species of Special Concern. The historical range of the California red-legged frog extended from the vicinity of mid-Mendocino County, southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County (61 Federal Register 25813; 75 Federal Register 12816). The frog has sustained a 70 percent reduction in its geographic range. The project area is not part of the critical habitat designated under the Endangered Species Act for the CRLF.

California red-legged frogs have been observed in aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, CRLF are expected to thrive in permanent deep-water pools with dense stands of overhanging willows and emergent vegetation, and suitable sites for basking. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs usually are observed near water but can move long distances over land between water sources during the rainy season.

The life cycle and patterns of movement of the CRLF have evolved along with the local California climate of wet, cool winters and dry, warm summers. With the onset of the winter rains, CRLF move from dry-season refuges to ponds and streams that can support breeding and successful tadpole development. Tadpoles generally take until late summer or early fall to complete metamorphosis, and then the maturing young frogs (metamorphs) move to aquatic areas to take cover from predators. Adult frogs often remain year-round at perennial ponds with deep water, but some depart for dry season refuges once breeding is over. Juveniles (frogs that are older than metamorphs but not yet sexually mature) disperse widely over the landscape during the first winter and will take residence in almost any water source. During the

dry months of summer and fall, CRLF seek suitable dry season refuge sites that may include deep water holes in drying streams, springs and spring boxes, seeps, and small mammal burrows (especially in or near vegetation). However, CRLF need to hydrate at least every couple of days in order to survive. Thus, such small mammal refuge sites must be close to a permanent water source for frogs to rehydrate. To find these refuges, frogs will travel several hundred yards where suitable refuges are abundant and up to three miles in moist coastal areas. Often, long distance movements are in a relatively straight line over hills and drainages between the beginning and end points.

Occurrence in the Project Area. Monk & Associates (2018, 2019) conducted surveys for special status plants and animals, including CRLF, on the small portion of the site slated for road improvements for the Devlin Road and Green Island Road improvements. No CRLF were encountered during these surveys, and they found that the wetlands associated with the road improvements were inundated to only 3 to 4 months of the year (too short to support CRLF breeding) and were too shallow and seasonal to support breeding by CRLF.

Herpetologist Dr. Mark Jennings of Rana Resources conducted a protocol Phase 1 Habitat Assessment for CRLF in 2021 as part of the studies conducted for this Biological Resources Report. Dr. Jennings reported that the project site lacks habitat necessary to support CRLF. The closest known CRLF records to the Project Site are 0.6-2.4 miles to the east and southeast. Additional CRLF records 3.7 miles away lie within Critical Habitat designated for this species (SOL-2 and SOL-3). All of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of drainages into culverts under the freeway. Additionally, the Project Site is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on the Project Site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Dr. Jennings concluded that CRLF do not occupy the Project Site. The CRLF Habitat Assessment prepared by Dr. Jennings is included as Attachment 3.

Western Pond Turtle

Background. The Western pond turtle (*Emmys marmorata*) is a state species of special concern. Pond turtles occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. The turtles also rely on suitable upland areas of scrub and woodlands for aestival refugia and may use upland habitats up to 0.5 km from water for activities such as egg-laying. Pond turtles living in streams may vacate flood-prone areas during the rainy season. Western pond turtles occur broadly in suitable habitats throughout the state of California.

Occurrence in the Project Area. Western pond turtle is known from the project area. The nearest sighting to the Giovannoni site reported in the CNDDB is of two turtles reported in 2002 from North Slough, a location that is approximately 0.25 miles from the southern property boundary. However, suitable habitat for western pond turtle does not occur on the Giovannoni site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Suitable shrub/woodland in surrounding uplands and appropriate basking sites are also lacking. It can be definitively stated that western pond turtle does not occupy the project site due to the lack of suitable habitat.

Swainson's Hawk

Background. The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that is state listed in California under CESA as threatened species. This hawk is also designated by the USFWS as a Bird Species of Conservation Concern. Most Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. Valley oak, Fremont cottonwood, walnut, and large willows with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (CDFW 2007), but eucalyptus is also commonly used. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands. In the Central Valley, Swainson's hawks find suitable foraging habitat in such agricultural areas near suitable nest sites, however, nesting habitat is in decline due primarily to flood control projects, agricultural practices, and urban development. The current population of Swainson's hawk in California's Central Valley is estimated at 1,948 breeding pairs (CDFW 2007), with most of this population occurring in the area from Stanislaus County north to Butte County.

Occurrence in the Project Area. There are no trees located on the 207.8-acre Project Site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity, therefore it can be stated that Swainson's hawk does not nest in the immediate vicinity of the Project Site. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the Project Site in areas nearby, and, indeed, a Swainson's hawk was observed foraging over the Project Site by HBG during a site reconnaissance conducted during the nesting season on April 16, 2021. The closest known nesting record for Swainson's hawk as reported in the CNDDB is a nest site last active in 2008 (CNDDB Occurrence No. 1718) located approximately 2.1 miles north of the Project Site. Eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat.

Biologists with Monk & Associates conducted a formal nesting survey for Swainson's hawk for the Napa Logistics Project (adjacent property to the north of the Giovannoni site) in 2016/2017 using California Department of Fish and Wildlife's Swainson's hawk survey guidelines (CDFG 2000). Swainson's hawk nesting surveys were conducted April 5 and June 10, 2016 and

February 27, 2017 for all potential habitats within a mile of the project site for the Napa Logistics Phase II project, and no Swainson's hawks or evidence of any raptor nesting was observed within a zone of influence of the Project Site. HBG wildlife biologist Emilie Strauss conducted a similar survey for nesting Swainson's hawk for the Giovannoni Logistics Project on April 16, 2021. Ms. Strauss covered approximately 10 miles of local roads to inspect trees within approximately one mile from the Giovannoni Project Site and, again, no Swainson's hawk nests or any other raptor nests were found. Swainson's hawk has been known to nest in the area north of American Canyon and southwest of the City of Napa, and future nesting in suitable nest trees as close as about 0.5 miles from the Giovannoni Logistics Project Site cannot be ruled out.

Northern Harrier

Background. The northern harrier (*Circus hudsonius*) is a state species of special concern. Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices.

Occurrence in the Project Area. The 207.8-acre Project Site provides suitable foraging habitat for northern harrier both for wintering individuals and for individuals that may find suitable nesting sites in the project area. The 207.8-acres of open grasslands and seasonal wetlands over the Project Site also provide suitable nesting habitat for northern harrier. A wintering northern harrier was observed foraging over the site by HBG biologists during an HBG field review conducted on December 10, 2020, and a northern harrier was also observed foraging over the project site during the nesting season on April 16, 2021, suggesting that the species may nest somewhere in the project vicinity.

Golden Eagle

Background. The golden eagle (*Aquila chrysaetos)* is designated as a Bird Species of Conservation Concern by the USFWS and is also listed as a Fully Protected species in California. The golden eagle is also protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). Golden eagles are found breeding throughout western North America in remote open habitats. Typical habitats in North America include savannah woodland, grasslands, aspen parkland, high and low deserts, and taiga. Golden eagles feed on fresh carrion or take live prey ranging in size from small rodents to as large as newborn fawns. More typical prey includes rabbits, hares, and waterfowl. Golden eagles build nests in large trees, often eucalyptus, oaks, or conifers, or on large vertical cliffs. On rare occasions nests are found on the ground, especially in expansive prairie habitats where cliffs and/or trees are scarce. Often this species will return each year to the same nest site and reconstruct the existing nest structure. Golden eagles are very sensitive to disturbance near the nest site, particularly in remote regions where human activities are minimal.

Occurrence in the Project Area. There are no trees located on the 207.8-acre Project Site, and no large trees capable of supporting nesting by golden eagle in the immediate project vicinity, therefore it can be stated that golden eagle does not nest in the immediate vicinity of the Project Site. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagles that may nest away from the Project Site, as demonstrated by the presence of a foraging individual observed on the project site by an HBG biologist during a spring reconnaissance conducted on April 16, 2021. Eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat.

The closest known nesting record for golden eagle as reported in the CNDDB is a nest site (CNDDB Occurrence No. 82) located approximately 3.2 miles north of the Project Site in a eucalyptus tree surrounded by a vineyard. The CNDDB reports that this tree was cut down in 2008 and no longer provides a suitable golden eagle nest site. An additional nesting record is a nest site found by biologists with Monk & Associates approximately 4.5 miles east of the Project Site within the Newell Open Space within the City of American Canyon. This nest, also in a eucalyptus tree, was active in 2016 and 2017.

No nesting golden eagles (or nesting by any bird of prey species) were observed in large trees near the Project Site during formal nesting surveys for Swainson's hawk conducted by Monk & Associates in 2016/2017 for the Napa Logistics Project. Golden eagle was observed being harassed by Swainson's hawk and exhibiting foraging behavior over the Project Site during a spring survey by an HBG wildlife biologist on April 16, 2021. No nesting golden eagles were observed in the vicinity of the property during surveys for nesting Swainson's hawk conducted by biologists with HBG on that same date for the Giovannoni Logistics Project. As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 miles from the Project Site cannot be ruled out.

Burrowing Owl

Background. Burrowing owls (*Athene cunicularia*) are small terrestrial owls commonly found in open grassland ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use burrows of California ground squirrel, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. While foraging, owls will perch on raised burrow mounds or other topographic relief such as rocks, tall plants, fence posts, and debris piles to attain better visibility. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, presence of "decoration" at or near a burrow entrance which can include molted feathers, cast pellets, prey remains, eggshell fragments, or excrement.

The burrowing owl is a USFWS bird species of conservation concern and a California Department of Fish and Wildlife (CDFW) species of special concern (CDFW 2011). CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012 Staff Report (CDFW 2012).

The status of burrowing owl in the San Francisco Bay Area was summarized by Albion Environmental (2000) in a discussion included in the SCVHP. Nesting burrowing owls in the greater San Francisco Bay Area, and in the South Bay area in particular, are a dwindling resource. In the early 1990s there were an estimated 150–170 breeding pairs in the San Francisco Bay Area, representing a 53% decline from the previous census period of 1986–1990. More recent numbers indicate that, if anything, the downward trend is increasing. In those estimates it was assumed that 75% of the San Francisco Bay Area burrowing owl population occurred in Santa Clara County and that nearly all of those owls were congregated around the southern edge of the San Francisco Bay.

Occurrence in the Project Area. The Project Site and surrounding area were investigated for burrowing owls and burrowing owl habitat during site reconnaissance by HBG biologists on December 10, 2020 and April 16, 2021. No burrowing owls were observed on the Project Site by HBG biologists during these field visits, and the only location supporting ground squirrels was an area noted in the rubble pile and compost at the perimeter of Clark's Rocks along Green Island Road that supported several ground squirrels in the spring of 2021. Dens of Botta's pocket gopher and California vole were common throughout the site, but these burrows are not suitable for occupation by burrowing owl. A general lack of ground squirrel burrows and ground squirrel colonies suggests that the habitat currently does not support burrowing owl and is currently not suitable to support burrowing owl.

No burrowing owls were reported at the site by other biologists who have studied the site over the last 5 years, including Monk & Associates (conducted brachiopod surveys and rare plant surveys on the property in 2016 through 2018), LSA Associates (conducted dry season brachiopod surveys in 2016), and Rana Resources (conducted a CRLF habitat assessment in 2021). A small number of burrowing owls have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the Project Site and about 2.5 miles south. Burrowing owls do not currently occur on the Project Site, but future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels.

Tricolored Blackbird

Background. Tricolored blackbird (*Aegelaius tricolor*) is listed as endangered under the California Endangered Species Act. Tricolored blackbird is also currently designated as a state species of special concern and is designated by the USFWS as a Bird Species of Conservation Concern. Tricolored blackbird is a highly colonial nesting species that breeds near freshwater, preferably in emergent wetlands with tall, dense growth of cattails or tules. Even when the preferred nesting substrates are available, other vegetation may be used for nesting including

sedges, nettles, willows, thistles, mustard, blackberry, wild rose, foxtail grass or barley. Since the 1970s with declines in populations, nesting in cereal crops and dairy silage has been documented. Tricolored blackbird foraging areas include rangeland, fields of alfalfa or cut hay, or irrigated pastures with an abundance of insects.

Occurrence in the Project Area. Tricolored blackbird has been known to occur in the vicinity of the Project Site. The nearest documented nesting colony to the Project Site is a colony of about 250 birds that nested in 1993 in two freshwater ponds vegetated with cattails, bulrush and willows located along Highway 29 just about 0.25 miles northeast of the northern border of the Project Site.

HBG conducted an evaluation of the habitat conditions at the proposed Project Site to determine if nesting substrate for a tricolored blackbird nesting colony is present in the project area. Preferred nesting habitat for tricolored blackbird was found not to be present as vegetation that typically provides suitable substrate for a tricolored blackbird nesting colony was not observed. Suitable tricolored blackbird nesting habitat typically consists of certain vegetation to include cattails, bulrushes, willows, blackberries, thistles, or nettles. As detailed in Section 4.4 (Plant Communities), dominant vegetation within the seasonal wetlands found on the property does not include a suite of species that would be conducive to tricolored blackbird nesting. Although sparse growth of some thistles and blackberries is present, few cattails, and no bulrushes, or willows, which are preferred nesting substrates, are present. Suitable nesting habitat for tricolored blackbird does not occur within the Project Site.

5.0 BIOLOGICAL IMPACTS AND MITIGATION MEASURES

5.1 Standards of Significance

The City of American Canyon's environmental review process pursuant to CEQA will evaluate the proposed Project east of Devlin Road with a Project Specific level of analysis based on site plans developed for the project, and the Phase 2 west of Devlin Road at a Program Level based on conceptual plans for the property if development were to occur in the future. The analysis for the proposed Project is independent from the Phase 2. When and if Phase 2 moves forward an addendum to the EIR will need to be conducted and the project will be re-evaluated based on the specifics and any new environmental or CEQA issues that will need to be assessed.

According to CEQA Guidelines (Appendix G), the project would be considered to have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Wildlife and Game or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 Impacts and Mitigation Measures

1) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Special Status Plants

Although no special-status plants were identified on the Project Site by Monk & Associates while conducting various studies on the property in 2016, including an aquatic resources delineation and other evaluations conducted during the March to July flowering season of 2016, these studies did not constitute protocol surveys. A determination regarding whether special status plant species are present in proposed development areas can only be made based on systematic rare plant surveys conducted during the flowering period of target plant species. Therefore, HBG has retained Dr. Brent Helm to conduct protocol rare plant surveys during the 2021 flowering season. These surveys are currently underway, and a special status plant survey report is expected to be completed by July of 2021.

Impact 1: If protocol surveys show that special status plant species are present in areas of proposed development, impacts to populations of rare (special status) plants are possible.

> **Mitigation Measure 1-1:** If protocol rare plant surveys conducted during the spring and summer of 2021 show special status plant species are present within or in close proximity to areas of proposed development, mitigation to conserve and/or protect populations of rare plants may be warranted. Such mitigation measures could include avoidance of rare plant populations in the design of project development, and if avoidance of populations is not possible, mitigation measures could require transplanting of plants or development of plans to recover seeds and establish populations to nearby suitable habitats within the approximately 44.8-acre Wetland Preserve.

Special Status Animals

Monarch Butterfly. No trees are present on the Project Site so there is no possibility for the presence of a monarch overwintering site at the site. Several biologists have studied the site or portions of the site, and none have reported the presence of milkweed plants of the genus *Asclepias* that serve as the larval host plant for monarchs. No suitable habitat for monarch butterflies is found on the site, therefore, no potentially significant impacts to monarch butterflies would result from construction of the Giovannoni Logistics Center Project or any future development within a Phase 2.

Vernal Pool Fairy Shrimp. Based on completed protocol surveys for vernal brachiopods (LSA 2016, Monk & Associates 2017), it is clear that the federally listed threatened vernal pool fairy

shrimp does not occur on the Project Site. Therefore, no impacts to vernal pool fairy shrimp would result from construction of the proposed project. No mitigation is warranted for vernal pool fairy shrimp for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

California Red-legged Frog. A protocol Habitat Assessment prepared for the Project Site by Rana Resources found that the Project Site lacks habitat necessary to support CRLF. All records of CRLF from the CNDDB in the project area are from areas east of Highway 29, which forms a barrier to potential movements of CRLF onto the site. Additionally, the Project Site is completely isolated from all areas to the east by Highway 29 by urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. CRLF do not occupy the Project Site, and the proposed Project would have no significant impacts on California red-legged frogs. No mitigation is warranted for this species for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

Western Pond Turtle. Suitable habitat for western pond turtle does not occur on the site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Surrounding uplands of suitable shrub/woodlands and appropriate basking sites are also lacking. Western pond turtle does not occupy the Project Site. No impacts to western pond turtle would result from development of the Project. Mitigation measures for western pond turtle are not warranted for either the Giovannoni Logistics Center Project or any future development for a Phase 2.

Swainson's Hawk. There are no trees located on the Project Site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity, however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawks that may nest away from the Project Site. Swainson's hawk was observed foraging on the site in spring 2021. Development of the Project will remove some foraging area for this species, but the establishment of the 44.8-acre Wetland Preserve will preserve a 44.8-acre area of suitable Swainson's hawk foraging habitat into perpetuity. Although eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat, no nesting by Swainson's hawk (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by HBG in April of 2021.

If an active Swainson's hawk nest is found on or adjacent to the Project Site or within the area of influence of the Project Site (which is generally considered to be within 1,000 feet), CDFW could require that project-related disturbance at active nest sites be reduced or eliminated during the period from March 1- September 15 (CDFW 2000). If Swainson's hawk was found to be nesting within a zone of influence during the construction period, potential impacts to this species could occur, including disturbance to nesting birds and possible mortality of adults and/or young. If nest disturbances are anticipated to occur, a Fish and Game Section 2081 management

authorization would be required. Preconstruction nesting surveys are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that the proposed Project will not impact this hawk species.

Impact 2: Project construction could impact nesting Swainson's hawk if individuals of this species were found to be nesting within 1,000 feet of project construction.

> **Mitigation Measure 2-1:** The mitigation measure for the possibility of nesting Swainson's hawk in the project vicinity should be as required by Monk & Associates (2018) in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project, included (Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project) and for the Biological Resources Analysis for the Green Island Road Reconstruction and Widening Project (Monk 2019) (Appendix C of the Initial/Study Proposed Mitigated Negative Declaration for the project) as summarized below:
>
> Preconstruction surveys for Swainson's hawk shall be conducted in the Project Site vicinity prior to initiation of project construction activities. These preconstruction surveys should include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of Project construction. Surveys should follow CDFW guidelines for conducting surveys for Swainson's hawk (CDFW 2000) that were developed by the Swainson's Hawk Technical Advisory Committee to maximize the potential for locating nesting Swainson's hawks and reduce the potential for nest failures as a result of project activities and/or disturbances.
>
> If Swainson's hawks are found to be nesting within 1,000 feet of the project site, the applicant shall consult with CDFW to determine if a Fish and Game Section 2081 management authorization shall be obtained from CDFW. A nest site buffer shall be established in consultation with the CDFW or as required in any Fish and Game Section 2081 management authorization issued to the project by the CDFW. An established buffer zone of a minimum of 500 feet from a nest site would be typical. The nest protection buffer shall be maintained until the Swainson's hawk nesting attempt is completed as determined by a qualified biologist.

Golden Eagle. There are no trees located on the Project Site, and no large trees capable of supporting nesting by golden eagle in the immediate vicinity of the Project Site, however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagles that may nest away from the Project Site. Golden eagle was observed exhibiting foraging behavior on the site in spring 2021. Although eucalyptus and other large trees located within about 0.25 miles from the Project Site provide potential nesting habitat, no nesting by golden eagle (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by HBG in April of 2021.

As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 miles from the Giovannoni Logistics Project Site cannot be ruled out. If a golden eagle were found to be nesting within a zone of influence of the project during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Preconstruction surveys for golden eagle are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that construction activities do not result in impacts to nesting individuals of this species. With a requirement of preconstruction surveys, a potentially significant impact on golden eagle could be mitigated to a level considered less than significant.

Impact 3: Project construction could impact nesting golden eagle if individuals of this species were found to be nesting in the vicinity of project construction.

> **Mitigation Measure 3-1:** The mitigation measure for the possibility of nesting golden eagle in the project vicinity should be as required by Monk & Associates (2018) in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project, included as Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project as summarized below:
>
> Preconstruction golden eagle nesting surveys shall be conducted in the Project Site vicinity within 30 days of initiation of project construction activities. Preconstruction surveys should include investigation of all potential nesting trees within a half-mile radius around all project activities. If active nests of golden eagles are identified within eucalyptus trees or any other trees within a 0.5-mile radius of the project site, a qualified raptor biologist will establish a protection buffer that is adequate to ensure that noise or activity from the project would not cause nest disturbance or mortality of young birds or adults. Buffer zones may be variable in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone could be modified in consultation with CDFW considering behavioral factors and the extent that golden eagles may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified raptor biologist that the young golden eagles have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Northern Harrier. Suitable nesting habitat for the northern harrier (a state designated species of special concern) occurs within the non-native grasslands and seasonal wetlands and swales found within the Project Site. Northern harrier individuals were observed foraging over the Project Site during both winter and spring (breeding) seasons during surveys conducted by HBG. If a northern harrier were found to be nesting on the Project Site during the construction period, potential impacts to this species from the proposed project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Nesting by northern harrier has not been documented on the Project Site, but nesting by this species at the site is possible.

Preconstruction surveys for northern harrier are warranted for either the Giovannoni Logistics Center Project or for any future development of a Phase 2 to ensure that construction activities do not result in impacts to nesting individuals of this species.

Impact 4: Construction of the proposed project could result in disruption of northern harrier nesting if the species were found to be nesting during the construction period.

> **Mitigation Measure 4-1:** The mitigation measure for the possibility of nesting Northern harrier in the project vicinity should be as required in the Biological Resources Analysis for the Devlin Road/Vine Trail Extension Project (Monk 2018)(Appendix C of the Initial Study/Proposed Mitigated Negative Declaration for the project) as summarized below:
>
> Prior to ground disturbance, a preconstruction nesting survey shall be conducted for northern harrier if construction is scheduled during the nesting season (February 1 through September 1). To determine if northern harrier is nesting onsite, a qualified raptor biologist(s) shall conduct walking transects through the Project Site grassland habitat searching for nests. An active northern harrier nest must be protected by implementing a suitable 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer should be extended onto the Project Site and demarcated where it intersects the Project Site. Size of buffer zone could be modified in consultation with CDFW considering behavioral factors and the extent that northern harriers may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified raptor biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Burrowing Owl. A small number of burrowing owls have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the Project Site and about 2.5 miles south. No burrowing owls or occupied California ground squirrel burrows were observed on the Project Site during a field reviews conducted by HBG in December 2020 and April 2021 or during previous biological studies conducted by Monk & Associates, LSA Associates or Rana Resources. The only observed ground squirrels were from the area around the perimeter of Clark's Rocks. It remains possible that ground squirrels could establish colonies on the site in the future prior to project construction, providing new occupiable habitats for burrowing owl. Future use of the site by burrowing owl cannot be ruled out.

Impact 5: Project construction could impact burrowing owl if California ground squirrels were to occupy the site in the future, providing occupiable sites for wintering or nesting by burrowing owl. The following mitigation measure would ensure that no burrowing owls would be impacted by construction activities associated with either the Giovannoni Logistics Center Project or for any future development of a Phase 2.

Mitigation Measure 5-1: Pre-construction surveys for burrowing owls shall be conducted prior to any ground-disturbance to ensure that there are no impacts to burrowing owls. The pre-construction surveys will be conducted within two weeks prior to the onset of any ground disturbing activities. Surveys will be conducted by a qualified biologist following CDFW survey methods (CDFW 2012) to establish the status of burrowing owl on the Project Site.

- If burrowing owls are found to occupy the Project Site during the non-breeding season (September 1 to January 31), occupied burrows will be avoided by establishing a no-disturbance buffer zone around the burrow determined per the CDFW 2012 staff report. If avoidance is not possible a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.

- If burrowing owls are found to be present during the breeding season (February 1 to August 31), the project ground disturbing activities will follow the CDFW recommended avoidance protocol whereby occupied burrows will be avoided with a no-disturbance buffer.

Tricolored Blackbird. No impact to tricolored blackbird nesting colonies would occur as a result of the proposed project. Although tricolored nesting colonies have been documented about 0.25 miles from the Project Site as recently as 1993, HBG has concluded that vegetative characteristics of preferred nesting habitat for tricolored blackbird does not occur at the Project Site. Suitable nesting habitat for tricolored blackbird does not occur within the Project Site, therefore, no impacts to tricolored blackbird nesting colonies would result from implementation of the proposed project.

2) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?

The proposed Project development east of Devlin Road would impact approximately 0.496-acres of palustrine emergent wetlands. If or when Phase 2 west of Devlin Road is developed, approximately 3.7-acres of palustrine emergent wetlands may be impacted. Plans for wetland mitigation, including the preservation of an approximately 44.8-acre Wetland Preserve to include existing wetlands as well as established/created wetlands intended to offset wetland impacts of buildout development of the Project Site, are discussed in response to Item #3.

The portion of the Project Site along the northern boundary contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the CDFW under Fish and Game Code Section 1602. As the area of No Name Creek is contained within the approximately

44.8-acre Wetland Preserve, no impacts to the palustrine emergent wetland swale associated with No Name Creek would occur from either the proposed Project in the area east of Devlin Road or any possible future development that might occur within Phase 2 in the area west of Devlin Road. No impacts would occur to areas that would be subject to CDFW jurisdiction under Fish and Game Code Section 1602, therefore, there would be no requirement to obtain a Streambed Alteration Agreement from CDFW.

3) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetland Impacts. Development of the proposed Project within the area east of Devlin Road will result in impacts to wetlands subject to USACE jurisdiction as a Water of the U.S. (WOUS) and subject to SFBRWQCB jurisdiction as a Water of the State (WOS). Grading activities associated with the proposed Project would result in the permanent placement of fill material (soil) into 0.496 acres of palustrine emergent wetlands considered WOS. Of this 0.496 acres of impacts to WOS, the USACE has determined 0.492 acres are isolated and not considered WOUS. Therefore, the proposed Project will also impact 0.004 acres of palustrine emergent wetlands considered WOUS. The location of wetland impacts associated with development of the proposed Project in the area east of Devlin Road is shown in Figure 5. The City of American Canyon processed a separate Nationwide Permit for impacts to 0.21 acres on the 8.3-acre Project Site for the Devlin Road/Vine Trail Extension project.

An enumeration of the wetland impacts within the proposed Project development is detailed in Table 2.

Table 2. Wetland Impacts

Isolated Wetland (IW)	**Square Feet / Acres**
IW-2	97 / 0.002
IW-3	229 / 0.005
IW-4	3117 / 0.072
IW-5	17019 / 0.391
IW-6	935 / 0.022
USACE Jurisdictional Wetlands	
W-89	189 / 0.004
Total	**21,586 / 0.496**

These wetland impacts will require that the applicant apply for and obtain a Nationwide Permit from USACE for discharge within 0.004 acres of wetlands under Clean Water Act Section 404 jurisdiction. A plan to compensate for impacts to wetlands would also be required. In addition, an accompanying Section 401 Water Quality Certification from the SFBRWQCB would be

required for the USACE permit to be valid. Such a project would also require a separate Waiver of Waste Discharge from the SFBRWQCB for impacts to 0.496 acres of waters of the state.

If the applicant were to pursue a similar warehouse logistics center development as a second phase of development on the remaining 85.9 acre area on the west side of the Devlin Road Extension, such a development would impact up to approximately 3.7 acres of wetlands considered both WOUS and WOS, assuming buildout of Phase 2. The location of these wetland impacts is shown in Figure 6. A project impacting more than 0.5 acres of wetlands would require an Individual Permit rather than Nationwide Permit from USACE. Impacts to wetlands totaling 3.7 acres for a possible Phase 2 project in the future would require that the applicant submit a separate application for an Individual Permit from USACE. The application would require a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines. Such a development on the Phase 2 portion of the Project Site would also require a Clean Water Act Section 401 Water Quality Certification from the SFBRWQCB for the USACE permit to be valid and would also require a Waiver of Waste Discharge Requirements from SFBRWQCB pursuant to the Porter-Cologne Water Quality Control Act.

Wetland Mitigation and Monitoring Plan. As part of this Project an approximately 44.8-Acre Wetland Preserve fronting the northern boundary of the Project Site will be preserved. This Wetland Preserve supports 7.71 acres of the palustrine emergent wetlands out of the existing 12.77 acres of wetlands found on the entirety of the Project Site. Within the Wetland Preserve, the applicant intends to create approximately 0.992 acres of wetlands to offset wetlands impacts of the proposed Project (0.496 acres) at a 2:1 ratio, and to create and an additional 3.7-acres of wetlands that will offset wetlands impacts associated with possible development of a Phase 2 project at a 1:1 ratio. Wetlands created within the Wetland Preserve would include 0.992 acres of wetland mitigation to compensate for wetlands impacts of the proposed Project in the area east of Devlin Road and approximately 3.7 acres of wetland mitigation to compensate for wetland impacts of a potential Phase 2 in the area west of Devlin Road. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed. Wetlands created to compensate for an eventual Phase 2 project would be constructed and monitored with performance standards prior to the implementation of Phase 2 and incorporated into the Wetland Mitigation and Monitoring Plan associated with the Project and protected in perpetuity. This will allow for the created wetlands to establish and function as wetlands and be protected prior to project development of Phase 2, if such development were to happen at all. This allows Phase 2 to provide a 1:1 mitigation ratio compared to the proposed Project which is establishing/creating wetlands concurrent with Project development and therefore must account for temporal loss of wetland functions and values as the wetlands develop over time.

Wetlands created within the approximately 44.8-acre Wetland Preserve as part of the Mitigation Plan would total approximately 4.7 acres of created wetlands. Figure 9 shows a

Wetland Mitigation Site Plan for the general location of the 44.8-acre Wetland Preserve in relation to the Project Site as well as the location of proposed mitigation wetlands in relation to existing wetlands.

A conceptual Wetland Mitigation and Monitoring Plan (Plan) is described herein to compensate for the loss of 0.496 acres of wetlands as a result of implementing the proposed Project in the area east of Devlin Road as shown on Figure 5, and a detailed Plan will be prepared and submitted to the SFBRWQCB for review as part of the process for obtaining a permit from this agency. In addition, the Plan will address the approximate impact to 3.7 acres of wetlands that may occur in the future as part of a Phase 2, assuming Phase 2 is built out. The approximately 44.8 acres of open space on the east and west side of Devlin Road would be preserved to create a contiguous open space area with the adjoining 37-acre Napa Logistics Park wetland preserve. The Plan will include a site protection instrument (e.g., deed restriction or conservation easements) that will restrict use of the Wetland Preserve area to offset wetland impacts for both the 0.992 acres of created wetlands for the proposed Project as well as the created approximately 3.7 acres of additional wetlands for a potential Phase 2 project. Regardless of whether or not Phase 2 is implemented, a long-term endowment would be fully funded by the proposed Project to manage the entire 44.8-acre open space preserve and both existing and created wetlands in perpetuity.

The Plan will be prepared in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board Procedures, and in accordance with the State Water Resources Control Board *Implementation Guidance* dated April 2020. The basic objective of the Plan is to ensure that the project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, will provide an increase in the overall abundance of wetlands (e.g. increase in acreage), and the created wetlands will have an overall increase in plant diversity and structural complexity compared to the wetlands that will be filled. The purpose is to ensure the Plan offsets the permanent wetland impacts, and any temporal loss of function attributed to the Project and future Phase 2 development, assuming Phase 2 is built out. In summary, the Plan will:

1. Establish within the Wetland Preserve 0.992 acres of palustrine emergent wetlands in advance of or concurrent with implementation of Project impacts to 0.496 acres of palustrine emergent wetlands at a 2:1 ratio.
2. Establish within the Wetland Preserve approximately 3.7 acres of palustrine emergent wetlands in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed.

3. In select areas, install native trees and shrubs to enhance the upland buffer areas adjacent to the established wetlands. The site is lacking vertical biotic structure likely due to past grazing activities. As part of the Plan, native trees and shrubs will be planted in select areas to enhance the upland buffer areas adjacent to established and existing wetlands.
4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation will be successfully completed, in accordance with applicable performance standards.
5. Design ecological performance standards to assess whether the Plan is achieving the overall objectives, so that it can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected conditions or function, and attaining any other applicable metrics such as acres, percent cover of native plants, structural patch richness, control of invasive plants, water depth etc.
6. Monitor the site for a duration necessary to determine if the Plan is meeting the performance standards. Established palustrine emergent wetlands typically develop quickly and a 5 year monitoring period would be sufficient to determine if performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.
7. Protect the approximately 44.8 acre Wetland Preserve in perpetuity using a site protection instrument such as a deed restriction or conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan; and
8. Assess the potential effects of changing weather patterns that are currently occurring, and that may occur due to climate change in the foreseeable future and how these changes may impact the long-term viability of the constructed wetlands. The purpose of this assessment is to locate and design the wetlands to avoid and minimize impacts from climate change and to develop adaptive management measures into the Plan specifically to minimize these potential effects.

The Plan will include a watershed profile of the evaluation area which, for the purpose of this Project, will encompass the approximate watershed area of No Name Creek. In addition, an overall assessment of the condition of the wetlands that will be filled by the Project will be conducted. Using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM, each similar wetland type that may be impacted will be assessed to describe and measure the plant community/diversity composition, hydrology source and connectivity within the watershed, physical structure such as topographic complexity and physical features that may provide habitat for aquatic species, plant zones within the wetlands, maximum water depth, and stressors that may be indirectly affecting the wetlands that will be filled by the Project. The purpose of this assessment is to ensure the design of the wetlands will provide a similar or more complex and diverse habitat as the

wetlands prior to being filled and to ensure the performance standards proposed in the Plan will be able to measure the success of the newly established wetlands.

Impact 6: Grading activities would result in the permanent placement of fill material (soil) into 0.496 acres of palustrine emergent wetlands considered WOS under the Porter-Cologne Water Quality Control Act. Of the 0.496 acres of WOS, the USACE has determined 0.492 acres are isolated and not considered WOUS under the federal Clean Water Act, so the proposed Project would also impact the remaining 0.004 acres of palustrine emergent wetlands considered WOUS. These impacts will require that the applicant apply for and obtain a Nationwide Permit from USACE for discharge within 0.004 acres of wetlands under Clean Water Act Section 404 jurisdiction along with an accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will also need to apply for and obtain a separate Waiver of Waste Discharge from the SFBRWQCB for impacts to 0.496 acres of Waters of the State.

> **Mitigation Measure 6-1**: The Project applicant for the proposed Giovannoni Logistics Center Project will apply for and obtain a Nationwide Permit from the San Francisco District of USACE for discharge within 0.004 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant will apply for and obtain the accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will apply for and obtain a separate Waiver of Waste Discharge Requirements from the SFBRWQCB for impacts to 0.496 acres of waters of the state.
>
> **Mitigation Measure 6-2:** A detailed Wetland Mitigation and Monitoring Plan will be prepared and submitted to the SFBRWQCB for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan will address the loss of 0.496 acres of wetlands impact due to the proposed Project as well as the potential loss of approximately 3.7 acres of wetlands that may occur in the future as part of a Phase 2, assuming Phase 2 is built out. The Wetland Mitigation and Monitoring Plan will include a site protection instrument (e.g., deed restriction or conservation easements) that will restrict use of both the 0.992 acres of created wetlands for the proposed Project as well as approximately 3.7 acres of additional wetlands created for a potential Phase 2 project. The Wetland Mitigation and Monitoring Plan will also include a long-term endowment that would be fully funded by the proposed Project to manage approximately 44.8-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands will be created on appropriate mitigation land, approved by the RWQCB and USACE, within the Phase 2 project site's HUC 10 watershed.

Impact 7: If the applicant were to pursue a development within the Phase 2 area, such a development would impact approximately 3.7 acres of wetlands considered both WOUS and WOS, assuming buildout of Phase 2. Impacts to approximately 3.7 acres of wetlands for a

possible Phase 2 project would require that the applicant submit a separate application for an Individual Permit from USACE to include a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines to include a detailed evaluation of both onsite and offsite alternatives for the proposed project. Such a development on the Phase 2 portion of the Project Site would also require a Clean Water Act Section 401 Water Quality Certification from the SFBRWQCB for the USACE permit to be valid and would also require a Waiver of Waste Discharge Requirements for SFBRWCB pursuant to the Porter-Cologne Water Quality Control Act.

> **Mitigation Measure 7-1**: The project applicant for a future development in the Phase 2 area west of Devlin Road will apply for and obtain an Individual Permit from the San Francisco District of USACE for the placement of fill material within approximately 3.7 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant will apply for and obtain the accompanying Section 401 Water Quality Certification from the SFBRWQCB. The applicant will apply for and obtain a separate Waiver of Waste Discharge Requirements from the SFBRWQCB for the discharge of fill material within approximately 3.7 acres of Waters of the state.

4) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Although a number of wildlife species, including a variety of bird species that potentially include special status species, were observed on the property during field surveys, neither the development of the proposed Project nor potential development of a future Phase 2 project would result in significant impacts to wildlife populations on the site. Mitigation measures to address impacts to sensitive habitats, most notably seasonal wetlands, are included herein that include the preparation and implementation of a detailed Compensatory Wetland Mitigation Plan. The site design includes the preservation of the approximately 44.8-acre Wetland Preserve that will preserve 7.71 acres of existing wetlands but will also include creation of approximately 4.7 additional wetland acres. Potential impacts to special status avian species will be mitigated as the applicant for either the proposed Project or future potential development of a Phase 2 is required herein to conduct preconstruction surveys for nesting by special status bird species including Swainson's hawk, golden eagle, northern harrier, and burrowing owl.

Any species of fauna that may be displaced during preparation of the site for development of the proposed Project or the possible development of a Phase 2 project should find nearby available habitats, including habitats within the approximately 44.8-acre Wetland Preserve or adjacent and contiguous 37-acre preserve for the Napa Logistics Project on the adjacent property. The major wildlife corridor along No Name Creek will remain unaffected as the entirety of No Name Creek will be incorporated into the Wetland Preserve. The project will not result in substantial change in animal populations at the site, nor will it cause a fish or wildlife population to drop below self-sustaining levels.

Nesting Birds. Nesting bird species protected by the federal Migratory Bird Treaty Act or California Fish and Game Code could be impacted during project construction. Work related to construction involving the removal of vegetation during the February 1 to August 1 breeding season of birds could result in mortality of nesting avian species if they are present. Many species of raptors (birds of prey) are sensitive to human incursion and construction activities, and it is necessary to ensure that nesting raptor species are not present in the vicinity of construction sites.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Required setbacks to protect active nests from construction activity are usually in the order of about 250 feet for passerines (songbirds) and 500 feet or more for raptors (birds of prey).

Habitats within the Project Site were shown to support a number of bird species during field surveys conducted in the winter and spring of 2021 by HBG. The onsite grasslands and seasonal wetlands provide suitable nesting substrate for a number of species. Many of the bird species documented on or near the site as described in Section 4.4 could possibly nest within the vegetation in the onsite grasslands or seasonal wetlands. If active nests were present in this vegetation during construction operations on the Project Site, direct or indirect impacts could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of construction activity.

Impact 8: The removal of vegetation during the February 1 to August 31 breeding season, either for the proposed Project or for a potential future Phase 2 development, could result in mortality of nesting avian species if they are present.

> **Mitigation Measure 8-1:** If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist should conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. Nesting bird surveys should cover the project footprint and adjacent areas. If bird nests are found, appropriate buffer zones should be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones should be determined per recommendations of the qualified biologist based on site conditions and species involved. Buffer zones should be maintained until it can be documented that either the nest has failed, or the young have fledged.

Water Quality. Construction activities for the proposed project will occur in within 0.496 acres of wetlands subject to State jurisdiction and in close proximity to areas within the upper reaches of No Name Creek, but water quality impacts to these features would not be significant

for several reasons. The requirement for the implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and Best Management Practices (BMPs) will be required and will provide assurance that water quality of nearby waterways is not affected by onsite construction activities. In particular, silt fence and straw wattles will be installed along portions of the Project Site to maintain levels of water pollutants migrating offsite. In addition, vegetation will only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates should be stabilized as quickly as possible to prevent erosion and runoff. These requirements would be germane to any development for the proposed Project or for potential development of a Phase 2 west of Devlin Road.

Grading, excavation, placement of fill material, and other ground-disturbing activities associated with construction activities within the Project Site will not promote erosion that would allow elevated levels of sediment to wash into aquatic areas downstream, including No Name Creek, where such pollutants could result in potential impacts to fish and wildlife resources. Indirect impacts to resident animal populations in downstream areas would not result from the proposed project due to elevated turbidity levels from increased sedimentation or increases in other contaminants in stormwater runoff.

5) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with any local policies related to protection of natural resources. No trees are present on the Project Site so no trees would need to be removed to accommodate either the proposed Project or any future development within Phase 2.

All work for the Project would take place consistent with biological requirements of the General Plan and Zoning Ordinance of the City of American Canyon. This Biological Resources Report provides the detailed assessment of biological resources required by General Plan Policies 8.1.1 and 8.1.4. Studies of sensitive biological resources have been either conducted by HBG as part of this Biological Resources Report or were conducted by other consultants and independently reviewed and incorporated into the Biological Resources Report, consistent with General Plan Policy 8.2.1. Studies conducted by HBG include a protocol Phase 1 Habitat Assessment for the federally listed threatened California red-legged frog, surveys for state listed threatened Swainson's hawk and rare plant surveys, currently underway, by Dr. Brent Helm during the 2021 flowering season. Studies conducted by others include wet and dry season protocol surveys for the federally listed threatened vernal pool fairy shrimp and rare plant surveys. The proposed project results in impacts to seasonal wetlands and the applicant has prepared a conceptual plan to mitigate for these wetlands consistent with General Plan Policies 8.3.1.a, 8.3.1.h and 8.4.3. The wetland mitigation would be accomplished through establishment of an approximately 44.8-acre Wetland Preserve within the Project Site to include 7.71 acres of existing wetlands and creation of an additional 4.7 acres of seasonal wetlands to compensate for onsite losses from the proposed Project and from a potential future development project within Phase 2.

6) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is not within an area where the provisions of a Habitat Conservation Plan or Natural Community Conservation Plan would apply.

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ATTACHMENT 1.

Figures

Figure 1. Regional Location Map
Figure 2. Local Vicinity Map
Figure 3. USGS Topographic Map
Figure 4. Aerial Imagery with USACE Verified Wetlands
Figure 5. Project Specific Level Site Plan & Wetland Impacts
Figure 6. Phase 2 Program Level Site Area & Wetland Impacts
Figure 7. USGS HUC 10 Hydrologic Units
Figure 8. NRCS Soil Map
Figure 9. Wetland Mitigation Site Plan

Figure 1. Regional Location Map
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

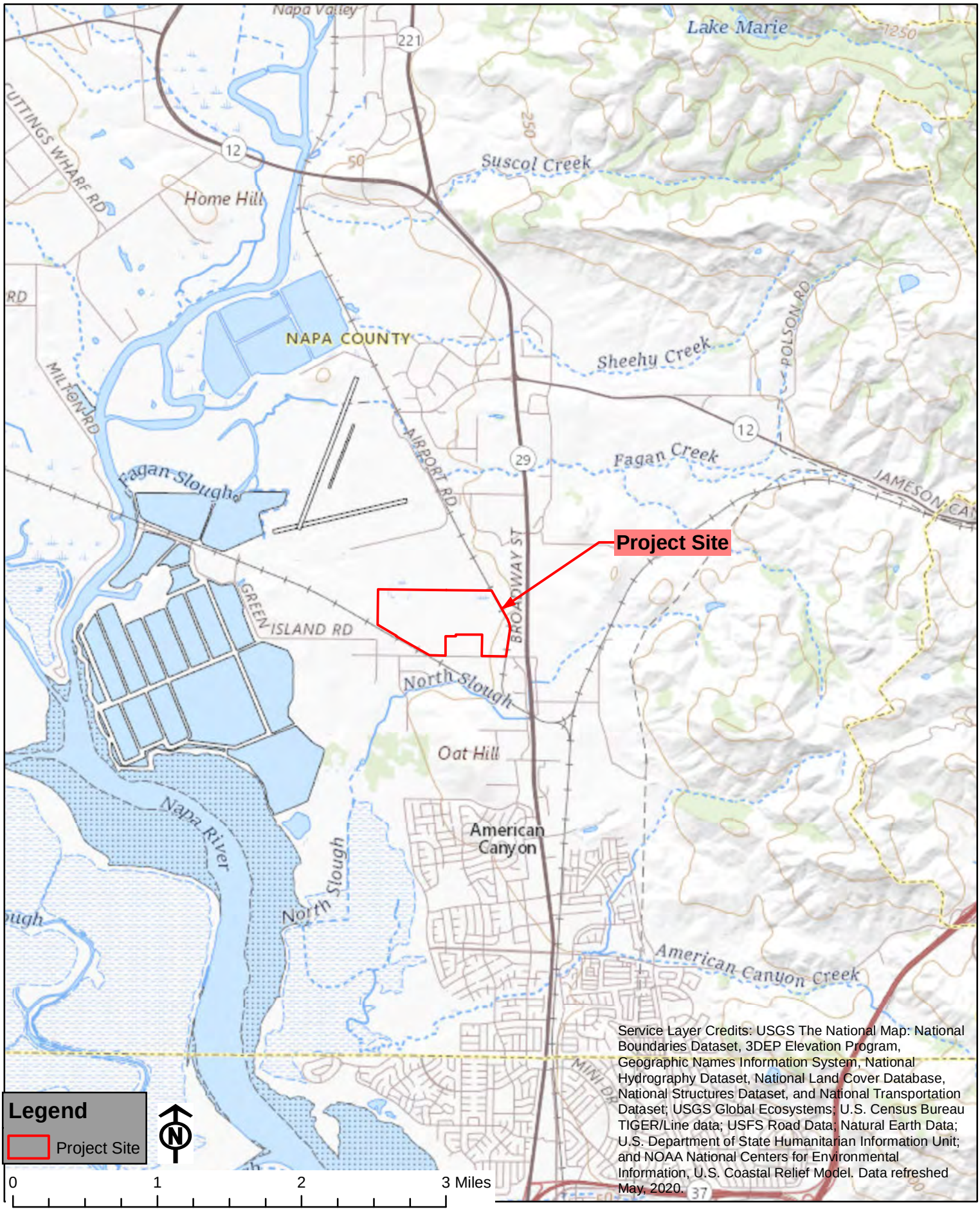

Figure 2. Local Vicinity Map
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

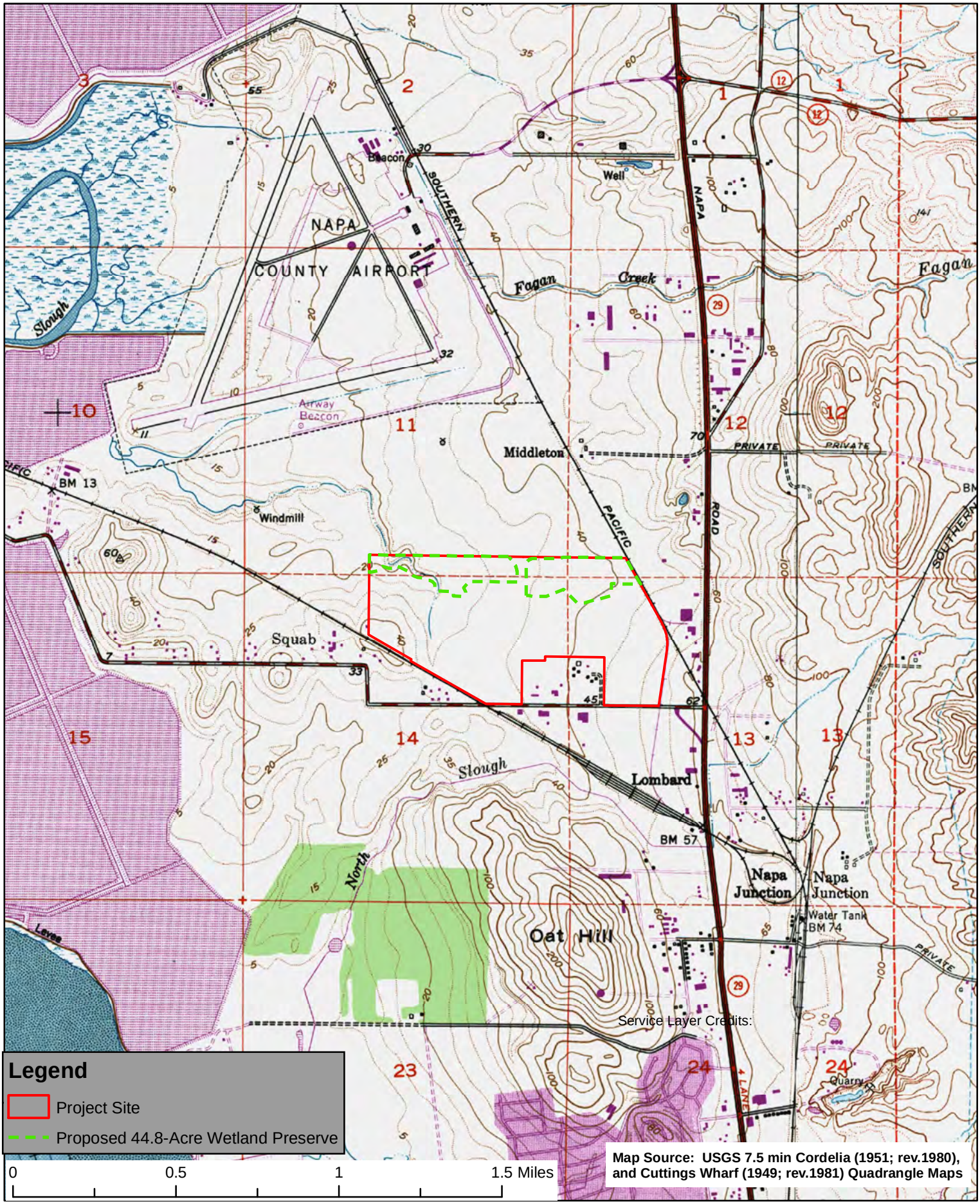

Figure 3. USGS Topographic Map
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

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Figure 4. Aerial Imagery With USACE Verified Wetlands
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

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Devlin Rd

Potential Future Phase 2 Area

Detention Basins

Bio-Retention Areas

PROPOSED ONE STORY
BUILDING B
36' CLR. HEIGHT
468,521 G.S.F. BUILDING AREA
1,237,278 ±N.S.F. SITE AREA = 28.45 ACRES
37.87% COVERAGE

442 STALLS PROVIDED
= 0.94 / 1000 RATIO

100 DOCK POSITIONS
4 GRADE LEVEL ROLL UP DOORS

148 TRAILER PARKING STALLS (12' X 55')

PROPOSED ONE STORY
BUILDING A
40' CLR. HEIGHT
601,383 G.S.F. BUILDING AREA
1,503,722 N.S.F. ± SITE AREA = 34.47 ACRES
39.99 % COVERAGE

432 STALLS PROVIDED
= 0.72 / 1000 RATIO

126 DOCK POSITIONS
4 GRADE LEVEL ROLL UP DOORS

215 TRAILER PARKING STALLS (12' X 55')

2,741,000 S.F. ± SITE AREA =
62.92 ACRES
TOTAL BUILDING AREA = 1,069,904 S.F. =
39.03% COVERAGE

109,667 S.F. ± AREA OF BIO-RETENTION
SHOWN
87,712 S.F. ± REQUIRED

0 250 500 1,000 Feet

Project Site Boundary
Project Level Site Plan
Proposed 44.8-Acre Wetland Preserve
Proposed Landscape Area
Giovannoni Logistics Center Project
Wetland Impact (0.496 AC)
Devlin Road Wetland Impact
USACE Verified Wetlands

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 5. Project Specific Level Site Plan & Wetland Impacts

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
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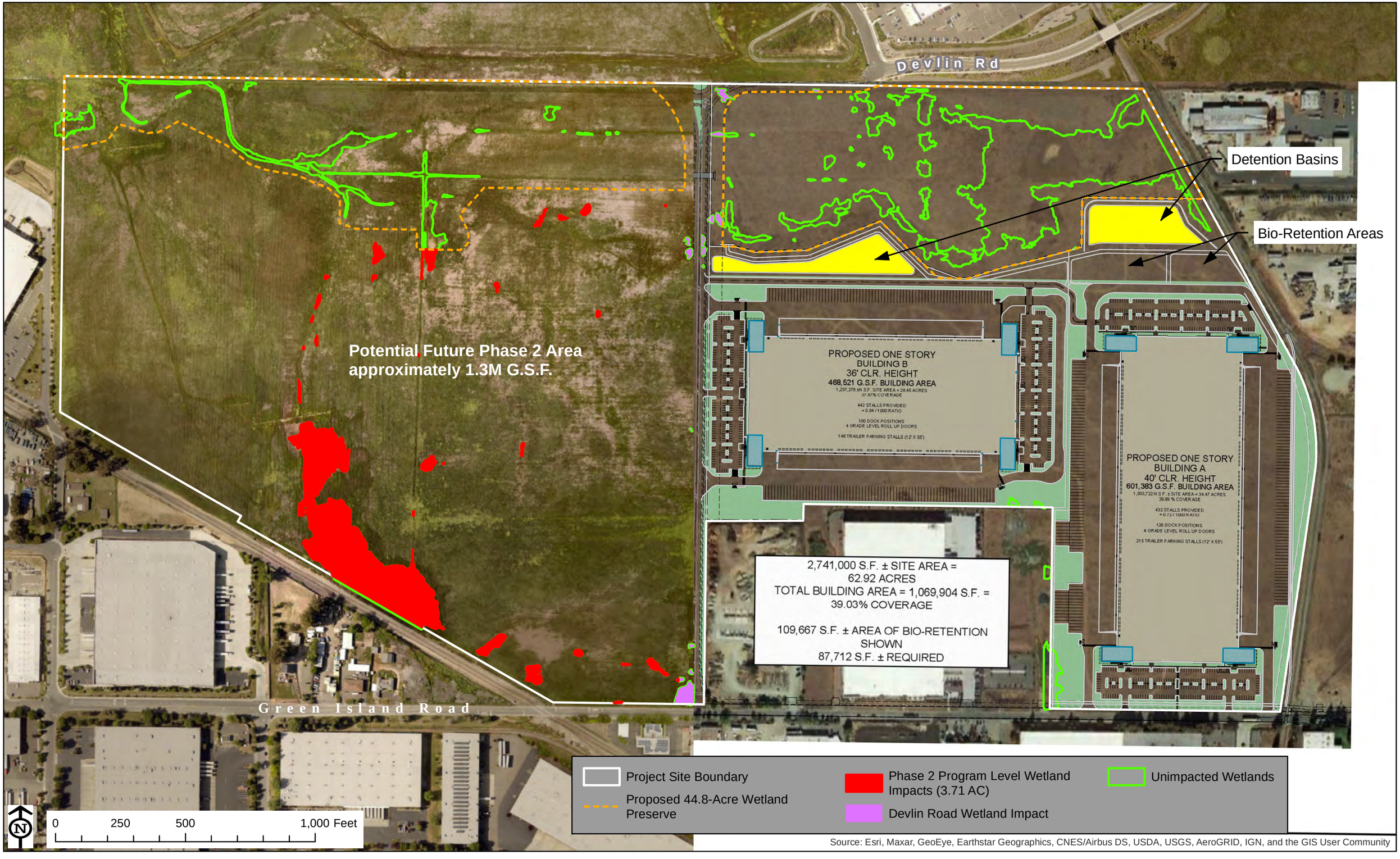

Figure 6. Phase 2 Program Level Site Area & Wetland Impacts

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
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Figure 7. USGS HUC 10 Hydrologic Units
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

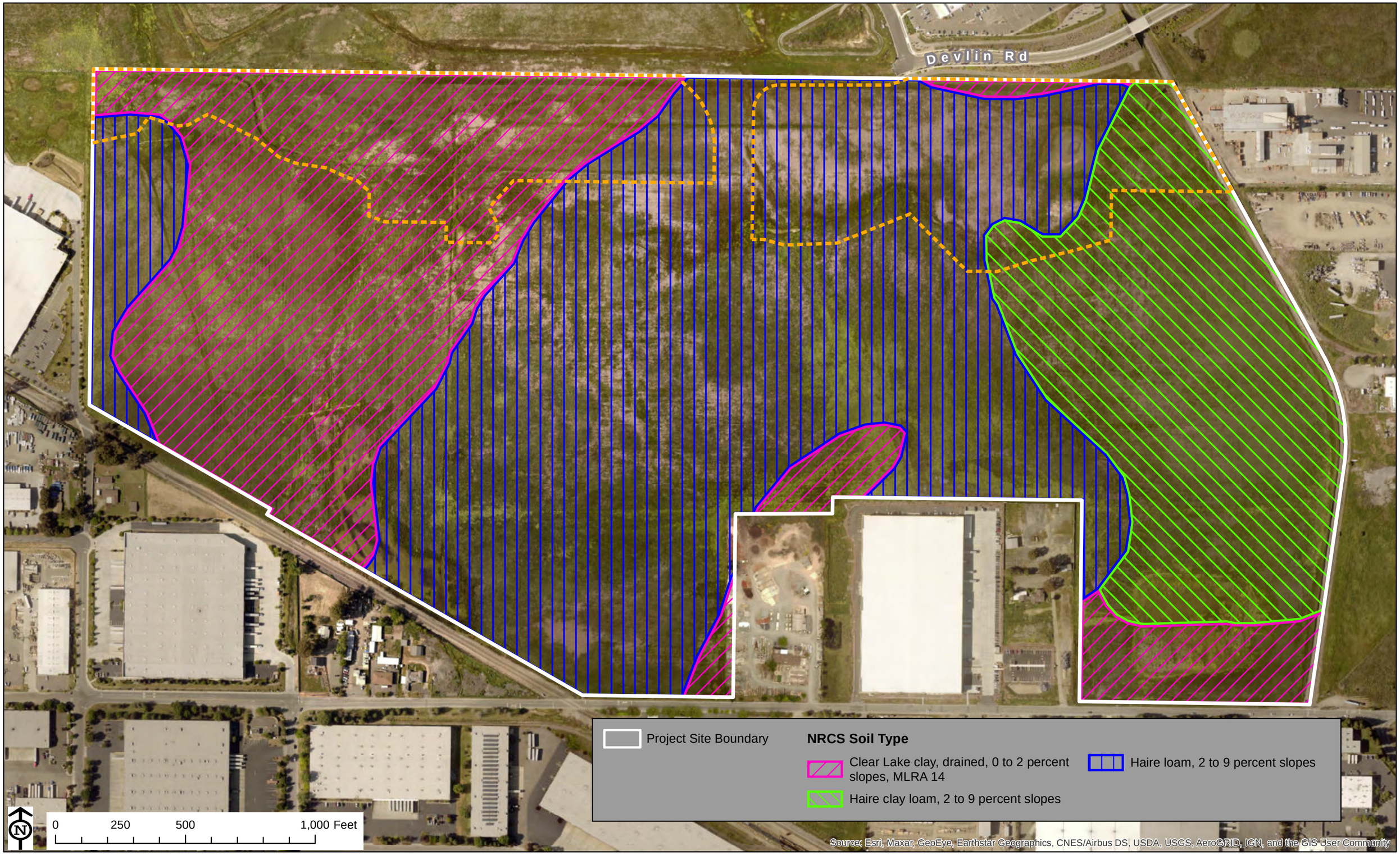

Figure 8. NRCS Soil Map

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

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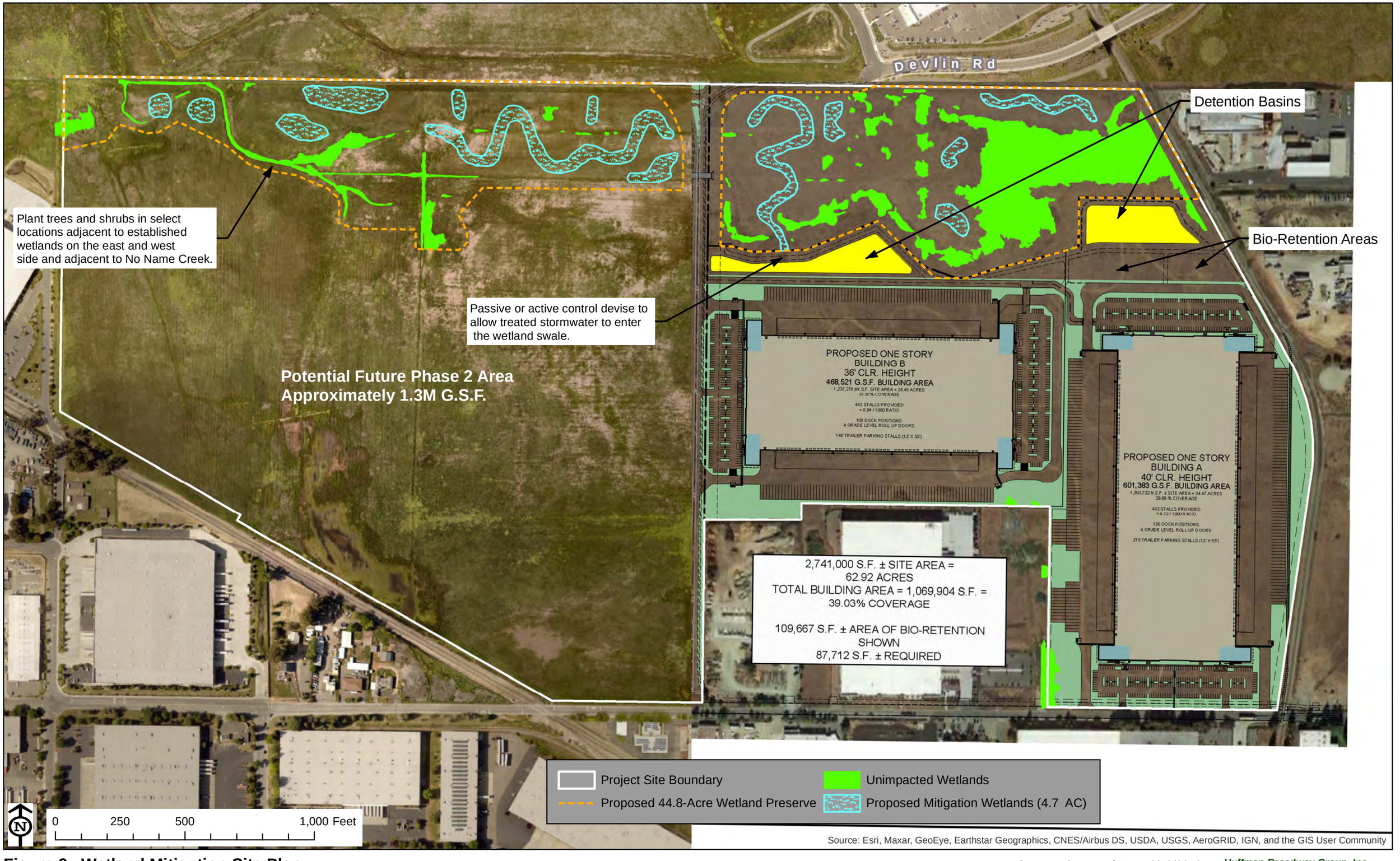

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 9. Wetland Mitigation Site Plan

Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

Imagery Source: County of Napa 6/19/2018

Huffman-Broadway Group, Inc.
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ATTACHMENT 2.

TABLES

Table 1. Plants Species Observed on the Project Site

Table 2. Special Status Plants with Potential to Occur in the Vicinity of the Project Site, City of American Canyon, California

Table 3. Special Status Animal Species that Have Been Reported in the Vicinity of the Project Site, City of American Canyon, California

Table 4. Table 2 & 3 Status Code Definitions

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
DICOTS	
Apiaceae	
Eryngium aristulatum var. aristulatum	California coyote-thistle
*Foeniculum vulgare	Sweet fennel
Perideridia kelloggii	Kellogg's yampah
Asteraceae	
Agoseris grandiflora	giant mountain dandelion
**Anthemis cotula*	Mayweed
Baccharis pilularis subsp. consanguinea	Coyote brush
**Calendula arvensis*	Field-marigold
**Carduus pycnocephalus subsp. pycnocephalus*	Italian thistle
**Centaurea calcitrapa*	Purple starthistle
**Centaurea solstitialis*	Yellow starthistle
**Cichorium intybus*	Chicory
**Cirsium vulgare*	Bull thistle
**Cotula coronopifolia*	Brass-buttons
Deinandra corymbosa	Coast tarweed
**Helminthotheca echioides*	Bristly ox-tongue
Hemizonia congesta subsp. luzulifolia	White hayfield tarweed
**Hypochaeris radicata*	Rough cat's-ear
**Lactuca saligna*	Willow lettuce
**Lactuca serriola*	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
**Leontodon saxatilis subsp. longirostris*	Long-beaked hawkbit
Microseris douglasii subsp. douglasii	Douglas' silverpuffs
**Pseudognaphalium luteoalbum*	Everlasting cudweed
Psilocarphus brevissimus var. brevissimus	Dwarf woolly-heads
**Senecio vulgaris*	Common groundsel
**Sonchus asper subsp. asper*	Prickly sow-thistle
**Sonchus oleraceus*	Common sow-thistle
**Taraxacum officinale*	Common dandelion
**Tragopogon porrifolius*	Common salsify
Boraginaceae	
Plagiobothrys stipitatus var. micranthus	Great Valley popcornflower
Plagiobothrys undulatus	Wavy-stemmed popcornflower
Brassicaceae	
**Brassica nigra*	Black mustard

[2] List includes Angiosperms only.

[3] * Denotes California native species.

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
**Brassica rapa*	Field mustard
Cardamine californica	Milk maids
**Lepidium latifolium*	Broadleaf pepperweed
**Nasturtium officinale*	Water cress
**Raphanus raphanistrum*	Jointed charlock
**Raphanus sativus*	Wild radish
**Sisymbrium altissimum*	Tumble mustard
Campanulaceae	
Downingia concolor var. concolor	Downingia
Caryophyllaceae	
Cerastium arvense subsp. strictum	Meadow chickweed
**Silene gallica*	Windmill-pink
Convolvulaceae	
**Convolvulus arvensis*	Bindweed
Cuscuta sp.	Dodder
Crassulaceae	
Crassula aquatica	Water pygmy-weed
Fabaceae	
**Lotus corniculatus*	Birdfoot trefoil
Lupinus bicolor	Bicolored lupine
**Medicago polymorpha*	California burclover
Trifolium ciliolatum	Foothill clover
**Trifolium dubium*	Little hop clover
**Trifolium fragiferum*	Strawberry clover
**Trifolium hirtum*	Rose clover
**Trifolium incarnatum*	Crimson clover
**Trifolium repens*	White clover
**Trifolium subterraneum*	Subterranean clover
Trifolium variegatum	White-tip clover
**Vicia benghalensis*	Purple vetch
**Vicia sativa*	Common vetch
Gentianaceae	
Zeltnera muehlenbergii	June centaury
Geraniaceae	
**Erodium botrys*	Broad-leaf filaree
**Erodium cicutarium*	Red-stem filaree
**Erodium moschatum*	White-stem filaree
**Geranium dissectum*	Cut-leaf geranium
Gentianaceae	
Zeltnera muehlenbergii	June centaury

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Lamiaceae	
**Mentha pulegium*	Pennyroyal
Stachys albens	White-stem hedge-nettle
Linaceae	
**Linum bienne*	Flax
Lythraceae	
**Lythrum hyssopifolia*	Hyssop loosestrife
Malvaceae	
**Malva parviflora*	Cheeseweed
Montiaceae	
Claytonia perfoliata	Miner's lettuce
Myrsinaceae	
**Lysimachia arvensis*	Scarlet pimpernel
Onagraceae	
Epilobium brachycarpum	Summer cottonweed
Epilobium ciliatum	Hairy willow-herb
Taraxia ovata	Sun cup
Orobanchaceae	
**Bellardia trixago*	Mediterranean linseed
Castilleja attenuate	Valley tassels
Castilleja exserta subsp. exserta	Purple owl's-clover
**Parentucellia viscosa*	Yellow glandweed
Triphysaria versicolor subsp. faucibarbata	Yellow owl's-clover
Plantaginaceae	
Callitriche marginate	Winged water starwort
**Plantago lanceolata*	English plantain
**Veronica anagallis-aquatica*	Water speedwell
Veronica peregrina subsp. Xalapensis	Purslane speedwell
Polygonaceae	
**Polygonum aviculare*	Common knotweed
**Rumex acetosella*	Sheep sorrel
**Rumex crispus*	Curly dock
**Rumex pulcher*	Fiddle dock
Ranunculaceae	
**Ranunculus muricatus*	Spiny-fruit buttercup
Ranunculus pusillus	Low buttercup
Rosaceae	
**Rubus armeniacus*	Himalayan blackberry
Rubiaceae	
Galium aparine	Goose grass

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Verbenaceae	
Phyla nodiflora	Common frog fruit
MONOCOTS	
Alismataceae	
**Alisma lanceolatum*	Lance-leaf water-plantain
Cyperaceae	
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. occidentalis	Common tule
Iridaceae	
Sisyrinchium bellum	Western blue-eyed grass
Juncaceae	
Juncus balticus subsp. Ater	Baltic rush
Juncus bufonius var. bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus phaeocephalus	Brown-headed rush
Juncus xiphioides	Iris-leaved rush
Juncaginaceae	
Triglochin scilloides	Flowering quillwort
Poaceae	
**Aegilops triuncialis*	Barbed goatgrass
**Avena barbata*	Slender wild oat
**Briza minor*	Small quaking grass
**Bromus diandrus*	Ripgut grass
**Bromus hordeaceus*	Soft chess
**Elymus caput-medusae*	Medusahead
Elymus multisetus	Big squirreltail
Elymus triticoides	Creeping wildrye
**Festuca bromoides*	Brome fescue
**Festuca perennis*	perennial ryegrass
**Holcus lanatus*	Common velvet grass
Hordeum brachyantherum	Meadow barley
**Hordeum marinum subsp. Gussoneanum*	Mediterranean barley
**Hordeum murinum subsp. leporinum*	Hare barley
**Phalaris aquatica*	Harding grass
**Phalaris paradoxa*	Paradox canary-grass
Pleuropogon californicus var. californicus	Annual semaphore grass
**Poa annua*	Annual bluegrass
**Polypogon interruptus*	Ditch beard grass
**Polypogon monspeliensis*	Annual beard grass

Table 1. Plant Species Observed on the Project Site[2]	
Family/Genius[3]/Species/Subspecies	**Common Name**
Themidaceae	
Brodiaea elegans subsp. elegans	Harvest brodiaea
Dichelostemma capitatum subsp. capitatum	Blue dicks
Triteleia laxa	Ithuriel's spear
Typhaceae	
Typha latifolia	Broad-leaved cattail

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
ANIMALS			
Invertebrates			
Valley Elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/--	Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills.	Not present. Suitable habitat is not present at the project site. No elderberry plants were observed during the field review.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE/--	Habitat for this species is grassland, often with a significant component of native grasses including the host plant (*Viola pedunculata*) and characterized by shallow rocky soils and numerous rock outcrops.	Not present. Suitable habitat is not present at the site.
Monarch butterfly (*Danaus plexippus*) (wintering sites)	--/--	Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. Larval host plant is milkweed, primarily of the genus *Asclepias*.	Not present. Suitable habitat for an overwintering site is not present at the site. No milkweed plants of the genus *Asclepias* were found on the property.
California freshwater shrimp *(Syncaris pacifica)*	FE/CE	Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Prefers shallow pools removed from the main flow. In winter, prefers undercut banks with exposed roots; in	Not present. Suitable habitat is not present at the site.

[4] Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cuttings Wharf 7.5 Minute Quadrangle Map and surrounding areas, February 2021.

[5] Definitions of status codes can be found in Table 4.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
		summer low flows, clings to submerged portions of overhanging tree shrub branches.	
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Inhabits vernal pools; occurs throughout the Delta and Central Valley.	Not present. Protocol surveys were negative for this species.
Western ridged mussel (*Gonidea angulata*)	--/--	Primarily creeks and rivers and less often lakes. Originally found in most of California, but now extirpated from Central and Southern California. Specimens known from Napa River area.	Not present. Suitable habitat is not present at the site.
Fish			
Steelhead – Central CA Coast ESU (*Oncorhynchus mykiss*)	FT/CSC	Well-oxygenated streams with riffles; loose, silt-free gravel substrate.	Not present. Suitable habitat is not present at the site.
Longfin smelt *(Spirinchus thaleichthys)*	FC/CE,CSC	Found in open waters of estuaries, mostly in the middle or bottom of the water column. Euryhaline, nektonic and anadromous. Prefers salinities of 15030 ppt but can be found in both freshwater and seawater.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Delta smelt (*Hypomesus transpacificus*)	FT/CT	During spawning they migrate upstream into shallow fresh or slightly brackish tidally-influenced backwater sloughs and channel edges. In Solano County, Delta Smelt are found in Suisun Bay/Suisun Marsh sloughs upstream through the delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties.	Not present. Suitable habitat is not present at the site.
Sacramento splittail (*Pogonichthys macrolepidotus*)	--/CSC	Adult Sacramento Splittail migrate upstream from brackish areas to spawn in freshwater areas subject to flooding, such as the lower reaches of rivers, dead end sloughs, and in larger sloughs such as Montezuma Slough.	Not present. Suitable habitat is not present at the site.
Amphibians			
Foothill yellow-legged Frog (*Rana boylii*)	--/CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying; larvae need at least 15 weeks to attain metamorphosis.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
California red-legged frog *(Rana draytonii*)	FT/CSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to aestivation habitat.	Not present. Suitable habitat is not present at the site as verified by a protocol Phase 1 Habitat Assessment.
Reptiles			
Western pond turtle (*Emys marmorata*)	--/CSC	Aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Not present. Suitable habitat is not present at the site.
Birds			
Great blue heron (*Ardea herodias*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Not present. Suitable habitat for a rookery is not present at the site.
Black-crowned night-heron *(Nycticorax nycticorax)* [Nesting]	--/--	Colonial nester, usually in trees but occasionally in tule patches. Rookery sites are located adjacent to foraging areas including lake margins, mud-bordered bays and marshy spots.	Not present. Suitable habitat for nesting is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Golden eagle (*Aquila chrysaetos*) [nesting and wintering]	BCC/FP, WL	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	Not present as a nesting species. Suitable nesting habitat is not present at the site. Seen foraging on the property in spring 2021. Preconstruction nesting surveys are required to ensure no indirect impacts to eagles that could nest nearby.
Northern harrier (*Circus cyaneus*) [Nesting]	--/CSC	Coastal salt marsh and freshwater marsh; nests and forages in grasslands; nests on ground in shrubby vegetation, usually at marsh edge.	Possible. Suitable nesting habitat may be present at the site. Observed on site during winter as well as nesting season. Preconstruction nesting surveys are required to ensure no impact to nesting birds.
White-tailed kite (*Elanus caeruleus*) [nesting]	--/CFP	Open grassland and agricultural areas throughout Central California.	Not present. Suitable nesting habitat is not present on site. Species observed foraging on the site during winter.
Cooper's hawk (*Accipiter cooperii*) [nesting]	-/WL	Nests primarily in deciduous riparian forests; forages in open woodlands.	Not present. Suitable nesting habitat is not present on site. Species likely forages on or near the site, especially in winter.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Sharp-shinned hawk (*Accipiter striatus*) [nesting]	--/WL	Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. All habitats except alpine, open prairie, and bare desert used in winter.	Not present. Suitable nesting habitat is not present on site. Species likely forages on or near the site, especially in winter.
Swainson's hawk (nesting) *(Buteo swainsoni)*	BCC/CT	Nests in trees and riparian stands; summer migrant to Central Valley. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands.	Not present as a nesting species. Suitable nesting habitat is not present at the site. Seen foraging on the property in spring 2021. Preconstruction nesting surveys are required to ensure no indirect impacts to Swainson's hawks that could nest nearby.
Ferruginous hawk *(Buteo reglais)* (wintering)	--/WL	Inhabits open country. Winters in small numbers along California coast and inland valleys.	Wintering possible. The site is considered suitable winter foraging habitat, however, the species has not been observed using the site.
Osprey (*Pandion haliaetus*) [Nesting]	--/WL	Breeds in northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin County. Associated strictly with large, fish-bearing waters, primarily in Ponderosa pine through mixed conifer habitats. Nests on Inverness Ridge.	Not present. Suitable nesting habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
American Peregrine falcon (*Falco peregrinus anatum*)	BCC/FP	Nests in woodland, forest, and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structure. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	Not present. Occurs in the area but suitable nesting habitat is not present at the site.
Merlin (*Falco columbarius*) [wintering]	-/WL	Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	Not present. May occasionally forage at the site during the winter.
Ridgway's (California clapper) rail (*Rallus obsoletus*)	FE/CE,FP	Found in saltwater marshes traversed by tidal sloughs in the vicinity of San Francisco Bay; associated with abundant growths of pickleweed; feeds on mollusks obtained from mud-bottomed sloughs.	Not present. Suitable habitat is not present at the site.
California black rail *(Laterallus jamaicensis coturniculus*)	--/CT,FP	Mainly inhabits salt-marshes bordering larger bays. Occurs in tidal salt marsh with dense growths of pickleweed; also occurs in freshwater and brackish marshes.	Not present. Suitable habitat is not present at the site.
Yellow rail (*Coturnicops noveboracensis*)	BCC/CSC	Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County.	Not present. Suitable habitat is not present at the site.
Western snowy plover (*Charadrius alexandrinus nivosus*) [nesting]	FT,BCC/CSC	Found on sandy beaches or marine and estuarine shores; also salt pond levees and shores of large alkali lakes; requires sandy, gravelly or friable soil substrate for nesting.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Caspian tern *(Hydroprogne caspia)*	BCC/--	Nests on sandy or gravely beaches and shell banks in small colonies inland and along the Coast. Found in inland freshwater lakes and marshes, and also brackish or salt waters of estuaries and bays.	Not present. Suitable habitat is not present at the site.
Burrowing owl (*Athene cunicularia*)	BCC/CSC	Found in open dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. This species is a subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Not present. Suitable habitat is not currently present at the site due to general lack of ground squirrels and ground squirrel colonies. Could possibly inhabit the site in the future. Preconstruction nesting surveys are required to ensure no impact to nesting birds.
Short-eared owl (*Asio flammeus)* (nesting)	--/CSC	Found in marshes, both freshwater and salt; lowland meadows; irrigated alfalfa fields. Tule patches/full grass needed for nesting and daytime seclusion. Nests on dry ground in a depression concealed in vegetation.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Bank swallow *(Riparia riparia)* (nesting)	--/CT	A migrant found primarily in riparian and other lowland habitats in California west of the deserts. A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. In summer, restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil, into which it digs its nesting holes.	Not present. Suitable habitat is not present at the site.
Loggerhead shrike (*Lanius ludovicianus*)	BCC/CSC	Habitat includes open areas such as desert, grasslands and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitats, which contain trees, fence posts, utility poles, and other perches.	Not present. Suitable habitat is not present at the site.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	BCC/CSC	Requires thick continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not present. Suitable habitat is not present at the site.
Yellow warbler *(Dendroica petechia*) [nesting]	BCC/CSC	Breeds in deciduous riparian woodlands, widespread during fall migration.	Not present. Suitable habitat is not present at the site.
San Pablo song sparrow *(Melospiza melodia samuelis)*	BCC/CSC	Tidal, brackish or salt marshes, San Pablo Bay.	Not present. Suitable habitat is not present at the site.
Suisun song sparrow *(Melospiza melodia maxillaris)*	BCC/CSC	Forages and nests in dense marsh and scrub habitat along the margins of Suisun Bay.	Not present. Suitable habitat is not present at the site.

TABLE 2. SPECIAL STATUS ANIMAL SPECIES THAT HAVE BEEN REPORTED IN THE VICINITY OF THE PROJECT SITE, CITY OF AMERICAN CANYON, CALIFORNIA[4]			
SPECIES	**STATUS CODES[5] FED/STATE**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Tri-colored blackbird (*Agelaius tricolor*) [Nesting colony]	BCC/CE,CSC	Breeds near freshwater, usually in tall emergent vegetation. Requires open water with protected nesting substrate. Colonies prefer heavy growth of cattails and tules. Uses grasslands and agricultural lands for foraging.	Not present. Suitable habitat is not present at the site.
Mammals			
Salt Marsh harvest mouse (*Reithrodontomys raviventris*)	FE/CE,FP	Inhabits saline emergent wetlands in the San Francisco Bay and its tributaries. Pickleweed is the primary habitat.	Not present. Suitable habitat is not present at the site.
Suisun shrew *(Sorex ornatus sinuosus)*	--/CSC	Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays.	Not present. Suitable habitat is not present at the site.
American badger (*Taxidea taxus*)	--/CSC	Drier open stages of most shrub, forest, and herbaceous habitats; needs sufficient food, friable soils and open, uncultivated ground.	Not present. Suitable habitat is not present at the site.
Pallid bat *Antrozous pallidus*	--/CSC	Roosts primarily in oak woodland and ponderosa pine habitats; forages in open areas.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Henderson's bent grass *(Agrostis hendersonii)*	--/--/3.2	Found in moist places in valley and foothill grassland or vernal pools. 65-1030m.	Not present. Suitable habitat is not present at the site.
Franciscan onion (*Allium peninsulare franciscanum*)	--/--/1B.2	Found in cismontane woodland and valley and foothill grassland in clay soils and serpentine on dry hillsides. 100-300m.	Not present. Suitable habitat is not present at the site.
Napa false indigo (*Amorpha californica* var. *napensis*)	--/--/1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2000m.	Not present. Suitable habitat is not present at the site.
Alkali Milk-vetch (*Astragalus tener* var. *tener*)	--/--/1B.2	Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m.	Not present. Suitable habitat is not present at the site.
Big-scale (California) balsamroot (*Balsamorhiza macrolepis var. macrolepis*)	--/--/1B.2	Chaparral, cismontane woodland, valley and foothill grassland, sometimes on serpentinite. 90-1555m.	Not present. Suitable habitat is not present at the site.
Big tarplant (*Blepharizonia plumosa*)	--/--/1B.1	Valley and foothill grasslands. Found in dry hill and plains in annual grassland in clay and clay-loam soils, usually on slopes. Often in burned areas. 60-505m.	Not present. Suitable habitat is not present at the site.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	--/--/1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest. 110-915m. Nearest location is near Mt. George about 4 miles northeast of the site.	Not present. Suitable habitat is not present at the site.

[6] Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cuttings Wharf 7.5 Minute Quadrangle Map and surrounding areas, February 2021.

[7] Definitions of status codes can be found in Table 4.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Lyngbye's sedge (*Carex lyngbyei*)	-/-/2B.2	Marshes and swamps (brackish or freshwater) at sea level.	Not present. Suitable habitat is not present at the site.
Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta*)	FE/ST/1B.2	Rocky serpentine sites within valley and foothill grassland. 75-400m.	Not present. Suitable habitat is not present at the site.
Rincon Ridge ceanothus (*Ceanothus confuses)*	--/--/1B.1	Known from volcanic or serpentine soils on dry shrubby slopes in closed-cone coniferous forest, chaparral, and cismontane woodland. 75-1065m.	Not present. Suitable habitat is not present at the site.
Holly-leaved ceanothus (*Ceanothus purpureus)*	--/--/1B.2	Rocky volcanic slopes in chaparral. 120-640m.	Not present. Suitable habitat is not present at the site.
Congdon's tarplant (*Centromedia parryi congdonii*)	--/--/1B.2	Alkaline soils in valley and foothills grassland.	Not present. Suitable habitat is not present at the site.
Pappose tarplant (*Centromadia parryi ssp. parryi*)	--/--/1B.2	Found in mesic and often alkaline site in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m	Not present. Suitable habitat is not present at the site.
Soft salty bird's beak *Chloropyron molle ssp. molle*	FT/--/1B.1	Found in Coastal salt marsh with *Distichlis*, *Salicornia, Frankenia*, etc. 0-5 m.	Not present. Suitable habitat is not present at the site.
Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*)	--/--/2B.1	Fresh or brackish water marshes. 0-200m.	Not present. Suitable habitat is not present at the site.
Dwarf Downingia (*Downingia pusilla*)	--/--/2B.2	Inhabits vernal pools and vernal lake margins. 1-445m.	Not present. Suitable habitat is not present at the site.
Greene's narrow-leaved daisy (*Erigeron greenei*)	--/--/1B.2	Serpentine and volcanic substrates in chaparral. 75-1060m.	Not present. Suitable habitat is not present at the site.
Jepson's coyote-thistle *(Eryngium jepsonii)*	--/--/1B.2	On clay soils in vernal pools and valley and foothill grassland. 3-305 m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
San Joaquin spearscale (*Etriplex joaquiniana*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with *Distichlis*, *Frankenia*, etc. 1-835m.	Not present. Suitable habitat is not present at the site.
Fragrant fritillary (*Fritillaria liliacea*)	--/--/1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	Not present. Suitable habitat is not present at the site.
Diablo helianthela *(Helianthela castenea)*	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	Not present. Suitable habitat is not present at the site.
Brewer's western flax (*Hesperolinon breweri*)	--/--/1B.2	Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885 m.	Not present. Suitable habitat is not present at the site.
Carquinez goldenbush *(Isocoma argute)*	--/--/1B.1	Found in Valley and Foothill grassland. On alkaline soils, flats and lower hill. Found on low benches near drainages and on tops and sides of mounds in swale habitat. 1-50 m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Contra Costa goldfields (*Lasthenia conjugens*)	FE/--/1B.1	Vernal pools, swales, low depressions, in open grassy areas. 1-445m. Extirpated from most of its range. Most remaining occurrences restricted to the Fairfield region.	Not present. Suitable habitat is not present at the site.
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	--/--/1B.2	Inhabits the banks of sloughs and bays in the Suisun Bay and Delta. Found in freshwater and brackish marshes.	Not present. Suitable habitat is not present at the site.
Legenere (*Legenere limosa*)	--/--/1B.1	Inhabits the beds of vernal pools. 1-880m.	Not present. Suitable habitat is not present at the site.
Jepson's leptosiphon (*Leptosiphon jepsonii*)	--/--/1B.2	Found on volcanics or the periphery of serpentine substrates in chaparral, cismontane woodland, and open to partially shaded grassy slopes. 55-855 m.	Not present. Suitable habitat is not present at the site.
Mason's lilaeopsis (*Lilaeopsis masonii*)	--/Rare/1B.1	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10m.	Not present. Suitable habitat is not present at the site.
Marin knotweed (*Polygonum marinense*)	--/--/3.1	Coastal salt marshes and brackish marshes. 0-10m.	Not present. Suitable habitat is not present at the site.
California beaked-rush (*Rhynchospora californica*)	--/--/1B.1	Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m.	Not present. Suitable habitat is not present at the site.
Chaparral ragwort *(Senecio aphanactis)*	--/--/1B.2	Known from foothill woodland and chaparral habitats.	Not present. Suitable habitat is not present at the site.
Napa checkerbloom *(Sidalcea hickmanii* ssp. *napensis)*	--/--/1B.1	Occurs on rhyolite substrates in chaparral. 415-610m.	Not present. Suitable habitat is not present at the site.

TABLE 3. SPECIAL STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE VICINITY OF THE PROJECT SITE, AMERICAN CANYON, CALIFORNIA[6]			
SPECIES	**STATUS CODES[7] FED/STATE/CNPS**	**HABITAT**	**OCCURRENCE ON THE PROJECT SITE**
Suisun Marsh aster (*Symphyotrichum lentum*)	--/--/1B.2	Both brackish and freshwater marshes and swamps. 0-3m.	Not present. Suitable habitat is not present at the site.
Napa bluecurls (*Trichostema ruygtii*)	--/--/1B.2	Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower montane coniferous forest. 30-590 m.	Not present. Suitable habitat is not present at the site.
Two-fork clover (*Trifolium amoenum*)	FE/--/1B.1	Valley and foothill grassland, coastal bluff scrub, sometimes on serpentine soil. 5-560m.	Not present. Suitable habitat is not present at the site.
Saline clover (*Trifolium depauperatum* var. *hydrophilum*)	--/--/1B.2	Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m.	Not present. Suitable habitat is not present at the site.
Oval-leaved viburnum (*Viburnum ellipticum*)	--/--/2B.3	Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m.	Not present. Suitable habitat is not present at the site.

Table 4. Status Code Definitions for Table 2 & 3	
Federal Codes	**State Codes**
FE - Federally listed Endangered FT – Federally listed Threatened FPE - Federally Proposed Endangered FPT - Federally Proposed Threatened BCC - USFWS Bird Species of Conservation Concern	CE - California State-listed Endangered CT - California State-listed Threatened CR - California Rare FP - California Fully Protected CSC - CDFW Species of Special Concern WL - CDFW Watch List Species
CNPS Rare Plant Rank Codes	
California Rare Plant Rank 1A	Plants presumed extirpated in California and either rare or extinct elsewhere
California Rare Plant Rank 1B	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3	Plants about which more information is needed – a review list.
California Rare Plant Rank 4	Plants of limited distribution – a watch list.
CNPS Threat Rank Codes	
0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

ATTACHMENT 3.

Habitat Assessment for the California Red-legged Frog at the Proposed Giovannoni Logistics Project Site, American Canyon, California. Prepared by Mark Jennings of Rana Resources for Huffman-Broadway Group, Inc.
March 11, 2021

HABITAT ASSESSMENT
FOR THE CALIFORNIA RED-LEGGED FROG,
AT THE PROPOSED GIOVANNONI LOGISTICS PROJECT SITE,
AMERICAN CANYON, NAPA COUNTY, CALIFORNIA

March 11, 2021

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SUMMARY

This report is a Habitat Assessment for the federally threatened California red-legged frog (*Rana draytonii*, hereafter CRLF) at the location of the approximately 210-acre infill development [=Giovannoni Logistics Project] between Devlin Road to the north and Green Island Road to the south in the northwestern part of the City of American Canyon, Napa County (Project). The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings, along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east. The Napa River estuary lies further to the west.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The closest known CRLF records to the site are 0.6-2.4 miles to the east and southeast; additional CRLF records 3.7 miles and further away lie within Critical Habitat designated for this species (SOL-2 and SOL-3). All of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

1.0 INTRODUCTION

A proposed development for 6 warehouse and office buildings on the Giovannoni Parcel within the northwest portion of the City of American Canyon, Napa County, California, has been proposed (Figure 1). Since the 210-acre site lies within the historic range for the California red-legged frog (*Rana draytonii*, hereafter CRLF) [Stebbins 2003], and is near occupied Critical Habitat for CRLF (USFWS 2010), a habitat assessment was conducted for this species.

2.0 PROJECT DESCRIPTION AND SETTING

The 210-acre project site is located between Devlin Road to the north and Green Island Road to the south in the northwestern part of American Canyon, Napa County (Project) [Figure 1]. The Project is now nearly entirely surrounded by industrial businesses and warehouse buildings,

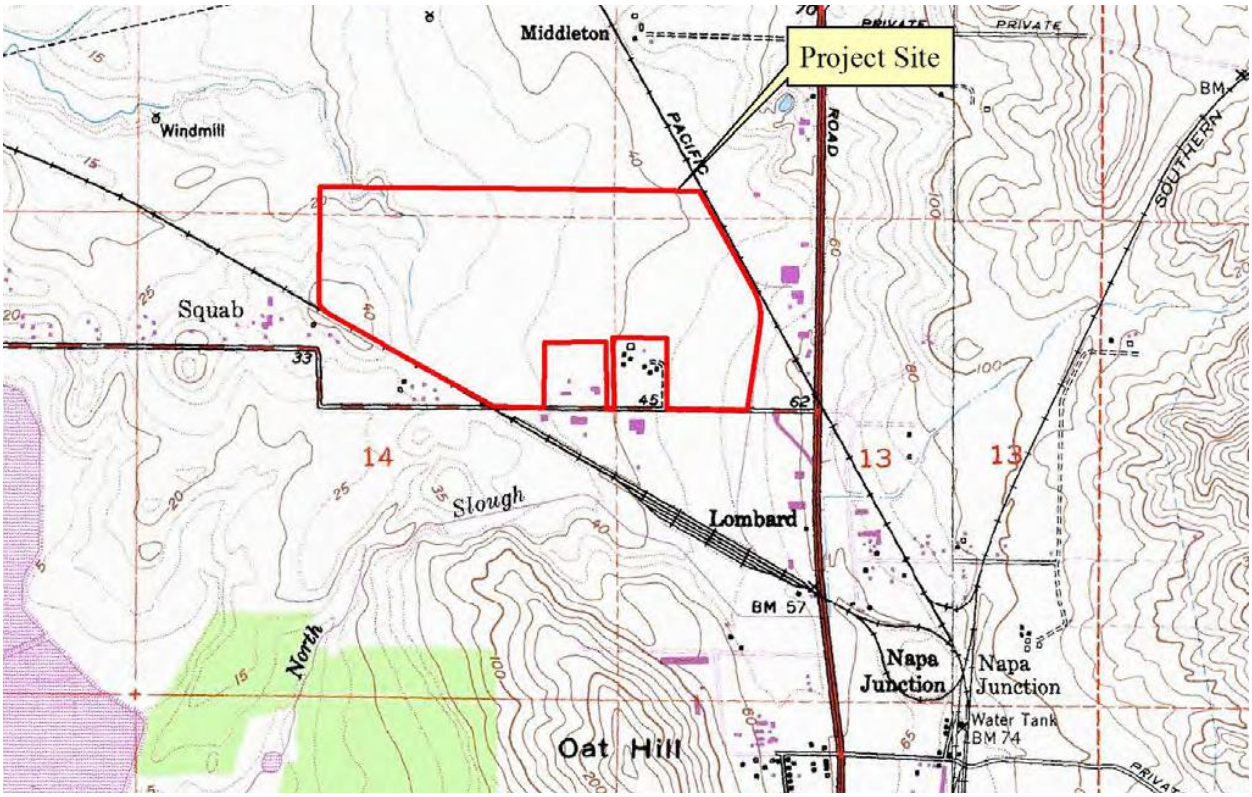

Figure 1. Location of 210-acre Giovannoni parcel within the City of American Canyon.

along with other structures, as well as Southern Pacific Railroad tracks to the south and east, and Highway 29 to the east (Figure 2). The Napa River estuary lies further to the west.

Figure 2. Location of the 210-acre Giovannoni parcel in American Canyon showing surrounding infrastructure and development. Google Earth photograph taken in 2020.

The Project site consists of an open field with a mosaic non-native annual grasses and seasonal wetlands that has used for cattle (*Bos taurus*) grazing. It is subject to sheet flooding which eventually drains northwest into an unnamed channel which continues off-site under Devlin Road and eventually drains into the Napa River estuary. There are no connections with other stream courses which drain the agricultural fields and hills east of Highway 29. The area is relatively flat with an elevational range of approximately 20-50 feet.

The Project site has been previously surveyed and mapped for wetlands by Monk and Associates (2018). They also conducted surveys for special status plants and animals, including CRLF on a small portion of the site (for the Devlin Road and Napa Valley Vine Trail Project). All of the wetlands were determined to be shallow and seasonal, with inundation limited to only about 3-4 months during the year after sufficient winter and spring rainfall.

There are no trees or dense riparian vegetation thickets of any type on site. Botta pocket gopher (*Thomomys bottae*) and California vole (*Microtus californicus*) burrows are scattered throughout the more upland areas.

3.0 METHODS

The methods employed to produce this report include evaluating the suitability of habitat for CRLF on site by conducting a reconnaissance-level site visit during the day by me on 10 February 2021. I followed the U.S. Fish and Wildlife Service protocol for the CRLF habitat assessment (USFWS 2005) and made observations regarding any amphibians and reptiles observed, or potentially inhabiting the vicinity. Additionally, CRLF occurrence records within 3.1 miles of the Project site (CNDDB 2021) were mapped. Finally, I examined 7.5' USGS quadrangles and aerial photographs for potentially suitable aquatic habitats within a 3.1-mile radius of the site and connectivity of these habitats with the Project site.

4.0 RESULTS AND DISCUSSION

No CRLF were observed during my day visit of the Project site on February 10, 2021 (see Appendix). I also did not observe any other amphibian species other than some Pacific treefrog (*Hyla regilla*) egg masses.

Suitable breeding and rearing habitat for CRLF is generally characterized by dense, shrubby riparian vegetation associated with deep (>2.3 feet), still or slow-moving water (see Jennings and Hayes 1994, Jennings 1988, Hayes and Jennings 1988). All of the inundated wetlands that I observed on site were too shallow and ephemeral to support a breeding population of CRLF.

These findings are consistent with previous findings recorded by Monk and Associates (2018) for a small portion of the proposed road alignments on through the eastern part of the Project site.

A review of the most recent California Natural Diversity Database files (CNDDB 2021) revealed that there are no records of CRLF in American Canyon west of Highway 29 almost certainly due to the high amount of vehicle traffic, highway berms, and stream courses being diverted into buried culverts below the freeway. Based on the data from the CNDDB, 3 CRLF occurrences are located within a 3.1-mile radius of the southeast corner of the Study Area, all located east of Highway 29 (Figure 3). The closest sighting is a single adult observed 0.6 miles to the east in the North Slough drainage on July 26, 2006, 2008 (Record #1062). The next closest is another single adult observed 1.1 miles to the southeast in a marsh area near an old quarry pond on August 04, 2008 (Record #896). The third closest is 2.4 miles to the southeast near the Flosden Road where multiple larvae, juveniles, and adults have been observed between 2008 and 2015 (Record #228). There are other records further away within Critical Habitat units SOL-2 and SOL-3 to east and southeast. However, there are no hydrologic connections with any streams that drain the agricultural fields and adjacent foothills east of Highway 29 (a finding also noted by Monk and Associates (2018, 2019). Additionally, the Project site is now nearly entirely surrounded by extensive urban development and infrastructure. Thus, there is no chance for any CRLF to access the site from occupied habitats to the east and southeast due to the presence of Highway 29 (as described above), as well as railroads, urban streets, fences, and buildings.

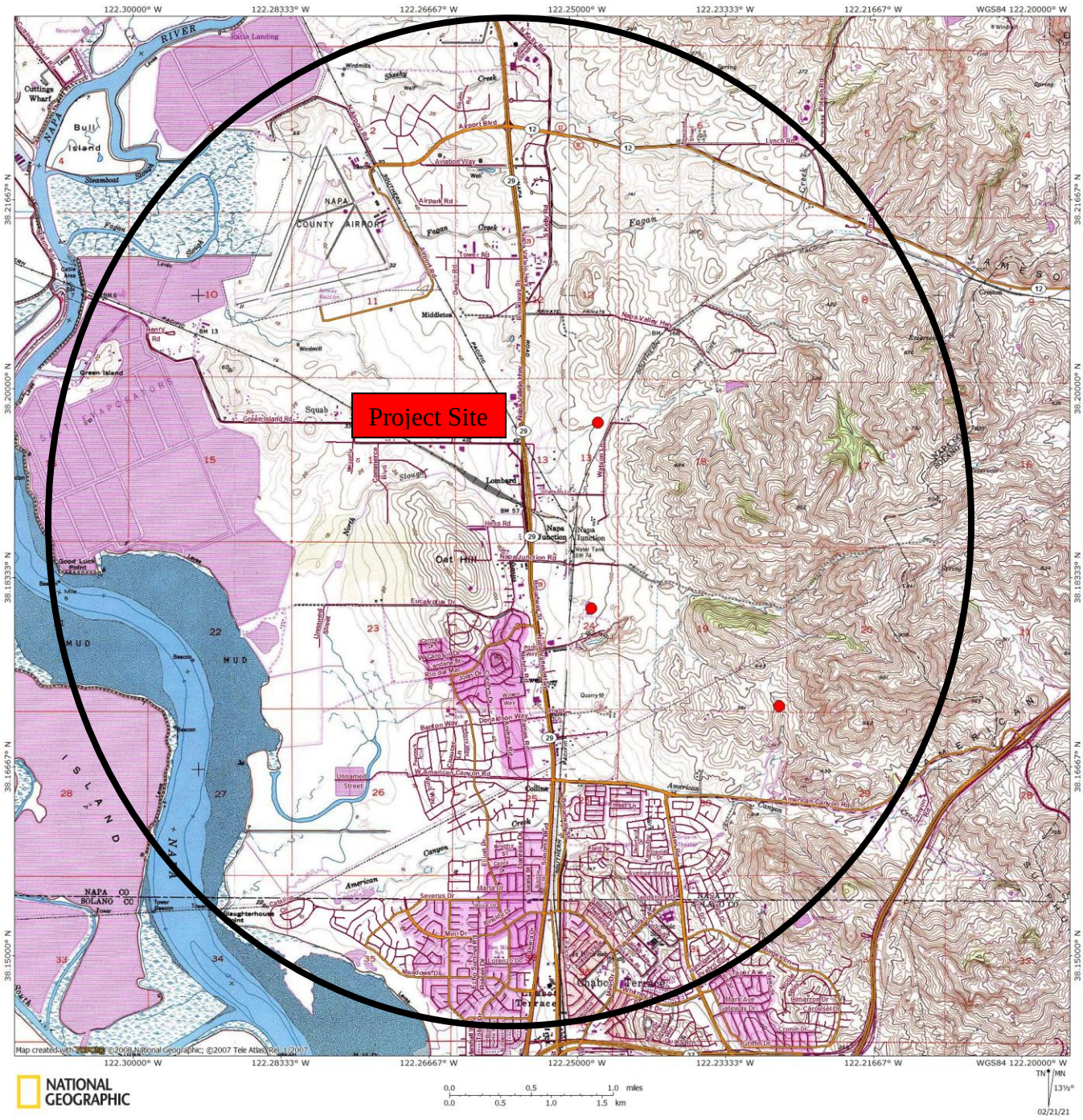

Figure 3. Locations of CRLF within 3.1 miles of the southeast corner of the Project site.

5.0 CONCLUSIONS

Although occupied CRLF habitat is present within 0.6-2.4 miles east and southeast of the Project site, all of these records lie east of Highway 29 which is a major barrier to any potential movements of CRLF to the west due to continuous traffic, highway berms, and the re-routing of

drainages into culverts under the freeway. Additionally, the Project is completely isolated from all areas to the east by Highway 29, railroads, buildings, and other urban infrastructure, and there are no hydrologic connections with any stream channels off-site to the east of Highway 29.. Finally, there is no suitable breeding or rearing habitat for CRLF on site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Thus, it is my professional opinion that the Project site lacks habitat for this species and that CRLF cannot access the site from surrounding occupied habitats to the east and southeast.

6.0 REFERENCES

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7.0 APPENDIX

Data Sheet from Appendix D of the *Revised guidance on site assessment and field surveys for the California red-legged frog* (USFWS 2005) completed on 10 February 2021.

California Red-Legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ _____ _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 02/10/2021
(mm/dd/yyyy)

Site Assessment Biologists: Jennings, Mark _____
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

Site Location: Napa, City of American Canyon, T.4N, R.4W, Sections 1(NE) and 13(NW
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Giovannoni Logistics Project
Brief description of proposed action: Proposed development of 6 warehouse and office buildings on a 210-acre site in the northwest portion of the City of American Canyon

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? (YES) NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 8' x 15' Maximum depth: 4 inches

Vegetation: emergent, overhanging, dominant species: mostly sedges and grasses with a few cockleburs. No trees or denser riparian vegetation present

Substrate: clay and sand.

Perennial or Ephemeral (*circle one*). If ephemeral, date it goes dry: April - May most years

California Red-Legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 2 feet
Depth at bank full: 1 foot
Stream gradient: 2 degrees

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum Depth of stream Pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Mostly riffle.

Vegetation: emergent, overhanging, dominant species: Grasses and sedges. No willows or cattails or tules.

Substrate: Clay and sand

Bank description: Ruderal grasslands.

Perennial or (Ephemeral) (*circle one*). If ephemeral, date it goes dry: April - May most years

Other aquatic habitat characteristics, species observations, drawings, or comments:

Only observed a Pacific treefrog egg masses. Lots of California vole and Botta pocket gopher burrows present.

Area used for livestock grazing. Now completely surrounded by development and urban infrastructure.

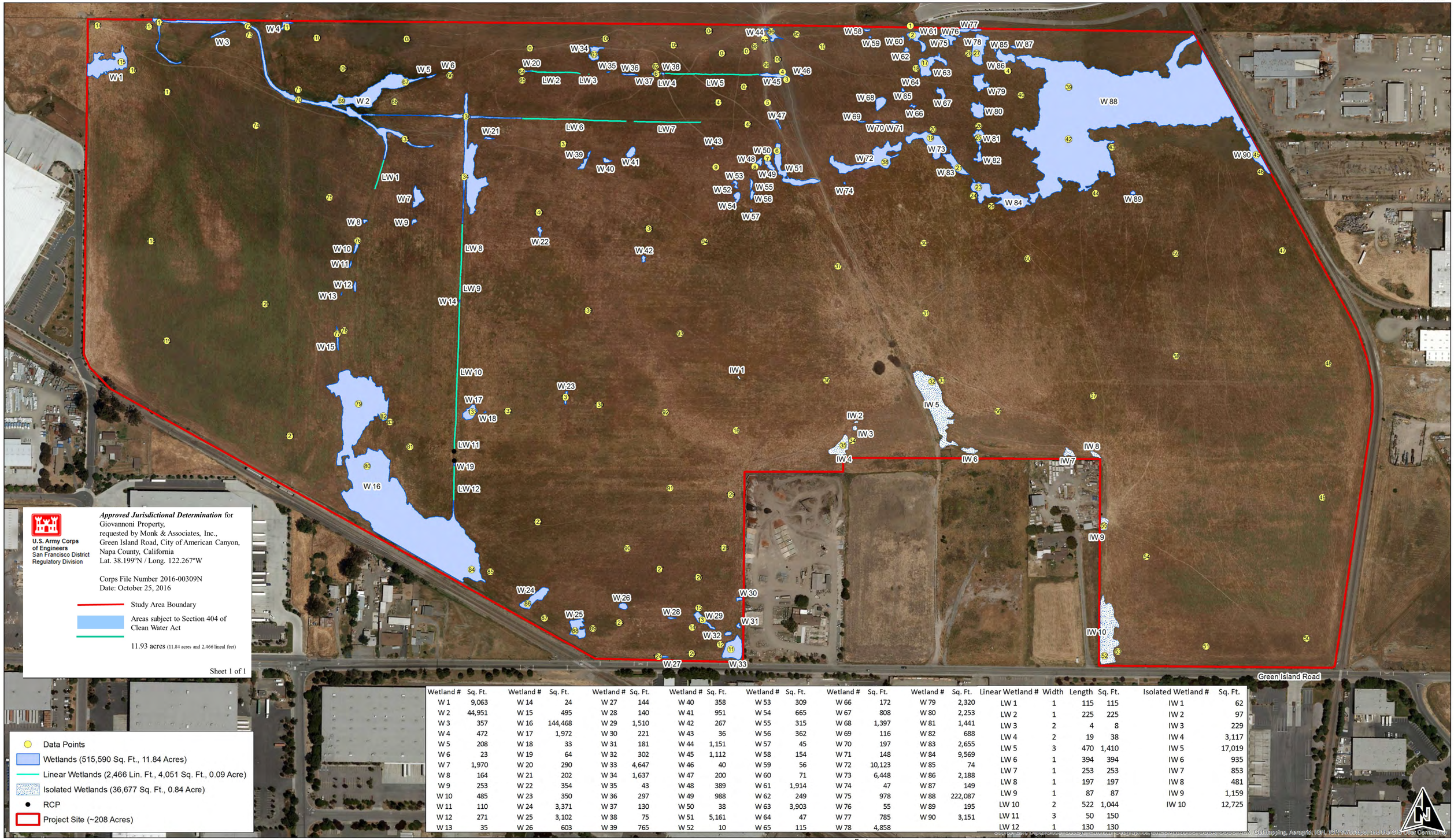
Wetlands too ephemeral and shallow to be used by CRLF. Thus, no habitat present. Also, no riparian connection with drainages to the east of Hwy 29. Therefore, adjacent CRLF occupied habitats to the east and southeast are disconnected from the project site and no overland movements can occur to the site.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs.
3. Maps with important habitat features and species locations

ATTACHMENT 3.

USACE Approved Jurisdictional Determination Map



U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Approved Jurisdictional Determination for
Giovannoni Property,
requested by Monk & Associates, Inc.,
Green Island Road, City of American Canyon,
Napa County, California
Lat. 38.199°N / Long. 122.267°W

Corps File Number 2016-00309N
Date: October 25, 2016

Study Area Boundary

Areas subject to Section 404 of Clean Water Act

11.93 acres (11.84 acres and 2,466 lineal feet)

Sheet 1 of 1

- Data Points
- Wetlands (515,590 Sq. Ft., 11.84 Acres)
- Linear Wetlands (2,466 Lin. Ft., 4,051 Sq. Ft., 0.09 Acre)
- Isolated Wetlands (36,677 Sq. Ft., 0.84 Acre)
- RCP
- Project Site (~208 Acres)

Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.	Wetland #	Sq. Ft.
W 1	9,063	W 14	24	W 27	144	W 40	358	W 53	309	W 66	172	W 79	2,320
W 2	44,951	W 15	495	W 28	140	W 41	951	W 54	665	W 67	808	W 80	2,253
W 3	357	W 16	144,468	W 29	1,510	W 42	267	W 55	315	W 68	1,397	W 81	1,441
W 4	472	W 17	1,972	W 30	221	W 43	36	W 56	362	W 69	116	W 82	688
W 5	208	W 18	33	W 31	181	W 44	1,151	W 57	45	W 70	197	W 83	2,655
W 6	23	W 19	64	W 32	302	W 45	1,112	W 58	154	W 71	148	W 84	9,569
W 7	1,970	W 20	290	W 33	4,647	W 46	40	W 59	56	W 72	10,123	W 85	74
W 8	164	W 21	202	W 34	1,637	W 47	200	W 60	71	W 73	6,448	W 86	2,188
W 9	253	W 22	354	W 35	43	W 48	389	W 61	1,914	W 74	47	W 87	149
W 10	485	W 23	350	W 36	297	W 49	988	W 62	249	W 75	978	W 88	222,087
W 11	110	W 24	3,371	W 37	130	W 50	38	W 63	3,903	W 76	55	W 89	195
W 12	271	W 25	3,102	W 38	75	W 51	5,161	W 64	47	W 77	785	W 90	3,151
W 13	35	W 26	603	W 39	765	W 52	10	W 65	115	W 78	4,858		

Linear Wetland #	Width	Length	Sq. Ft.
LW 1	1	115	115
LW 2	1	225	225
LW 3	2	4	8
LW 4	2	19	38
LW 5	3	470	1,410
LW 6	1	394	394
LW 7	1	253	253
LW 8	1	197	197
LW 9	1	87	87
LW 10	2	522	1,044
LW 11	3	50	150
LW 12	1	130	130

Isolated Wetland #	Sq. Ft.
IW 1	62
IW 2	97
IW 3	229
IW 4	3,117
IW 5	17,019
IW 6	935
IW 7	853
IW 8	481
IW 9	1,159
IW 10	12,725

0 100 200 400 600 800 1,000 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Sheet 1. Confirmed Aquatic Resources Delineation Map
Giovannoni Project Site
City of American Canyon, California

Scale: 1 inch = 200 feet
Delineation Conducted by: Geoff Monk, Hope Kingma & Devin Jokerst
Aerial Photograph Source: ESRI
Map Confirmation Date: September 26, 2016
Map Confirmed by Daniel Breen, Corps
Map Preparation Date: October 25, 2016

Appendix D: Cultural Resources and Tribal Cultural Resources Supporting Information

Appendix D contains sensitive information pertaining to cultural resources and has been withheld from public distribution pursuant to Public Resources Code, Sections 5097.9 and 5097.993.

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Appendix E:
Geological Supporting Information

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Geotechnical Engineering Report

GREEN ISLAND ROAD LOGISTICS CENTER

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Geotechnical Engineering Report

GREEN ISLAND ROAD LOGISTICS CENTER

WKA No. 12883.01

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APPENDIX B – Guide Earthwork Specifications

Wallace Kuhl & Associates

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916.372.2565 fax

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3422 West Hammer Lane, Suite D
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Geotechnical Engineering Report
GREEN ISLAND ROAD LOGISTICS CENTER
Green Island Road
American Canyon, California
WKA No. 12883.01
November 10, 2020

INTRODUCTION

As authorized, we have completed a geotechnical engineering study for the proposed Green Island Road Logistics Center to be constructed north of Green Island Road in American Canyon, California (see Figure 1). The purposes of this study have been to explore the existing site, soil, and groundwater conditions across the site, and to provide geotechnical engineering conclusions and recommendations for use by the other members of the design team in design and construction of the proposed industrial development. This report presents the results of our study.

Scope of Services

Our scope of services for this project has included the following tasks:

1. Site reconnaissance;
2. Review of previous geotechnical studies that included the project site and for a property within the near vicinity of the site;
3. Review of United States Geological Survey (USGS) topographic maps, historical aerial photographs and available groundwater information;
4. Subsurface explorations, including the drilling and sampling of 52 borings to depths ranging from approximately 10 to 31½ feet below the existing site grades;
5. Collection of representative bulk samples of near-surface soils;
6. Laboratory testing of selected soil samples;
7. Engineering analyses; and,
8. Preparation this report.

Figures and Attachments

This report contains a Vicinity Map as Figure 1; a Site Plan showing the approximate boring exploration locations as Figure 2; and, Logs of Soil Borings as Figures 3 through 54. An explanation of the symbols and classification system used on the logs is included as Figure 55. Appendix A contains general information regarding project concepts, exploratory methods used

during our field investigation, and laboratory test results not included on the boring logs. Appendix B contains *Guide Earthwork Specifications* that may be used in preparation of contract documents.

Proposed Development

Based on conversations with Mr. Joe Lavaich of Buzz Oats; review of *Preliminary Concept Site Plan* prepared by RMW Architecture Interiors dated August 8, 2020, we understand the proposed logistics center will include the construction of six warehouse/office buildings identified as Buildings A through F. The warehouse/office structures will encompass building footprints ranging from about 188,300 square feet (sf) up to 715,500 sf. We anticipate that the structures will be constructed of concrete tilt-up panels with interior concrete slabs-on-grade floors. Below grade basements are not anticipated. Structural loads for the buildings are anticipated to be heavy on the order of 150 kips for interior column loads and about 5 kips per lineal foot for exterior walls. Associated improvements will include the construction of underground utilities, landscaping, exterior flatwork, below-grade loading docks, retaining walls, asphalt pavements, and two storm water retention ponds. We anticipate that the storm water retention ponds will be about 5 to 10 feet in depth with unlined side slope gradients of three horizontal to one vertical (3H:1V) or flatter.

Grading plans were not available; however based on the existing site topography, we anticipate maximum excavations and fills on the order of one to five feet for development of the logistics center.

Supplemental Information

Supplemental information used in the preparation of this report included review of the following reports prepared by others and Wallace-Kuhl and Associates (WKA) for studies that included the site and for properties near the project site:

- Cornerstone Earth Group, 2017, *Geologic Fault Investigation New Sanitary Sewer Main* prepared for the Giovanni Property which is located within the site, Project No. 582-4-1;
- Wallace-Kuhl & Associates, Inc., 1994, *Geotechnical Engineering Report* prepared for Lot 5 of the Green Island Industrial Park, WKA No. 2652.02, March 1994;
- Wallace-Kuhl & Associates, Inc., 1994, *Geotechnical Engineering Report* prepared for the Graton Beverage Facility located on Lot 15 of the Green Island Industrial Park, WKA No. 2651.01, April 1994;

- Wallace-Kuhl & Associates, Inc., 1995, *Geotechnical Engineering Report* prepared for Spec Buildings 59 and 188 of the Green Island Industrial Park, WKA No. 2651.04, May 1995;
- Wallace-Kuhl & Associates, Inc., 1996, *Preliminary Geotechnical Engineering Report* prepared for Mezzetta Court Spec Building 197 of the Green Island Industrial Park, WKA No. 3142.01, February 1996;
- Wallace-Kuhl & Associates, Inc., 1996, *Geotechnical Engineering Report* prepared for Mezzetta Court Spec Building 90 of the Green Island Industrial Park, WKA No. 3296.01, September 1996;
- Wallace-Kuhl & Associates, Inc., 1998, *Geotechnical Engineering Report* prepared for Spec Building 102 of the Green Island Industrial Park, WKA No. 3744.01, July 1998;
- Wallace-Kuhl & Associates, Inc., 1998, *Geotechnical Engineering Report* prepared for Spec Building 91 on Lot 3 of the Green Island Industrial Park, WKA No. 3745.01, July 1998;
- Wallace-Kuhl & Associates, Inc. 2000, *Geotechnical Engineering Report* prepared for the Sutter Home Distribution Center Expansion located within the Green Island Industrial Park, WKA No. 4408.01, May 2000;
- Wallace-Kuhl & Associates, Inc, 2005, *Geotechnical Engineering Report* prepared for the Yandell Warehouse located within the Green Island Industrial Park, WKA No. 6445.02, March 2005; and,
- Wallace-Kuhl & Associates, Inc., 2008, *Geotechnical Engineering Report* prepared for the Biagi Brothers Wine Distribution Center located adjacent to the west of the subject property, WKA No. 8005.01, March 2008.

FINDINGS

Site Description

The project site is located north of Green Island Road and about a quarter mile west of Highway 29 in American Canyon, California and encompasses a total area of approximately 208-acres. The site occupies land identified as Napa County Assessor Parcel Numbers 057-130-034, -036, and -038. The site is bounded to the north by commercial and industrial developments, beyond which is the Napa County Airport; to the east by Union Pacific Railroad lines, beyond which is commercial and industrial developments; to the south by commercial and industrial developments, Green Island Road, and Union Pacific Railroad lines; and, to the east by commercial and industrial developments.

The topography of the site is sloping gently from southeast to northwest. The highest portion of the site, the farthest southeast area, has a maximum surface elevation of about +55 feet msl and the lowest portion of the site, the farthest northwest area, has a surface elevation of about +25 feet msl, based on topographic information shown on the *USGS 7.5-Minute Topographic Map of the Cuttings Wharf Quadrangle, California*, dated 2018.

A drainage swale, dry at the time of our explorations, runs from north to south within the western portion of the site, a portion of this drainage swale is diverted through a large diameter pipe that is covered by soil to allow vehicle access between the two sides of the swale. The swale is approximately two feet deep.

At the time of our field explorations, performed between September 21, 2020, and October 2, 2020, the site was vacant pasture land covered with grassy low-lying vegetation.

Historical Aerial Photographic Review

We reviewed historical aerial photographs of the site available from our files and the Google Earth software. Available photographs were taken in the years 1948, 1958, 1968, 1982, 1993 and 2002 through 2020.

Review of the photographs taken from 1948 through 2020 show the site was an agricultural fallow area used for livestock grazing. A seasonal creek located in the northwest portion of the site trends in a northwest-west direction. There are three east-west trending smaller tributaries to the creek along the northern property line and about 200 and 350 feet south of the northern property line, and a north-south trending tributary approximately 1400 feet east of the western property line. Seasonal wetland depressions are observed throughout the site throughout each year. The locations of observed wetlands, are shown on the Site Plan, Figure 2.

General Site Geology

The site is located in the southern portion of Napa Valley which is characterized as a relatively large north-west tending alluvial valley located within the Northern California Coast Range geomorphic province. Various authors have mapped the local geology of the site area. These maps differ in scale and detail but agree that a majority site as being underlain by the late Pleistocene to Holocene age alluvial fan deposits (Qf) [Bezore, et al., 2002], which are bound to the north and west by older geologic units including Late Pleistocene fan deposits (Qpf) and early to middle Pleistocene alluvial fan and terrace deposits (Qoa). The Qf unit is relatively younger than and was deposited over the Qpf and Qoa units. The Qf unit is described as gently sloping, fan-shaped alluvial surfaces. Sediments include sand, gravel, silt and clays that are moderately to poorly sorted and moderately to poorly bedded. The Qpf unit is described as

gently sloping, fan-shaped alluvial surfaces where late Pleistocene age is indicated by slight dissection and/or the development of alfisols. The Qoa unit is described as moderately to deeply dissected alluvial deposits capped by alfisols, ultisols, or soils containing a silica or calcic hardpan.

The western portion of the site is mapped as Huichica Formation (QTh), part of the Sonoma Assemblage, of early Pleistocene and Pliocene age. The formations is described as fluvial gravel, sand, silt and clay.

Subsurface Soil Conditions

A total of 52 borings (D1 – D52) were performed at the site between September 21, 2020, and October 2, 2020. The approximate locations of the explorations are shown on the Site Plan, Figure 2. We also collected bulk samples of surficial soils at three locations within proposed pavement areas (B1 – B3).

The borings reveal the surface and near-surface soil conditions at the site consist of moderate to high plastic, stiff to hard, lean clay to depths about five to 10 feet below the existing ground surface (bgs). Underlying the upper clay soil were interbedded silty lean clays, sandy lean clays, clayey sands and silty sands to the maximum depth explored of 51½ feet bgs. The surface and near-surface soils across the site were observed to be relatively loose with frequent desiccation cracks to depths of about 6 to 18 inches.

The soil conditions encountered in the explorations for this study are consistent with soil conditions encountered in previous studies referenced in this report. For specific information regarding the soil conditions at a specific exploration location, please refer to the Logs of Soil Borings, Figures 3 through 54.

Groundwater

Groundwater was encountered in six of the 52 borings performed during our field work, at depths ranging from approximately 12 to 20 feet bsg. The borings were backfilled with neat-cement grout as required by the Napa County upon completion of the subsurface exploration program. Please note that the borings may not have been left open long enough for groundwater to reach static equilibrium.

To supplement the groundwater data obtained from the borings, we reviewed available groundwater information at the California Department of Water Resources (DWR) website. The DWR periodically monitors groundwater levels in wells across the state. Their website shows one well located near the sites border with the commercial and industrial development near the

middle of the site. The well is identified as Well No. 04N04W13E001M with ground surface elevations of about +44 feet msl, which is similar to the elevation at the project site. Groundwater data for this well was recorded from March 25, 1930 to at least April 18, 1962. Data shows the highest recorded groundwater depth at the well was about +33.5 feet msl (about 10.5 feet below the ground surface) at the well on March 28, 1952. The lowest recorded groundwater elevation was about +21.4 feet msl at the well (about 22.6 feet below the ground surface) at the well on September 6, 1961.

These groundwater conditions are consistent with the groundwater levels observed during the field explorations performed for this study. Similar groundwater can be expected during the proposed construction.

CONCLUSIONS

Fault Rupture

According to mapping by the California Geologic Survey, the western portion of the project site lies within a mapped Earthquake Fault Zone and Seismic Hazard Zone. In 2017, a geologic fault investigation was performed by the Cornerstone Earth Group to locate the potential surface trace of the West Napa Fault as part of a proposed sewer main alignment project. The investigation included a review of previously completed investigations performed by other consultants to locate and/or "clear" sites of fault surface traces, drilling an array of borings, and excavating three observation trenches along the suspected fault alignment. The West Napa Fault was confirmed as trending through the western portion of the project site. The approximate fault trace is shown on the Site Plan, Figure 2.

Further evaluation for the presence or absence of the West Napa Fault or the potential for fault rupture is beyond our scope of services for this project. The referenced Cornerstone Earth Group report should be submitted to the local building official to satisfy the requirements of the Alquist Priolo Fault Hazard Zone Act, if required.

Soil Expansion Potential

Laboratory testing of three representative near-surface clay soil samples collected from the proposed building footprint revealed these soils possess moderate to high plasticity when tested in accordance with the American Society of Testing and Materials (ASTM) D4318 test method (see Figures A1 through A4). Laboratory test results of the five near-surface clay soil samples also revealed these soils possess Expansion Indices ranging from 33 to 108, equivalent to a "*low to high*" expansion potential when tested in accordance with the ASTM D4829 test method

(see Figures A5 through A9). These results are consistent with testing performed on nearby sites.

Based on these test results, the test results from previous studies referenced in this report and our local experience, the near-surface clay soils at the site are considered capable of exerting significant expansion pressures on building foundations, interior floor slabs, exterior flatwork, and pavements. In our opinion, the near surface soils supporting slab on grade concrete will require removal and replacement with imported, non-expansive soils (Expansion Index < 20), or chemical amendment of the clay soils (i.e., lime-treatment) to reduce the expansion potential of the near surface clays.

Liquefaction Potential

A common secondary hazard as a result of strong ground shaking is the potential for soil liquefaction and subsidence. Liquefaction describes a phenomenon in which saturated soil in the upper 40 to 50 feet of subgrade loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking. As the excess pore pressures dissipate following an earthquake, volume changes within the liquefied soil layer will occur, which can manifest as ground surface settlement, ground rupture (sand boils or ground cracking), and lateral slope displacement (commonly referred to as lateral spreading). Soils most susceptible to liquefaction are saturated, loose to medium dense sand and silt or clay with plasticity indices (PI) less than 12 and moisture contents greater than 85 percent of the soils liquid limit (LL) (Bray and Sancio, 2006).

A preliminary screening suggests that a majority of the subsurface soils encountered during our investigation were generally too high in plasticity (i.e., clay) and/or too stiff/dense to be susceptible to liquefaction. Strata of silty sand, clayey sand and poorly graded “clean” sand, however, was encountered at borings D21 and D32 at depths of about 30 feet below the ground surface (bgs). Accordingly, a liquefaction analysis was performed in accordance with an approach outlined by the National Center for Earthquake Engineering Research (NCEER) and summarized by Youd, et al (2001). A groundwater depth of 12 feet (corresponding to the estimated high groundwater depth encountered), a peak ground acceleration adjusted for site class effects (PGAM) of 0.98g based on a return period of 2,475 years (2% probability of exceedance in 50 years), and a mode magnitude earthquake of 6.9 was used in the analysis. The mode magnitude earthquake was determined using the using the 2014 USGS National Seismic Hazard Mapping Project (NSHMP) Probabilistic Seismic Hazard Analysis (PSHA) Interactive Deaggregation website.

The results of our analysis suggest that strata of silty and poorly graded sands with penetration resistance (N-value) less than 30 blows per foot (bpf) and clayey sands with N-values less than about 20 bpf are potentially susceptible to liquefaction. Using empirical procedures (Ishihara and Yoshimine 1992), the seismically-induced settlement at the top of the liquefiable sand layers is estimated to range from about ¾ inch to 2 inches. This liquefaction is not expected to be widespread since the potentially liquefiable soil layers appear to be discontinuous and confined. Furthermore, ground surface settlement should be significantly less due to bridging effects within the overlying soil. Typical practice for these conditions is to assume a localized differential settlement on the order of one-half of the total estimated settlement to account for soil variability and engineering uncertainties. In our opinion, the anticipated maximum differential settlement due to liquefaction should be on the order of 1 inch over a horizontal distance of 100 feet.

The methods used to estimate liquefaction settlement assume that there is a sufficient cap of non-liquefiable material to prevent ground cracking or sand boils. For ground rupture to occur, the excess pore water pressure within the liquefiable soil layer needs to be great enough to break through the overlying non-liquefiable soil layer, which could cause additional ground deformation and settlement. The work of Youd and Garris (1995) indicates that the potentially liquefiable soils are overlain by a sufficient cap of non-liquefiable soil to prevent ground rupture; therefore the above total settlement estimates appear to be reasonable.

Seismic Site Class

Based on the soil conditions encountered at the exploration locations and our experience with similar soil conditions in the vicinity of the site, it is our opinion that the soils at the project site are not vulnerable to potential failure or collapse under seismic loading and can be designated as Site Class D in determining seismic design forces for this project in accordance with Section 1613A.3.2 of the 2013 CBC, which references Chapter 20 of American Society of Civil Engineers (ASCE) Standard 7-10. While relatively thin discrete layers of granular soils have been determined to be liquefiable, these layers appear to be discontinuous and confined. Furthermore, the estimated cumulative seismically induced settlement is relatively small (about 1 inch or less). In our opinion, the stiff clay soil profile under the site will control the seismic behavior of the soil in a seismic event.

2019 CBC/ASCE 7-16 Seismic Design Criteria

The 2019 CBC references the ASCE Standard 7-16 for seismic design. The following seismic parameters provided in Table 1 were determined based on the site latitude and longitude and the web interface developed by the Structural Engineers Association of California (SEAOC) and

the California Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org).

Since S_1 is greater than 0.2 g, a ground motion hazard analysis will be required (Section 11.4.8 of the 2019 CBC) in accordance with Section 21.2 of ASCE 7-16. However, if Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 applies (specifically if $T \leq 1.5 \times T_s$), the 2019 CBC coefficient values F_v, S_{M1}, and S_{D1} presented in Table 1 below are valid for this project. Further evaluation of the seismic design parameters presented in Table 1, including the seismic Site Class will be required during preparation of the design-level geotechnical report.

The seismic design parameters summarized below in Table 1 may be used for seismic design of the planned improvement at the site.

TABLE 1 – 2019 CBC/ASCE 7-16 SEISMIC DESIGN PARAMETERS

Latitude: 38.1993° N Longitude: 121.2670° W	ASCE 7-16 Table/Figure	2019 CBC Figure/Section/Table	Factor/ Coefficie	2019 CBC
0.2-second Period MCE	Figure 22-1	Figure: 1613.2.1(1)	S_S	2.156 g
1.0 second Period MCE_R	Figure 22-2	Figure: 113.2.1(2)	S_1	0.780 g
Soil Class	Table 20.3-1	Sections: 1613.2.2	Site Class	D
Site Coefficient	Table 11.4-1	Tables: 1613.2.3 (1)	F_a	1.000
Site Coefficient	Table 11.4-2	Tables: 1613.2.3(2)	F_v	1.700*
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equations: 16-36	S_{MS}	2.156 g
	Equation 11.4-2	Equations: 16-37	S_{M1}	1.326 g*
Design Spectral Acceleration Parameters	Equation 11.4-3	Equations: 16-38	S_{DS}	1.437 g
	Equation 11.4-4	Equations: 16-39	S_{D1}	0.884 g*
Seismic Design Category	Table 11.6-1	Tables: 1613.2.5(1)	Risk Category I to IV	D
	Table 11.6-2	Tables: 1613.2.5(2)	Risk Category I to IV	D

Notes: MCER = Risk-Targeted Maximum Considered Earthquake; g = gravity

* = The value is valid if the requirements in Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 are met. If not, a ground motion hazard analysis will be required (Section 11.4.8 of the 2019 CBC) in accordance with Section 21.2 of ASCE 7-16

Bearing Capacity and Building Support

The subgrade soils encountered generally consist of stiff to hard, low compressible clay that should provide adequate support for the anticipated structural loading provided the recommendations in this report are followed. The surface and near-surface soils across the site were relatively loose and had frequent desiccation cracks ranging from about 6 to 18 inches in depth. Accordingly, these soils should be deep ripped or scarified, moisture conditioned, and compacted in-place prior construction and/or placement of engineered fill.

Groundwater

Groundwater was encountered in six of the 52 borings drilled during our field explorations, at depths ranging from approximately 12 to 20 feet below existing site grades. Review of available groundwater data revealed groundwater depths at the site likely fluctuated from about 10½ to 22 feet bgs.

Groundwater levels at the site should be expected to fluctuate throughout the year based on variations in seasonal precipitation, time of year, tidal fluctuations, local irrigation practices, and the proximity to drainage canals/ditches.

Based on explorations performed at the site and available groundwater data, we anticipate excavations extending below 10 feet below the ground surface may encounter groundwater and require dewatering (depending on the time of year).

Seasonal Water

During the wet season, infiltrating surface runoff water will create a saturated surface condition due to the relatively low permeability of the near-surface soils. It is probable that grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soil, intended for use as engineered fill, will require a prolonged period of dry weather and/or considerable aeration to reach a moisture content that allows achieving the required compaction. This should be considered in the construction schedule for the project.

Pavement Subgrade Quality

Laboratory test results performed on three representative bulk samples of near-surface clay soils from proposed pavement areas of the site revealed these soils will provide poor support characteristics for pavements. Accordingly, relatively thick pavement sections are required to compensate for the lower support characteristics of these soils. Laboratory test results revealed

the clay soil possess a Resistance ("R") value of 5 when tested in accordance with California Test 301 (see Figures A10 through A12). Based on our findings and previous experience in the project area, it is our opinion an R-value of 5 is appropriate for design of pavements at the site supported on untreated subgrade soil.

In lieu of supporting pavement directly on expansive clay, pavement sections are also presented assuming the upper 12 inches of subgrade soil is amended by mixing it with lime (lime-treatment). This procedure strengthens and reduces the plasticity/expansion characteristics of the treated clay and, thus, tends to reduce future maintenance and associated costs. Furthermore, the required aggregate base section is thinner for pavement supported on lime treated soil, thus reducing the relative cost of the lime-treatment.

The performance of lime stabilized soils is dependent on uniform mixing of the quicklime into the subgrade soils, and providing a proper curing period following compaction. An experienced soil stabilization contractor, combined with a comprehensive quality control program, is essential to achieve the best results with lime stabilized soils.

Representative near-surface clay soils from proposed pavement areas of the site were mixed with four percent dolomitic quicklime and subjected to an R-value test. Laboratory test results revealed the treated clay soils possess an R-value of 82, 84, and 84 when tested in accordance with California Test 301 (see Figures A10 through A12). Based on the Caltrans Highway Design Manual, a maximum R-value of 50 should be used for design of pavements to be supported on a treated subgrade. Therefore, an R-value of 50 is appropriate for design of pavements at the site supported on treated surface and near-surface sand lean clay soils. Additional recommendations regarding lime-treatment of the pavement subgrade soils are provided in the Pavement Design section of this report.

Excavation Conditions

The surface and near-surface soils at the site should be readily excavated using conventional earthmoving and trenching equipment. Shallow excavations (less than 5-feet deep) in the clay encountered should stand vertically for a period long enough for typical foundation and utility, unless they become wet or are disturbed. The sand encountered, however, is cohesionless and may cave and/or slough soon after it is exposed in the excavation. Where encountered, the contractor should be prepared to brace or shore the excavations, as necessary.

Temporarily sloped excavations and shored excavations less than 20 feet in depth should be constructed in accordance with federal, local and OSHA standards (29 CFR Part 1926) under the guidance of the Contractors qualified “competent person.” For preliminary evaluation, the silts and clays encountered would classify as Cal-OSHA Type B soil, while the sands would

classify as Type C soils. In no case should the information provided be interpreted to mean that Wallace-Kuhl & Associates is assuming responsibility for site safety or the Contractor's activities.

Excavated materials should not be stockpiled directly adjacent to an open excavation to prevent surcharge loading of the excavation sidewalls. Excessive truck and equipment traffic should be avoided near excavations. If material is stored or heavy equipment is stationed and/or operated near an excavation, a shoring system must be designed to resist the additional pressure due to the superimposed loads.

Soil Suitability for Use in Fill Construction

The existing on-site soils, including the fill soils, are considered suitable for use as engineered fill, if they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction. Organically laden topsoil should not be reused as engineered fill.

During the wet season, infiltrating surface runoff water will create a saturated surface condition due to the relatively low permeability of the near-surface soils. It is probable that grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soil, intended for use as engineered fill, will require a prolonged period of dry weather and/or considerable aeration to reach a moisture content that allows achieving the required compaction. This should be considered in the construction schedule for the project.

Permeability Characteristics of Near-Surface Soils

The soils encountered in the area of the proposed detention ponds (borings D10, D11, D12, D18, D37, D43, D44, and D45) generally consisted of moderate to high plastic clay to depths ranging from about five to greater than 10 feet bgs, followed by silty and clayey sand. To assist in determining the permeability characteristics of the clays underlying the site, two laboratory hydraulic conductivity (ASTM D5084) tests were performed on relatively undisturbed soil samples obtained from borings D12 and D44. The results showed that the soil had permeability rates of about 9.8×10^{-9} and 1.7×10^{-6} centimeters per second (cm/sec.). The results are presented in Figures A13 and A14. Based on our previous experience, when compacted the permeability of these clays could be expected to be 1×10^{-7} cm/sec. or slower. Based on various publications (Hazen[1], Aryani[2] and Das[3]) and previous experience, for preliminary design a

[1] Allen Hazen, *Some Physical Properties of Sand and Gravels, with Special Reference to their Use in Filtration*, (Massachusetts: State Board of Health, 1892).

permeability rate of between $1x10^{-4}$ and $1x10^{-5}$ cm/sec can be anticipated for the silty and clayey sands encountered, respectively.

Depending on their final depths, we anticipate the ponds may need to be lined with clay to improve their "water-holding" capacity. The liner, if constructed, should be designed by the project Civil Engineer. As previously discussed, the native clays are moderate to highly plastic and may exhibit significant shrinking and cracking during warm weather conditions when the retention ponds are dry. When the ponds are again filled, the infiltration characteristics of the ponds could be affected for a period of time. If the native clay or a clay liner will be exposed within the ponds, consideration should be given to overlying the clays with a 12 to 18 inch thick layer of low plasticity silt or sand to reduce moisture fluctuations or by reducing the plasticity of the clay by intermixing or blending the soils with a low plasticity soils. If blending is considered, laboratory tests should be performed to evaluate the permeability of the mixed soil. If requested, WKA can provide additional criteria for either of these alternatives.

Soil Corrosion Potential

The samples of representative, near-surface clay soil was submitted to Sunland Analytical Lab of Rancho Cordova, California for laboratory testing to determine minimum resistivity, pH, and chloride and sulfate concentrations to help evaluate the potential for corrosive attack upon reinforced concrete and buried metal. The results of the corrosivity testing are summarized in Table 2; copies of the corrosion test reports are presented in Figures A15 through A26.

Table 2a: Corrosion Test Results

Analyte	Test Method	D6 (0'-5')	D14 (0'-5')	D22 (0'-5')
pH	CA DOT 643 Modified*	6.48	6.89	5.41
Minimum Resistivity	CA DOT 643 Modified*	540 Ω-cm	220 Ω-cm	880 Ω-cm
Chloride	CA DOT 422	323.0 ppm	758.8 ppm	61.6 ppm
Sulfate	CA DOT 417	167.4 ppm	821.2 ppm	185.2 ppm
Sulfate-SO4	ASTM D-516m	179.4 mg/kg	783.1 mg/kg	194.2 mg/kg

[2] Cyrus Aryani, *Applied Soil Mechanics and Foundation Engineering, Volume 1* (California State University, Sacramento, Aryani, 2004)
[3] Braja M. Das, *Fundamentals of Geotechnical Engineering, Second Edition* (Ontario: Thomas Learning, Stenquist, 2005).

Table 2b: Corrosion Test Results (cont.)

Analyte	Test Method	D33 (0'-5')	D40 (0'-5')	D49 (0'-5')
pH	CA DOT 643 Modified*	5.78	6.77	6.72
Minimum Resistivity	CA DOT 643 Modified*	380 Ω-cm	640 Ω-cm	1,070 Ω-cm
Chloride	CA DOT 422	379.7 ppm	374.8 ppm	9.0 ppm
Sulfate	CA DOT 417	443.5 ppm	295.9 ppm	3.0 ppm
Sulfate-SO4	ASTM D-516m	493.8 mg/kg	313.5 ppm	3.1 ppm

Notes:
* = Small cell method CA DOT = California Department of Transportation
Ω-cm = Ohm-centimeters ppm = Parts per million

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, *Corrosion Guidelines*, Version 2.1, dated January 2015, considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less. Based on this criterion, areas of the on-site, near-surface clay soil are considered unusually corrosive to steel reinforcement properly embedded within PCC for the samples tested. The low resistivity may indicate a higher corrosion potential to metal in direct contact with soil. Based on the chloride concentration criterion, the surface and near-surface clay soils tested can lead to corrosion of steel reinforcement in concrete and steel structures by breaking down the protective layer of oxides normally present on the steel surface.

Caltrans indicates soil or water with a pH of 5.5 or less can react with the lime in concrete to form soluble reaction products that can more easily leach out of the concrete. This is of special concern where the sulfate concentrations in the soil are above 2,000 ppm, as the more brittle concrete (caused by the leaching of soluble reaction products) can be more susceptible to cracking which can allow for sulfate attack of the rebar reinforcement. Test results indicate a maximum sulfate concentration of 821.2 ppm at the site, which is well below the 2,000 ppm threshold. Acidic (low pH) conditions also can cause discoloration resulting in a yellowish or rust color distributed over the concrete surface. Considering the low sulfate concentrations, we do not anticipate the low pH of the soils to be a significant factor in development of the property.

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-14, Section 19.3 – Concrete Design and Durability Requirements, as referenced in Section 1904.1 of the 2016 CBC, indicates the severity of sulfate exposure for the samples tested is Exposure Class S0 (water-soluble sulfate concentration in contact with concrete is low and

injurious sulfate attack is not a concern). The project structural engineer should evaluate the requirements of ACI 318-14 and determine their applicability to the site.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site a corrosion engineer should be consulted.

RECOMMENDATIONS

General

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months, and will likely not be compactable without drying by aeration or chemical treatment. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions dictate.

Relative compaction should be based on the maximum dry density as determined in accordance with the ASTM D1557 Test Method.

Site preparation should be accomplished in accordance with the provisions of this report and the appended specifications. A representative of the Geotechnical Engineer should be present during all earthwork operations to evaluate compliance with the recommendations and the guide specifications included in this report. The Geotechnical Engineer of Record referenced herein should be considered the Geotechnical Engineer that is retained to provide geotechnical engineering observation and testing services during construction.

Site Clearing

Prior to grading, the planned construction areas should be cleared of all surface trash, rubble, and deleterious debris, if any, to expose firm and stable soils, as determined by the Geotechnical Engineer's representative. The area of removal should extend at least five feet beyond the edge of all exterior flatwork and pavements, where practical. Any rubble and debris, if encountered, should be removed from the site.

Any existing underground utilities designated to be removed or relocated from the site should include removal of all trench backfill and bedding materials. The resulting excavations should be restored with engineered fill placed and compacted in accordance with the recommendations included in this report.

Surface vegetation/organics and organically laden soil within construction areas should be stripped from the site. Debris from the stripping operations should not be used in general fill construction areas supporting concrete slabs, pavements or any other surface improvements. Discing of the organics into the surface soils may be a suitable alternate to stripping, depending on the condition and quantity of the organics at the time of grading. The decision to utilize discing in lieu of stripping should be made by the Geotechnical Engineer, or his representative, at the time of earthwork construction. Discing operations, if approved, should be observed by the Geotechnical Engineer's representative, and be continuous until the organics are adequately mixed into the surface soils to provide a compactable mixture of soil containing minor amounts of organic matter. Pockets or concentrations of organics will not be allowed.

Any depressions resulting from site clearing operations, as well as any loose, soft, disturbed, saturated, or organically contaminated soils, as identified by the Geotechnical Engineer's representative, should be cleaned out to firm, undisturbed soils and backfilled with engineered fill in accordance with the recommendations of this report. It is important that the Geotechnical Engineer's representative be present during clearing operations to verify adequate removal of any surface and subsurface items, as well as the proper backfilling of resulting excavations.

Site Preparation

The near-surface soil underlying the site consists of moderate to highly plastic clay that, based on our experience and testing, can exhibit significant expansion characteristics. The following presents recommendations for general subgrade preparation. Subsequent sections should be reviewed for specific or supplemental recommendations to address the expansive soil conditions.

The surface and near-surface soils encountered during our investigation were relatively loose with frequent desiccation cracks. Furthermore, we anticipate that clearing operations will likely cause additional disturbance to the upper soils. Therefore, in all areas that will support concrete slabs, engineered fill or pavement, should be thoroughly scarified to a depth of at least 12 inches, brought to a uniform moisture content at least two percentage point above the optimum moisture content, and compacted to not less than 90 percent of the maximum dry density per ASTM D1557 specifications. In pavement areas, the relative compaction of the upper 6 inches of final soil subgrade should be increased to 95 percent of the maximum dry density.

The performance of pavement is critically dependent upon uniform and adequate compaction of the soil subgrade, as well as all engineered fill and utility trench backfill within the limits of the pavements. Final pavement subgrade preparation (i.e. scarification, moisture conditioning and compaction) should be performed after underground utility construction is completed and just prior to aggregate base placement.

Pavement subgrades should be stable and unyielding under heavy wheel loads of construction equipment. To help identify unstable subgrades within the pavement limits, a proof-roll should be performed with a fully-loaded, water truck on the exposed subgrades prior to placement of aggregate base. The proof-roll should be observed by the Geotechnical Engineer's representative.

If construction begins during the summer or fall, there is a potential that the surface clayey soils may be desiccated deeper than the recommended depth of scarification. Should this condition exist, the site should be continuously watered for a sufficient period of time to close the desiccation cracks.

The prepared subgrade soils should be protected from disturbance until covered by capillary break material or aggregate base. Disturbed subgrade soils may require additional processing and recompaction just prior to construction of these improvements, depending on the level of disturbance.

All subgrade preparation must be performed in the presence of the Geotechnical Engineer's representative who will evaluate the performance of the subgrade under compaction loads and identify any loose or unstable soil conditions that could require remediation. Construction bid documents should contain a unit price (price per cubic foot) for additional excavation due to unsuitable materials and replacement with engineered fill.

Engineered Fill Construction

Engineered fill consisting of on-site or import materials should be placed in lifts not exceeding six inches in compacted thickness, with each lift being thoroughly moisture conditioned to at least two percent above the optimum moisture content for clay soils and to the optimum moisture content for granular/silty soils (import fill materials). Soils should be uniformly compacted to at least 90 percent relative compaction.

On-site soils encountered in our explorations are considered suitable for use as engineered fill, provided they are at a workable moisture content to achieve required compaction, and do not contain rubbish, rubble, deleterious debris, and organics. However, clay soils should not be used in fills within the upper 12 inches of final subgrade for the building pad or exterior flatwork, unless the clay soils are lime-treated as described in the Lime Treatment Alternative section of this report.

Imported fill materials should be compactable, well-graded, granular soils with a Plasticity Index of 15 or less when tested in accordance with ASTM D4318; an Expansion Index of 20 or less when tested in accordance with ASTM D4829, and should not contain particles greater than

three inches in maximum dimension. In addition, we recommend that the contractor supply a certification for any imported fill materials that designates the fill materials do not contain known contaminants per Department of Toxic Substances Control's guidelines for clean fill, and have corrosion characteristics within acceptable limits. Imported soils should be approved by the Geotechnical Engineer prior to being transported to the site.

All earthwork operations should be accomplished in accordance with the recommendations contained within this report and the *Guide Earthwork Specifications* provided in Appendix B. We recommend the Geotechnical Engineer's representative be present on a regular basis during all earthwork operations to observe and test the engineered fill and to verify compliance with the recommendations of this report and the project plans and specifications.

Cut and Fill Slopes

We anticipate that cut and fill slopes less than 10 feet in vertical height may be constructed to provide level building areas. In our professional opinion, fill slopes should be inclined no steeper than 2(h):1(v). This slope recommendation is based on our experience with similar conditions since no detailed slope stability analysis was performed to justify steeper slopes. Given this inclination, however, there is a modest risk that displacement, movement, and/or soil sloughing could occur in the event of strong seismic ground shaking. For the native soils and compacted fill conditions anticipated, we expect this movement to be relatively shallow, requiring limited cleanup and dressing to restore the slopes to their original condition. If this risk is unacceptable to the owner, the slopes should be flattened to 3(h):1(v) or flatter.

Since the proposed detention pond embankments will be immersed below water, the embankments should be constructed at an inclination of 3(h):1(v) or flatter. Like discussed above, some shallow seated displacement or movement should be anticipated in the event of strong seismic ground shaking. If this condition is unacceptable, the embankments should be flattened.

Paved interceptor drains should be provided along the tops of slopes where the tributary area flowing toward the slope has a drainage path greater than 40 feet, measured horizontally. The interceptor drains or terraces should be sloped to a suitable drainage device and disposed off-site well below the toe of the slope. Drop inlets and storm sewers should not be installed near the crests of slopes because leakage can result in maintenance problems or possible slope failure. The slopes should be inspected periodically for erosion, and if detected, repaired immediately. To reduce erosion and gulling, all disturbed areas should be planted with erosion-resistant vegetation suited to the area. As an alternative, jute netting or geotextile erosion control mats can be installed per the manufacturer's recommendations. Slopes should be over-built and cutback to design grades and inclinations.

Utility Trench Backfill

Utility trench backfill within structural areas (e.g. building, exterior flatwork, pavements, etc.) should be mechanically compacted as engineered fill in accordance with the following recommendations. Bedding and initial backfill around and over the pipe should conform to the pipe manufacturer's recommendations and applicable sections of the governing agency standards.

Based on explorations performed at the site and available groundwater data, we anticipate excavations extending below 10 feet below site grade may encounter groundwater (depending on the time of year) and may require dewatering. Where groundwater is encountered, the use of sumps, submersible pumps, deep wells or a well point system could be used as methods to lower the groundwater level. The dewatering method used will depend on the soil conditions, depth of the excavation and amount of groundwater present within the excavation. Dewatering, if required, should be the contractor's responsibility. The dewatering system should be designed and constructed by a dewatering contractor with local experience. We recommend the selected dewatering system lower the groundwater level to at least two feet below the bottom of the proposed excavations.

It is likely that materials excavated from trenches will be at elevated moisture contents and will require significant aeration or a period of drying to reach a compactable moisture content. We recommend bid documents contain a unit price for the removal and drying of saturated soils, or replacement with approved import soils.

We recommend that on-site soil be used as trench backfill, especially below the non-expansive or lime-treated material within the footprint of the interior concrete slabs. Utility trench backfill should be placed in maximum eight-inch lifts (compacted thickness), thoroughly moisture conditioned to at least two percent above the optimum moisture content, and mechanically compacted to at least 90 percent relative compaction. Within the upper 12 inches of final subgrade for the interior concrete slabs and exterior flatwork, trench backfill should consist of granular material placed and compacted as described in the Engineered Fill Construction section of this report, unless the lime-treatment alternative is selected. Where the top 12 inches of the interior concrete slabs and exterior flatwork areas consist of lime-treated soils, the upper 12 inches of trench backfill should consist of controlled density fill (CDF) or aggregate base compacted to at least 95 percent relative compaction. Within the upper six inches of untreated pavement subgrade soils and upper 12 inches of lime-treated pavement subgrade soils, compaction should be increased to at least 95 percent relative compaction at no less than two percent above the optimum moisture content.

We recommend that all underground utility trenches aligned nearly parallel with new foundations be at least three feet from the outer edge of foundations, wherever possible. Trenches should not encroach into the zone extending outward at a one horizontal to one vertical (1H:1V) inclination below the bottom of foundations. Additionally, trenches parallel to existing foundations should not remain open longer than 72 hours. The intent of these recommendations is to prevent loss of both lateral and vertical support of foundations, resulting in possible settlement.

Foundations

The proposed structures may be supported upon continuous and/or isolated spread foundations. Due to expansive soil considerations, the foundations should extend at least 18 inches below lowest adjacent soil grade. Lowest adjacent soil grade is defined as the grade upon which the capillary break material is placed or exterior soil grade, whichever is lower. Continuous foundations supporting should maintain minimum widths of 15; while isolated spread foundations should be at least 24 inches in plan dimension. Foundations should be continuous around the perimeter of the building to reduce moisture variations beneath the structures. If shrinkage cracks appear in the footing excavations, the excavations should be thoroughly moistened to close all cracks prior to placement of concrete.

Foundations bearing on undisturbed or compacted native soils, engineered fill, or a combination of those materials may be sized for maximum allowable “net” soil bearing pressure of 3,000 pounds per square foot (psf) for dead plus live load. A one-third increase in the allowable bearing pressure may be applied when considering short-term loading due to wind or seismic forces. The weight of the foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

Total settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. Based on the foundation criteria discussed above and the assumed foundation loads, foundations are anticipated to experience a maximum total static settlement on the order of about ¾ to 1 inch, and differential settlement on the order of about ½ inch for 50 lineal feet or the shortest distance of the structure, whichever is less.

As discussed in the Liquefaction Potential section of the Conclusions, it is estimated that up to 1 inch of differential settlement over a horizontal distance of 100 feet could occur in the event of strong ground shaking (earthquake with a return period of 2,475 years or 2% probability of exceedance in 50 years).

All foundations be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. The structural engineer should determine final foundation reinforcing requirements.

Resistance to lateral foundation displacement may be computed using an allowable friction factor of 0.30, which may be multiplied by the effective vertical load on each foundation. Additional lateral resistance may be computed using an allowable passive earth pressure equivalent to a fluid pressure of 300 psf per foot of depth, acting against the vertical projection of the foundation. These two modes of resistance should not be added together unless the frictional component is reduced by 50 percent since full mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance. We recommend that all foundation excavations be observed by the Geotechnical Engineer's representative prior to placement of reinforcement and concrete to verify firm bearing materials are exposed.

Interior Floor Slabs

Conventional floor slabs in combination with shallow spread foundations may be used for support of the proposed structures. As discussed in the Soil Expansion Potential section of the Conclusions, the near-surface soil underlying the site and anticipated clay fill can exhibit significant expansion characteristics.

The most direct method to reduce expansive soil risks and improve the subgrade conditions would be to support the proposed floor slabs on a layer of compacted, non-expansive fill. This procedure consists of placing at least 12 inches of non-expansive fill directly below the proposed floor slab system. The non-expansive fill should be moisture conditioned to at or above its optimum moisture content and compacted as engineered fill. Specific requirements for import fill are presented in the Engineered Fill section. The non-expansive soil pads could be prepared by removing and replacing the native clay, raising the building pads above existing site grade, or a combination of both. A capillary break or other slab support system placed directly below the floor slabs should not replace in whole or part the non-expansive fill layer. The zone of non-expansive soil should extend laterally at least 3 feet outside the perimeter of the structures. Prior to placement of the non-expansive fill, the moisture content of the underlying clay soil should be checked. If the soil moisture content is found to be less than1 percentage point above the optimum moisture content, the soil moisture content should be raised using liberal sprinkling, flooding or another suitable method. A representative of the Geotechnical Engineer should perform a field check of the soil moisture content and relative compaction prior to placement of the non-expansive fill.

A second approach (lime treatment) consists of mixing the upper 12 inches of subgrade soils within the proposed floor slab area with dolomitic or high calcium quick lime and compacting the soil as engineered fill. The subgrade preparation, spreading, mixing, compacting and lime type should meet the requirements outlined in Section 24 of the Caltrans Standard Specifications. The zone of lime-treated soil should extend laterally at least 3 feet outside the perimeter of the proposed structure. Based on our previous experience, 4½ pounds of quick lime per cubic foot of soil may be assumed for planning purposes. The lime treated subgrade soils should be compacted to at least 90 percent relative compaction.

At least 2 to 3 days prior to spreading or mixing the lime, the moisture content of the underlying, untreated clay soil should be checked. If the soil moisture content is found to be dry of optimum, the soil moisture content should be raised using liberal sprinkling, flooding or another suitable method. A representative of the Geotechnical Engineer should be on-site during treatment operations to document spreading, mixing and compaction operations and provide supplemental/revised recommendations, if warranted, based on the soil conditions observed.

Following lime treatment, the treated soil should be properly cured by continual sprinkling with water to keep the surface damp, combined with light rolling to keep the surface knitted together. We suggest that the subgrade soils be covered with Class 2 aggregate base or crushed rock within 2 to 3 days of lime treatment in an effort to reduce drying. Periodic sprinkling is still required to keep the surface damp. As an alternative, the treated soil could be cured as discussed in Section 24 of the Caltrans Standard Specifications.

Lime treatment increases the pH of the soil and may not promote plant growth. Accordingly, the landscape designer should be consulted during pre-construction to verify that future landscaping is suitable for lime treated soils. If the landscaping is not suitable, the lime-treated soils should be completely removed and replaced prior to planting.

The interior concrete slabs should be at least four inches thick, however, the project structural or civil engineer should determine final floor slab thickness, reinforcement and joint spacing. Temporary loads exerted during construction from vehicle traffic, cranes, forklifts, other construction equipment, rack loads, and storage of palletized construction materials, etc. should be considered in the design of the thickness and reinforcement of the interior concrete slabs-on-grade.

Provided the building pad is constructed in accordance with the recommendations included in this report (12 inches of non-expansive, granular soils or lime-treated clay soils, and six inches of aggregate base where applicable), a soil modulus of reaction (k_s) of 200 kips per cubic foot (kcf) or 115 pounds per cubic inch (pci) may be utilized for design of floor slabs subjected to vehicle/fork lift traffic or any other loading conditions described above.

Moisture Penetration Resistance

It is likely that the subgrade soils below floor slabs will become very moist or wet at some time during the life of the structures. This is a certainty if the subgrade soils are constructed during the wet season or poor drainage conditions exist adjacent to structures. For this reason, it should be assumed that interior floor slabs with moisture-sensitive floor coverings or coatings will require protection against moisture or moisture vapor penetration through the slabs.

Interior floor slabs for the planned buildings should, as a minimum, be underlain by a layer of free-draining crushed rock/gravel, serving as a deterrent to migration of capillary moisture. The crushed rock/gravel layer should be between four- and six-inches-thick and graded such that 100 percent passes a one-inch sieve and less than five percent passes a No. 4 sieve. Additional moisture protection may be provided by placing a vapor retarder membrane (at least 10-mils thick) directly over the crushed rock/gravel. The water vapor retarder membrane should meet or exceed the minimum specifications as outlined in ASTM E1745 and be installed in strict conformance with the manufacturer's recommendations. For warehouse portions of the proposed buildings that will not have moisture-sensitive floor coverings or coatings, the vapor retarder membrane should be placed directly over 4 to 6 inches of compacted aggregate base.

Floor slab construction practice over the past 30 years or more has included placement of a thin layer of dry sand or pea gravel over the vapor retarder membrane. The intent of the sand/pea gravel is to aid in the proper curing of the slab concrete. However, during the wet seasons moisture can become trapped in the sand or pea gravel, which can lead to excessive moisture vapor emissions from floor slabs. As a consequence, we consider use of the sand/pea gravel layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

It is emphasized that the crushed rock/grave and the vapor retarder membrane suggested above provides only a limited, first line of defense against soil-related moisture issues and will not "moisture proof" the slab. Nor do these measures provide an assurance that slab moisture transmission levels will be within tolerable levels to prevent damage to floor coverings or other building components. If increased protection against moisture vapor penetration is desired, a concrete moisture protection specialist should be consulted. The design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Retaining Walls

All retaining walls or below grade walls for the buildings should be designed to resist the lateral soil pressures of the retained soils. Retaining walls that are fixed/restrained at the top should be capable of resisting an “at-rest” lateral soil pressure equal to an equivalent fluid pressure of 60 psf per foot of the wall height (fully drained conditions). Retaining walls above the estimated high groundwater level that will be allowed to slightly rotate about their base (unrestrained at the top or sides) should be capable of resisting an "active" lateral soil pressure equal to an equivalent fluid pressure of 40 psf per foot of wall height (fully drained conditions),

If structural elements, i.e., foundations, roadways, etc., encroach the one horizontal to one vertical (1H:1V) projection from the bottom of retaining walls, the retaining walls should account for surcharge loads resulting from those structural elements. Additionally, any below-grade retaining walls should also account for surcharge loads resulting from construction equipment, vehicles, palletized materials, etc. that encroach the one horizontal to one vertical (1H:1V) projection from the bottom of the below-grade retaining walls. Surcharge loading under the circumstances described above should be evaluated by the retaining wall designer on a case-by-case basis and be included in their design of the walls. The retaining wall designer should evaluate the surcharge load distribution, magnitude of the surcharge resultant force to be applied on the walls, and the location of where the resultant force should be applied on the walls. Surcharge loading on the retaining walls will depend on the specific surcharge load type (e.g. point load, distributed load, etc.) and distance away from the retaining walls.

Retaining wall or below grade walls should be fully drained to prevent the build-up of hydrostatic pressures behind the wall. Retaining walls should be provided with a drainage blanket of Class 2 permeable material, Caltrans Standard Specification, Section 68-2.02F(3), at least one foot wide extending from the base of wall to within one foot of the top of the wall. The top foot above the drainage layer should consist of compacted on-site or imported engineered fill materials, unless covered by a concrete slab or pavement. Weep holes or perforated rigid pipe, as appropriate, should be provided at the base of the wall to collect accumulated water. Drainpipes, if used, should slope to discharge at no less than a one percent fall to suitable drainage facilities. Open-graded ½ to ¾ inch crushed rock may be used in lieu of the Class 2 permeable material provided the rock and drain pipe are completely enveloped in an approved non-woven, geotextile filter fabric. Alternatively, approved geotextile drainage composites, such as MiraDRAIN®, may be used in lieu of the drain rock layer. If used, geocomposite drain panels should be installed in accordance with the manufacturer’s recommendations.

If efflorescence (discoloration of the wall face) or moisture/water penetration of the retaining walls is not acceptable, moisture/water-proofing measures should be applied to the back face of the walls. A moisture/water-proofing specialist should be consulted to determine specific protection measures against moisture/water penetration through the walls.

Structural backfill materials for retaining walls within a one horizontal to one vertical (1H:1V) projection from the bottom of the walls (other than the drainage layer) should consist of imported, granular material or native sand and silt that does not contain significant quantities of rubbish, rubble, organics and rock over four inches in size. Clay, pea gravel and/or crushed rock should not be used for structural wall backfill. Structural wall backfill should be placed, moisture conditioned and compacted in accordance with recommendations provided in the Engineered Fill section of this report.

Foundations for support of retaining or below grade walls should be designed using the appropriate foundation design parameters provided in the Foundations section included in this report.

Exterior Flatwork

The final subgrade for exterior concrete flatwork (i.e., sidewalks, patios, etc.) should be prepared and constructed in accordance with recommendation provided in the Interior Floor Slab section above. The zone of non-expansive fill or lime-treated soils can be reduced to at least 1 foot laterally outside the perimeter of the flatwork.

As an alternative, the subgrade soils could be presoaked by wetting and pre-swelling the subgrade soils prior to placement of concrete, thus reducing the potential for post-construction movement. This approach tends to be the less costly, however, the risk for isolated heaving and cracking is greater since it can be difficult to uniformly moisture condition and completely pre-swell the subgrade soil prior to placement of concrete. Furthermore, pre-soaking also softens and weakens the clay, making this this approach not appropriate where flatwork will support vehicular traffic, heavy concentrated loads, heavy equipment or machinery due to settlement and bearing concerns.

Following subgrade preparation, presoaking consists of wetting or soaking the upper 18 inches of final soil subgrade in order to uniformly raise the soils' moisture content to a uniform, near-saturated moisture condition. The zone of wetting should extend laterally at least one foot outside the perimeter of the flatwork. Presoaking is usually performed using liberal sprinkling, flooding, or other suitable method. The time required for pre-soaking could vary from a few days to over a week depending on the condition of the subgrade soils. If the exposed soils are kept moist or wet following subgrade preparation, the amount and time required for presoaking

is often reduced. Likewise, restricting vehicle or equipment traffic following earthwork will decrease the potential for over-compacting the soils and reducing the ability for water to penetrate. A representative of the Geotechnical Engineer should perform a field check of the soil's moisture content and consistency within three days of concrete placement. In hot and/or windy weather, the field moisture check should be performed within 24 hours of concrete placement.

The exterior flatwork concrete should be at least four inches thick and underlain by at least four inches of aggregate base compacted to at least 95 percent relative compaction to provide stability during slab construction and to protect the soils from disturbance during construction. Consideration should be given to thickening the edges of the slabs at least twice the slab thickness where wheel traffic is expected over the slabs. Expansion joints should be provided to allow for minor vertical movement of the flatwork. Exterior flatwork should be constructed independent of other structural elements by the placement of a layer of felt material between the flatwork and the structural element. The slab designer should determine the final thickness, strength and joint spacing of exterior slab-on-grade concrete. The slab designer should also determine if slab reinforcement for crack control is required and determine final slab reinforcing requirements.

Because of seasonal wetting and drying or irrigation of the soil, isolated differential movement and cracking sometimes forms along the outside edges of exterior flatwork. To reduce this risk, consideration should be given placing lateral cutoffs along the outside edges of the flatwork, doweling joints to reduce tripping hazards, and/or stiffening the flatwork by increasing the concrete thickness and including reinforcing steel.

Areas adjacent to new exterior flatwork should be landscaped to maintain more uniform soil moisture conditions adjacent to and beneath flatwork. Final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Practices recommended by the Portland Cement Association (PCA) for proper placement, curing, joint depth and spacing, construction, and placement of concrete should be followed during exterior concrete flatwork construction.

Site Drainage

Final site grading should be accomplished to provide positive drainage of surface water away from the buildings and prevent ponding of water adjacent to foundations, slabs or pavements. The subgrade adjacent to the buildings should be sloped away from foundations at a minimum two percent gradient for at least 10 feet, where possible. We recommend connecting all roof drains to solid drainage pipes which are connected to available drainage features that convey

water away from the buildings, or discharging the drains onto paved or hard surfaces that slope away from the foundations. Discharging or ponding of surface water should not be allowed adjacent to the building, exterior flatwork or pavements. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward the buildings.

Pavement Design

The subgrade soils in pavement areas should be prepared and constructed in accordance with recommendations provided in the Subgrade Preparation and Engineered Fill sections. All aggregate base should be compacted to at least 95 relative compaction.

The moisture content of the prepared subgrade soils should be maintained until placement of the aggregate base by periodic sprinkling with water or other suitable method. If there is a delay between placing the aggregate base and asphalt-concrete, the aggregate base should also be periodically sprinkled or wetted to prevent drying of the underlying soil subgrade. A field check of the subgrade soils moisture condition should be performed by the Geotechnical Engineer's representative prior to placement of the aggregate base.

As an alternative, the upper 12 inches of subgrade soil can be stabilized by mixing it with dolomitic or high calcium quick lime (lime-treatment). The subgrade preparation, spreading, mixing, compacting, lime type and curing should meet the criteria discussed in the Interior Floor Slab section. The zone of lime-treated soil should extend laterally at least two feet outside the perimeter of the proposed pavement subgrade. The lime-treated subgrade soil should be compacted to at least 95 percent relative compaction. A representative of the Geotechnical Engineer should be on-site during treatment operations to document spreading, mixing and compaction operations and provide supplemental/revised recommendations, if warranted, based on the soil conditions observed.

Based on laboratory testing results and previous nearby experience, an R-value of 5 was used for design of pavements supported on compacted native clay and an R-value of 50 was used for lime treated clays. The pavement sections presented in Table 3 have been calculated using traffic indices assumed to be appropriate for the project using pavement design criteria outlined in Chapters 600 to 670 of the *California Highway Design Manual* (Caltrans, 2019), and Sacramento County, November 1, 2009 Street Design Standards. The project civil engineer should determine the appropriate traffic index and pavement section based on anticipated traffic conditions. If needed, we can provide alternative pavement sections for different traffic indices.

Table 3: On-site Pavement Design Alternatives

Traffic Index (TI)	Pavement Use	Untreated Subgrades R-value = 5			Lime-Treated Subgrades Soils (**) R-value = 50		
		Type A Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)	Type A Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)
4.5	Light Automobile Parking Only	2½*	10	--	2½*	4	--
		3*	8	--	3*	4	--
		--	4	6	--	4	4
6.5	Automobile, Light 2- to 3-axle Truck Traffic, Fire Lanes and Trash	3	16	--	3*	4	--
		4*	14	--	4*	4	--
		--	6	6	--	5	4
8.0	Light-Moderate 4-axle-Truck Traffic	3½	20	--	3½	9	--
		5*	18	--	5*	6	--
		--	7	6	--	6	4
9	Moderate-Heavy 5-axle-Truck Traffic (AADTT ≈ 75)	4½	22	--	4½	11	--
		5½*	21	--	5½*	9	--
		--	8	8	--	6½	4
10.0	Heavy 5-axle-Truck Traffic (AADTT ≈ 170)	5	25	--	5	13	--
		6½*	23	--	6½*	11	--
		--	8	10	--	7½	6

* = Asphalt concrete thickness contains the Caltrans safety factor.

**= Lime-treated subgrade should be at least 12 inches thick and possess a minimum R-value of 40 when testing in accordance with California Test 301.

AADTT = Annual Average Daily Truck Traffic, assuming 5-axles trucks and 20-year ESAL Constant.

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, we recommend that consideration be given to using Portland concrete cement (PCC) pavements in areas subjected to concentrated heavy wheel loading, such as entry driveways and in front of trash enclosures. Alternate PCC pavement sections have been provided above in Table 3. All aggregate base should be compacted to at least 95 percent relative compaction.

We suggest the concrete slabs be constructed with thickened edges in accordance with American Concrete Institute (ACI) design standards, latest edition. Reinforcing for crack control, should be provided in accordance with ACI guidelines. Reinforcement must be located at mid-slab depth to be effective. Joint spacing and details should conform to the current PCA or ACI guidelines. Per the California Highway Design manual, PCC should achieve a minimum modulus of rupture/flexural strength of 625 pounds per square inch (psi) at 28 days. Per PCA guidelines, a minimum compressive strength of 4,000 psi at 28 days is required to achieve the specified modulus of rupture.

All pavement materials and construction methods of structural pavement sections should conform to the applicable provisions of the Caltrans Standard Specifications and Napa County Standards, latest editions.

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. Weep holes could be provided at drainage inlets, located at the subgrade-aggregate base interface, to allow accumulated water to drain from beneath the pavements.

Consideration should be given to using full-depth curbs between landscaped areas and pavements to serve as a cut-off for water that could migrate into the pavement base materials or subgrade soils.

Ancillary Foundations

Foundations for lightly-loaded, ancillary structures not structurally connected to the proposed buildings, such as sound walls, landscape walls, monuments, trash enclosures, or similar structures, may be supported upon conventional spread foundations or drilled, cast-in-place reinforced concrete piers (drilled piers). Drilled piers may be used for support of light poles or similar structures.

Conventional Spread Foundations

Conventional spread foundations should bear on firm, undisturbed ground, engineered fill, or a combination of these materials, as confirmed by the Geotechnical Engineer or his representative. The spread foundations should be at least 12 inches wide and extend at least 18 inches below the lowest adjacent soil grade. The foundations may be sized using a maximum allowable soil bearing pressure of 2,000 psf, with a one-third increase for wind or seismic forces. Lateral foundation resistance may be determined using the factors presented in the Foundations section. The upper 12 inches of subgrade soil should be disregarded when estimating lateral resistance.

Drilled, Cast-in-Place Concrete Piers

Drilled piers should be at least 18 inches in diameter, extend at least five feet below lowest adjacent soil grade, and sized using a maximum allowable end-bearing capacity of 4,000 psf or an allowable skin friction of 250 psf for dead plus live loads, which may be applied over the surface area of the pier. These values may be increased by one-third to include short-term wind or seismic forces. The weight of foundation concrete below grade may be disregarded in sizing computations.

Uplift resistance of drilled pier foundations may be computed using the following resisting forces, where applicable: 1) weight of the pier concrete and, 2) the allowable skin friction of 250 psf applied over the shaft area of the drilled pier. Increased uplift resistance can be achieved by increasing the diameter of the drilled pier or increasing the depth.

The upper 12 inches of skin friction should be neglected for axial capacity or uplift resistance unless the drilled pier is surrounded by slab concrete or pavements for a distance of at least three feet from the edge of the foundation.

Sizing of drilled piers to resist lateral loads can be evaluated using Section 1807.1 of the 2016 CBC. An allowable lateral soil bearing pressure of 200 psf per foot of depth may be used for the CBC parameters S_1 (equation 18-1) and S_3 (equations 18-2 and 18-3). If a deflection of ½ inch at the ground surface is acceptable, this value may be doubled. The upper 12 inches of the subgrade should be neglected when determining lateral resistance.

Reinforcement and concrete should be placed in the pier excavations as soon as possible after excavation is completed to reduce the potential for caving. In no case should the elapsed time between completion of the pier excavation and the start of concrete placement exceed 48 hours. If the piers are designed using the allowable vertical bearing pressure, the bottom of the pier excavations should be free of loose or disturbed soils prior to placement of the concrete. Cleaning of the bearing surface should be verified by the Geotechnical Engineer prior to concrete placement.

If drilled piers are designed using end-bearing capacity and seepage or groundwater is encountered, the water should be pumped from the pier excavation to allow inspection and concrete placement. Otherwise, the concrete should be placed using tremie methods from the bottom of the hole, while keeping the tremie pipe below the surface of the concrete at all times.

Site Drainage

Because of expansive soil concerns, the performance of foundations and concrete slabs relies on how well storm runoff and irrigation water drains from the site. Final site grading should be accomplished to provide positive drainage of surface water away from the buildings and prevent ponding of water adjacent to foundations, slabs or pavements. The subgrade adjacent to the buildings should be sloped away from the building at a minimum two percent gradient for at least five feet, where possible. All roof drains should be connected to non-perforated rigid pipes, which in-turn are connected to available drainage features that convey water away from the buildings or discharging the drainage onto paved or hard surfaces that slope away from the buildings. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward the buildings.

Drought Considerations

The State of California can experience extended periods of severe drought conditions. Desiccated clay can shrink and crack and the ability for landowners to use irrigation as a means for maintaining landscape vegetation and soil moisture can be inhibited for unpredictable periods of time. For this reason, landscape and hardscape systems for this development should be carefully planned to prevent the desiccation of soils under and near foundations and slabs. Trees with invasive shallow root systems should be avoided. No trees or large shrubs that could remove soil moisture during dry periods should be planted within five feet of any foundation or slab. Fallow ground adjacent to foundations must be avoided.

To reduce potential for soil creep adversely affecting foundations or exterior flatwork, we recommend a minimum horizontal distance of five feet be provided and maintained between the outside edge of the foundation or flatwork to the nearest adjacent slope (e.g. building pad hinge point), for slopes greater than two feet in height.

Geotechnical Engineering Observation and Testing During Earthwork Construction

Site preparation should be accomplished in accordance with the recommendations of this report and the *Guide Earthwork Specifications* provided in Appendix D. Geotechnical testing and observation during construction is considered a continuation of our geotechnical engineering investigation. Wallace-Kuhl & Associates should be retained to provide testing and observation services during site clearing, preparation, earthwork, and foundation construction at the project to verify compliance with this geotechnical report and the project plans and specifications, and to provide consultation as required during construction. These services are beyond the scope of work authorized for this investigation; however, we would be pleased to submit a proposal to provide these services upon request.

Section 1803.5.8 “Compacted Fill Material” of the 2016 CBC requires that the geotechnical engineering report provide a number and frequency of field compaction tests to determine compliance with the recommended minimum compaction. Many factors can affect the number of tests that should be performed during construction, such as soil type, soil moisture, season of the year and contractor operations/performance. Therefore, it is crucial that the actual number and frequency of testing be determined by the Geotechnical Engineer during construction based on their observations, site conditions, and difficulties encountered. As a preliminary guideline, we recommend the following minimum tests:

- mass grading: one test per 500 cubic yards of compacted fill or one per day of work, whichever is greater
- final subgrade preparation: one test per 5,000 square feet
- aggregate base compaction: one test per 5,000 square feet
- utility backfill: one test per foot of backfill for every 150 linear feet of trench
- wall backfill: one test per foot of backfill for every 100 linear feet of wall

In the event that Wallace-Kuhl & Associates is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the “Geotechnical Engineer” should be prepared upon completion of the project.

Additional Services

We recommend that our firm be retained to review the final plans and specifications to determine if the intent of our recommendations has been implemented in those documents. We would be pleased to submit a proposal to provide these services upon request.

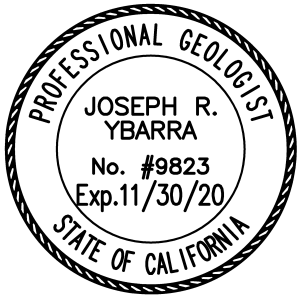
LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used prudent engineering judgment based upon the information provided and the data generated from our study. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

If the proposed construction is modified or relocated or, if it is found during construction that subsurface conditions differ from those we encountered at our exploration locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

We emphasize that this report is applicable only to the proposed construction and the investigated site. This report should not be utilized for construction on any other site. This report is considered valid for the proposed construction for a period of two years following the date of this report. If construction has not started within two years, we must re-evaluate the recommendations of this report and update the report, if necessary.

Wallace - Kuhl & Associates



Joseph Ybarra
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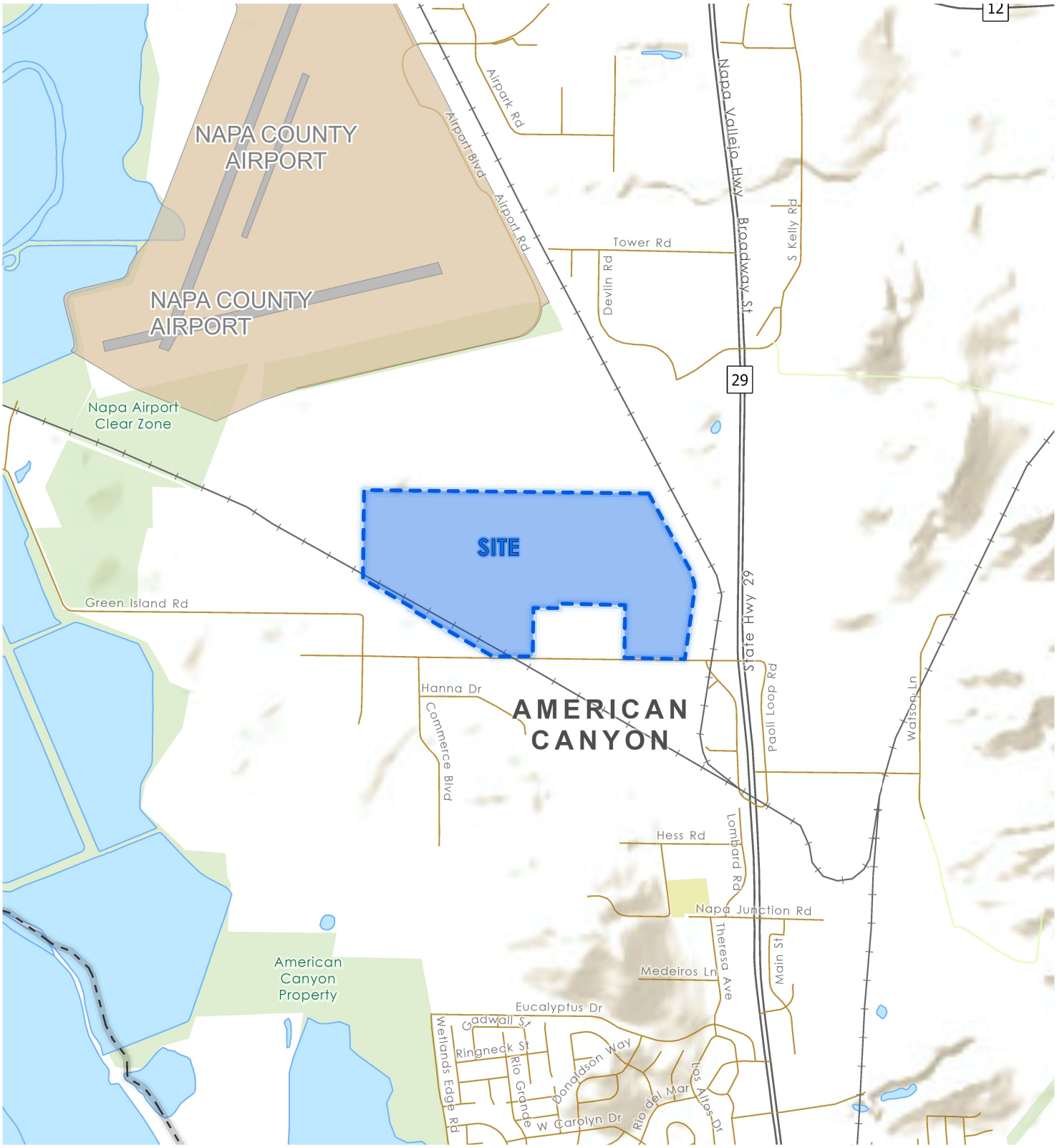

Spatial Data provided by Esri, NOAA, and USGS.
Projection: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US

WallaceKuhl & ASSOCIATES

VICINITY MAP

GREEN ISLAND LOGISTICS CENTER

American Canyon, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883

Approximate Soil Boring Location

Approximate Bulk Soil Sample Location

Approximate Earthquake Fault Location (Cornerstone, 2017)

Approximate Wetlands Location

Approximate Site Boundary

N

0 350 700

Feet

Aerial imagery provided by Esri.
Site Plan adapted from maps provided by Buzz Oates, dated 08/06/2020 and CBG Civil Engineers, dated 08/12/2020.
Projection: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US

WallaceKuhl & ASSOCIATES

SITE PLAN

GREEN ISLAND LOGISTICS CENTER

American Canyon, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D1

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark gray, moist, stiff, sandy LEAN CLAY (CL)		D1-1I	16	16.2	91	PP=3.0
					D1-2I	26	17.3	85	
	5		Yellowish brown, moist, medium dense, clayey SAND with gravel (SC)						
			Reddish brown, moist, very stiff, sandy LEAN CLAY (CL)		D1-3I	19	21.9	105	PP=2.25
	10		Boring was terminated at approximately 10.0 feet below existing ground surface.						

BORING LOG 12883.01 - GREEN ISLAND LOGISTICS CENTER.GPJ WKA.GDT 11/6/20 3:32 PM

Wallace Kuhl & ASSOCIATES

FIGURE 3

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D2

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark gray, moist, hard, silty LEAN CLAY (CL)						
					D2-1I	28	17.4	99	PP>4.5
			brown, with sand, very stiff, iron oxide staining						
	5				D2-2I	34	18.3	102	PP=3.5
	10				D2-3I	22	19.8	107	PP=3.75
			Reddish brown, moist, medium dense, clayey fine to medium SAND (SC)						
	15		Reddish brown, moist, hard, LEAN CLAY (CL)		D2-4I	27			PP=4.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 4

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D3

Sheet 1 of 2

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**51.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**7**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**20.0**	Sampling Method(s)	**1.4" Standard Penetration Test (SPT)**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4', El, Pl**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)		D3-1	7	22.9		PP>4.5
	5		Dark brown, moist, hard, sandy LEAN CLAY (CL); iron oxide staining		D3-2	14			PP>4.5 Pl
	10		yellowish brown		D3-3	20	16.5		PP>4.5
	15		Yellowish brown, moist, very stiff, sandy LEAN CLAY (CL)		D3-4	21	18.8		PP=3.25
	20		Reddish brown Olive to reddish brown, hard	▼	D3-5	19			Pl PP>4.5
	25		Olive to yellowish brown, very stiff		D3-6	23	17.6		PP=2.25

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FIGURE 5

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D3

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			hard		D3-7	21	17.4		PP=4.0
	35				D3-8	18			PP=4.25 PI
	40		Olive brown, wet, medium dense, clayey fine to medium SAND (SC)		D3-9	15			PP=3.5
			Olive brown, wet, very stiff, LEAN CLAY with sand (CL)						
	45		Brown, wet, very stiff, sandy LEAN CLAY (CL)		D3-10	33			PP=3.0
			At 46.0 feet, a 3" gravel lense						
	50				D3-11	23			PP>4.5
			Boring was terminated at approximately 51.5 feet below existing ground surface. Groundwater was encountered at approximately 20.0 feet below existing ground surface.						

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FIGURE 5

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D4

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)						
					D4-1I	20	16.1	105	PP>4.5
	5		Dark brown, moist, hard, sand LEAN CLAY (CL)						
					D4-2I	23	15.4	103	PP>4.5
	10		reddish brown, very moist, medium stiff, iron oxide staining						
					D4-3I	16	21.7	105	PP=1.5
	15		Olive brown, very moist, medium dense, clayey fine to medium SAND with gravel (SC); with iron oxide staining						
					D4-4I	28			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 6

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D5

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, sandy LEAN CLAY (CL)						
					D5-1I	11	17.4		
			yellowish brown, hard		D5-2I	31	14.2	108	UCC= 4.2 tsf
	5								
			Reddish brown, moist, medium dense, clayey fine to medium SAND (SC)		D5-3I	27	19.5	111	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 7

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D6

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark gray, moist, hard, silty LEAN CLAY (CL)						
					D6 @ 0-5' D6-1I	21	19.4	107	PP=4.5
	5		Reddish brown, moist, medium dense, gravelly SAND with clay (SP)		D6-2I	20	18.1	103	
	10		Brown, very moist, loose, clayey fine to medium SAND (SC)		D6-3I	10	21.5	101	
	15				D6-4I	36			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was encountered at approximately 15.0 feet below existing ground surface.						

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FIGURE 8

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D7

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark grey, moist, sandy LEAN CLAY (CL)						
					D7-1I	12	17.4	99	
			reddish brown		D7-2I	26	17.0	110	PP=3.25
	5		Reddish brown, moist, medium dense, clayey fine to coarse SAND with gravel (SC)						
			olive to yellowish brown, very moist, increased fines content		D7-3I	22	18.7	109	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 9

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D8

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, LEAN CLAY with sand (CL)						
					D8-1I	13	19.9	98	PP>4.5
	5				D8-2I	19	15.9	112	PP>4.5
					D8-3I	50	13.4	113	PP=4.5
	10		Yellowish brown, moist, very dense, clayey fine SAND (SC)						
			Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 10

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D9

Sheet 1 of 1

Date(s) Drilled	**9/21/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, silty LEAN CLAY (CL); with iron oxide staining						
					D9-1I	22	13.5	111	PP>4.5
	5		very stiff		D9-2I	31	15.3	112	PP=3.25
			Brown, moist, medium dense, clayey fine to medium SAND (SC)						
	10		Yellowish brown, moist, hard, sandy LEAN CLAY (CL)		D9-3I	39	17.2	113	PP>4.5
	15		Brown, moist, medium dense, clayey fine to medium SAND with gravel (SC)		D9-4I	27			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encounterd.						

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FIGURE 11

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D10

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)						
					D10-1I	8	20.6	89	PP>4.5
					D10 @ 0-5'				
			very stiff, with fine sand		D10-2I	19	13.8	111	PP=2.25
	5		Yellowish brown, moist, medium dense, clayey fine to medium SAND (SM)						
			increased clay content, slight calcification		D10-3I	42	15.6	112	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 12

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D11

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, very stiff, LEAN CLAY with sand (CL)						
					D11-1I	18	17.2	105	PP=2.25
	5		Yellowish brown, medium dense, clayey fine to medium SAND (SC)						
					D11-2I	30	21.3	100	
	10		Yellowish brown, moist, very stiff, LEAN CLAY with sand (CL)						
					D11-3I	20	20.0	105	PP=3.25
	15		medium stiff						
					D11-4I	16			PP=1.0
			Yellowish brown, moist, medium dense, clayey fine SAND (SC)						
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 13

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D12

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, very stiff, LEAN CLAY (CL); trace sand						
					D12-1I	11	16.9	114	PP=2.5
			dark reddish brown, increased sand content		D12-2I	22			PP=3.5 HC
	5								
			dark yellowish brown		D12-3I	24	18.2	109	PP=4.0
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 14

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D13

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Yellowish brown, moist, hard, silty LEAN CLAY (CL)						
					D13-1I	10	19.1	98	UCC= 5.7 tsf
	5		trace sand		D13-2I	16	16.5	106	UCC= 3.7 tsf
	10				D13-3I	24	18.5	108	PP>4.5
	15		very stiff		D13-4I	20			PP=2.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 15

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D14

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)						
					D14-1I	13	17.8	98	PP>4.5
			yellowish brown, very stiff						
	5				D14-2I	19	23.6	97	PP=2.75
			Dark yellowish brown, very moist, medium dense, clayey fine to coarse SAND (SC)						
					D14-3I	30	16.3	114	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 16

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D15

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark reddish brown, moist, very stiff, sandy LEAN CLAY (CL)						
					D15 @ 0-5' D15-1I	17	15.9	96	PP=2.0
	5		hard		D15-2I	40	14.5	111	PP=4.5
			Dark reddish brown, moist, medium dense, clayey fine to medium SAND (SC)						
	10		Yellowish brown, moist, hard, sandy LEAN CLAY (CL)		D15-3I	25	16.9	110	PP=4.0
	15		slight calcification		D15-4I	40			PP>4.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 17

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D16

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light yellowish brown, moist, sandy LEAN CLAY (CL)		D16-1I	14	7.2	94	
	5		Brown, moist, hard, LEAN CLAY (CL)		D16-2I	26	17.0	108	PP>4.5
	10		Yellowish brown, moist, hard, sandy LEAN CLAY (CL)		D16-3I	25	16.8	110	PP=4.25
			Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 18

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D17

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)						
					D17 @ 0-5' D17-1I	22	17.3	112	PP>4.5
	5		Reddish brown, moist, very stiff, sandy LEAN CLAY (CL)		D17-2I	26	17.7	110	PP=3.75
	10		Brown, damp, medium dense, clayey fine SAND (SC)		D17-3I	17	20.4	99	
	15		Reddish brown to olive, wet, very stiff, LEAN CLAY (CL)		D17-4I	24			PP=3.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was encountered at approximately 12.0 feet below existing ground surface.						

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FIGURE 19

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D18

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, dry, sandy LEAN CLAY (CL)						
					D18-1I	7	8.7	100	
			yellowish brown, moist, very stiff		D18-2I	19	22.4	99	PP=3.0
	5								
			hard		D18-3I	23	15.9	120	PP>4.5
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 20

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D19

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark yellowish brown, moist, very dense, LEAN CLAY with sand (CL)						
					D19 @ 0-5' D19-1I	7	22.8	107	PP=3.0
	5		Dark yellowish brown, moist, very dense, sandy LEAN CLAY (CL)		D19-2I	21	18.0	110	PP=2.75
	10		At 10.0 feet, a 1" fine to medium sand lense		D19-3I	18	18.3	108	PP>4.5
	15		Light yellowish brown to olive brown, moist, clayey fine to coarse SAND (SC)		D19-4I	37			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 21

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D20

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, silty LEAN CLAY (CL)						
					D20-1I	8	22.3	104	PP>4.5
					D20-2I	17	15.5	111	PP=3.75
	5		Yellowish brown, moist, very stiff, sandy LEAN CLAY (CL)						
			Yellowish brown, damp, medium dense, clayey fine to medium SAND (SC)		D20-3I	23	17.4	112	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 22

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D21

Sheet 1 of 2

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**51.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**7**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**20.0**	Sampling Method(s)	**1.4" Standard Penetration Test (SPT)**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4', El, Pl**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, stiff, sandy LEAN CLAY (CL)						
					D21-1I	6			Pl
	5				D21-2I	17	17.0		
	10				D21-3	9			
					D21-4	8			
			increased moisture content, very stiff, black staining		D21-5	18	20.0		PP=2.0
	15		Brown, moist, medium dense, clayey fine to medium SAND (SC)						
			Brown, moist, very stiff, sandy LEAN CLAY (CL)		D21-6I	13	19.5		PP=3.5
	20				D21-7I	11			PP=3.5 Pl
	25		medium stiff At 26 feet, a 2" fine to medium sand lense		D21-8I	10			PP=1.0

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FIGURE 23

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D21

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light reddish brown		D21-9I	11			
	35		increased moistue content		D21-10I	17			
	40		Light reddish brown, wet, medium dense, silty fine to medium SAND (SM)		D21-11I	17			
	45		Brown, wet, medium dense, gravelly fine to coarse SAND (SP)		D21-12I	36			
	50		Yellowish brown, very moist, dense, clayey fine SAND (SC)		D21-13I	41			
			Brown, wet, dense, silty fine to medium SAND (SM)						

Boring was terminated at approximately 51.5 feet below existing ground surface.
Groundwater was encountered at approximately 15.0 feet below existing ground surface.

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FIGURE 23

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D22

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark reddish brown, moist, hard, silty LEAN CLAY (CL)						
					D22 @ 0-5' D22-1I	13	19.6	101	PP=4.5
	5		Dark yellowish brown, moist, hard, sandy LEAN CLAY (CL)		D22-2I	25	17.7	107	PP>4.5
	10		Dark yellowish brown, moist, medium dense, clayey fine to medium SAND (SC)		D22-3I	22	15.3	114	
	15		Reddish brown, moist, very stiff, LEAN CLAY (CL); iron oxide staining		D22-4I	16			PP=3.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 24

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D23

Sheet 1 of 1

Date(s) Drilled	**9/22/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 55 HT**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, silty LEAN CLAY (CL)						
					D23-1I	9	24.6	89	UCC= 3.9 tsf
	5				D23-2I	16	14.7	112	UCC= 3.1 tsf
			yellowish brown		D23-3I	14	16.4	117	PP=1.25
	10		Yellowish brown, moist, medium dense, clayey fine to medium SAND (SC)						
			Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 25

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D24

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark reddish brown, moist, hard, silty LEAN CLAY (CL)						
					D24-1I	8	19.2	87	PP>4.5
			very stiff		D24-2I	23	18.0	108	PP=3.75
	5								
					D24-3I	18	20.3	104	PP=2.0
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 26

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D25

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, silty LEAN CLAY (CL)						
					D25-1I	10	8.9	90	
			light brown, very stiff		D25-2I	19	24.0	98	
	5								
			with black mottling, sand		D25-3I	21	18.8	106	
	10		Boring was terminated at approximately 10.0 feet below exisiting ground surface. Groundwater was not encountered.						

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FIGURE 27

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D26

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4', EI**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark reddish brown, hard, silty LEAN CLAY (CL)						
					D26 @ 0-4'				PI
					D26-1I	17	17.3	107	PP>4.5
	5		brown		D26-2I	35	19.1	106	PP>4.5
	10		yellowish brown, very stiff		D26-3I	16	19.9	105	PP=3.0
	15		Dark yellowish brown, wet, medium dense, clayey fine SAND (SC)		D26-4I	28			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was encountered at approximately 15.0 feet below existing ground surface.						

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FIGURE 28

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D27

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, sandy LEAN CLAY (CL)						
					D27-1I	12	8.6	93	PP>4.5
			Brown, moist, hard, silty LEAN CLAY (CL)						
	5				D27-2I	20	19.4	102	UCC= 2.7 tsf
			with sand, iron oxide staining						
					D27-3I	29	15.3	114	PP=4.0
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 29

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D28

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Reddish brown, moist, hard, silty LEAN CLAY (CL)						
					D28-1I	12	23.1	98	PP>4.5
	5		brown		D28-2I	26	15.9	107	PP>4.5
			wet, with sand						
	10		Dark yellowish brown, wet, medium dense, clayey fine to medium SAND (SC)		D28-3I	19	19.4	105	PP=2.0
			Dark yellowish brown, very moist, very stiff, LEAN CLAY (CL)						
	15				D28-4I	18			PP=2.5
			Boring was terminated at approximately 16.5 feet below exsiting ground surface. Groundwater was encountered at approximately 13.0 feet below existing ground surface.						

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FIGURE 30

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D29

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, silty LEAN CLAY (CL)						
					D29-1I	9	22.6	93	PP=4.5
					D29 @ 0-5'				
			very stiff						
	5				D29-2I	12	20.9	98	PP=3.25
					D29-3I	17			
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 31

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D30

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, very stiff, silty LEAN CLAY (CL)						
					D30-1I	12	25.7	98	PP=3.0
	5				D30-2I	23	25.1	94	PP=3.5
	10		Reddish brown, moist, very stiff, sandy LEAN CLAY (CL)		D30-3I	20	24.1	96	PP=3.25
	15				D30-4I	7			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 32

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D31

Sheet 1 of 1

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Grayish brown, moist, silty LEAN CLAY (CL)						
					D31-1I	13	5.3	84	
			brown		D31-2I	15	17.5	103	PP=2.25
	5								
			yellowish brown, medium stiff		D31-3I	21	15.1	114	PP=1.25
	10		Yellowish brown, moist, medium dense, clayey fine to medium SAND (SC)						
			Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 33

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D32

Sheet 1 of 2

Date(s) Drilled	**9/29/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**51.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**8**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**15.0**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve & 1.4" Standard Penetration Test (SPT)**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, hard, silty LEAN CLAY (CL)						
					D32-1	12	21.8	103	PP>4.5
	5		Brown, moist, very stiff, sandy LEAN CLAY (CL)		D32-2	17			PP=2.75 PI
	10		yellowish brown, increased sand content		D32-3	13	23.5		PP=2.25
	15		olive brown, medium stiff, iron oxide staining		D32-4	8	24.2		PP=1.0
	20		wet		D32-5	10			PI
	25		very moist		D32-6	11	28.7		PP=1.5

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FIGURE 34

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D32

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark yellowish brown, very moist, medium dense, clayey fine SAND with gravel (SC)		D32-7	14	28.5		
	35		Dark reddish brown, wet, very stiff, sandy LEAN CLAY (CL)		D32-8	20			PP=2.0 PI
	40		Reddish brown, wet, medium dense, clayey fine SAND (SC); slight calcification		D32-9	29			
	45		Gray, wet, medium dense, fine to coarse SAND with fine gravel (SP)		D32-10	38			
	50				D32-11	36			
			Boring was terminated at approximately 51.5 feet below existing ground surface. Groundwater was encountered at approxmately 15.0 feet.						

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FIGURE 34

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D33

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, medium stiff, sandy LEAN CLAY (CL)						
					D33-1I	17	18.5	106	PP=1.75
	5		Reddish brown, very moist, silty fine to medium SAND (SM)						
					D33-2I	22	15.7	107	PP>4.5
			Brown, moist, hard, sandy LEAN CLAY (CL)						
	10		yellowish brown, very stiff		D33-3I	20	23.4	96	PP=3.0
	15		soft		D33-4II	16			PP=0.5
			very stiff		D33-4I				PP=3.5
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 35

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D34

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown moist, very stiff, LEAN CLAY with sand (CL)		D34-1I	10	20.2	102	UCC= 1.8 tsf
	5		Light gray, very moist, medium dense, silty fine SAND (SM)		D34-2I	20	17.8	107	UCC= 1.2 tsf
			Reddish brown, moist, very stiff, sandy LEAN CLAY (CL)		D34-3I	25	17.7	106	PP=3.75
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 36

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D35

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.2 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Olive brown, moist, medium stiff, LEAN CLAY with sand (CL); slight calcification						
					D35-1I	16	20.5	103	PP=1.5
	5				D35-2I	13	27.3	91	PP=1.75
	10		Reddish brown, moist, loose, silty fine SAND (SM)		D35-3I	11	21.7	99	PP=1.25
			Reddish brown, moist, medium stiff, sandy LEAN CLAY (CL)						
	15		wet		D35-4I	15			PP=1.25

Boring was terminated at approximately 16.5 feet below existing ground surface.
Groundwater was encountered at approximately 15.0 feet below existing ground surface.

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FIGURE 37

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D36

Sheet 1 of 1

Date(s) Drilled	**9/28/20**	Logged By	**KRL**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, hard, silty LEAN CLAY (CL)						
					D36-1I	10	19.5	101	PP=4.5
			tanish brown, very stiff		D36-2I	33	13.2	109	PP=3.75
	5								
			slightly calcified		D36-3I	18	19.4	104	PP=3.0
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 38

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D37

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown to dark brown, moist, stiff, silty LEAN CLAY (CL)						
					D37-1I D37 @ 0-4'	13	24.9	93	
			very stiff		D37-2I	28	18.9	107	
	5								
			light brown		D37-3I	29	19.7	112	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 39

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D38

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**11.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown with black mottling, moist, stiff, silty LEAN CLAY (CL)						
					D38 @ 0-4'				
					D38-1I	16	23.6	97	UCC= 2.6 tsf
	5		very stiff		D38-2I	17	19.9	102	UCC= 1.3 tsf
	10		with sand		D38-3I	20			
			Boring was terminated at approximately 11.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 40

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D39

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, silty LEAN CLAY (CL)						
					D39-1I	13	16.2	95	
			light brown to brown with black mottling, very stiff		D39-2I	19	16.2	111	
	5								
					D39-3I	23	22.0	105	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 41

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D40

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown with gray mottling, moist, very stiff, silty LEAN CLAY (CL)		D40 @ 0-4'				PI
					D40-1I	23	18.8	102	
	5		with black mottling		D40-2I	19	23.7	101	
	10		stiff		D40-3I	11	34.6	87	
	15				D40-4I	15			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 42

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D41

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, medium stiff, LEAN CLAY (CL)		D41-1I	9	18.8	102	
	5		Grayish brown, moist, stiff, sandy LEAN CLAY (CL)		D41-2I	14	17.7	110	
					D41-3I	12	31.3	86	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 43

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D42

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Light brown, moist, stiff, sandy LEAN CLAY (CL)						
					D42-1I	15	18.9	104	
			Light brown, moist, stiff, LEAN CLAY (CL)						
	5				D42-2I	16	23.8	99	
					D42-3I	17	18.5	107	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 44

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D43

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, silty LEAN CLAY (CL)						
					D43-1I	11	14.5	97	
			Yellowish brown to brown with white and black mottling, very stiff						
	5				D43-2I	20	22.5	99	
			Brown, moist, medium dense, silty SAND (SM)						
					D43-3I	36	23.1	99	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 45

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D44

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown with white and black mottling, moist, stiff, silty LEAN CLAY (CL)						
					D44-1I	17	18.0	103	
	5		yellowish brown to brown with black mottling		D44-2I	17			HC
	10		no mottling, very stiff		D44-3I	27	24.6	100	
	15				D44-4I	35			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 46

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D45

Sheet 1 of 1

Date(s) Drilled	**10/2/20**	Logged By	**JRY**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, stiff, silty LEAN CLAY (CL)						
					D45-1I	12	16.0	103	
			white and black mottling, very stiff, trace sand						
	5				D45-2I	30	10.9	113	
					D45-3I	28	22.8	102	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 47

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D46

Sheet 1 of 2

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**51.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**8**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, LEAN CLAY (CL)		D46-1I	14	18.6		
	5		Yellowish brown, moist, very stiff, sandy silty LEAN CLAY (CL)		D46-2I	23			PI
	10		slight calcification		D46-3I	24	20.3		
	15		increased plasticity		D46-4I	17	20.3		
	20		increased sand content		D46-5I	20			PI
	25		decreased sand content		D46-6I	26	17.8		

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FIGURE 48

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D46

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, medium dense, clayey fine to coarse SAND (SC)		D46-7I	36	13.3		
	35		Brown, moist, hard, sandy LEAN CLAY (CL)		D46-8I	37			PI
	40		very stiff		D46-9I	28			
	45		Brown, moist, medium dense, clayey fine to coarse SAND (SC)		D46-10I	28			
	50		with gravel, very dense		D46-11I	57			
			Boring was terminated at approximately 51.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 48

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D47

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, LEAN CLAY (CL)		D47-1I	12	25.3	91	UCC= 2.5 tsf
	5		Yellowish brown, moist, very stiff, sandy LEAN CLAY (CL)		D47-2I	21			
			Brown, moist, medium dense, clayey fine SAND (SC)		D47-3I	28	14.6	87	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 49

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D48

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, LEAN CLAY (CL)						
					D48-1I	16	18.8	96	
	5		Grayish brown, moist, very stiff, sandy LEAN CLAY (CL)						
					D48-2I	26	27.7	100	
	10		Grayish brown, moist, medium dense, clayey SAND (SC)						
					D48-3I	36	25.6	94	
	15		Grayish brown, moist, hard, sandy LEAN CLAY (CL)						
					D48-4I	36			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 50

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D49

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, LEAN CLAY (CL)						
					D49-1I	14	15.9	93	
					D49 @ 0-5'				
			Dark brown, moist, very stiff, sandy LEAN CLAY (CL); variably cemented		D49-2I	31	13.0	110	
	5								
			Dark brown, moist, dense, clayey fine to coarse SAND with gravel (SC)		D49-3I	46	10.8	114	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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Wallace Kuhl & ASSOCIATES

FIGURE 51

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D50

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, very stiff, silty LEAN CLAY (CL)						
					D50-1I	22	17.0	105	
	5		Brown, moist, very stiff, sandy LEAN CLAY (CL)						
					D50-2I	24	20.9	91	
	10				D50-3I	33	19.3	106	
	15		hard		D50-4I	41			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 52

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D51

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks				Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff, sandy LEAN CLAY (CL)						
					D51-1I	10	17.9	87	
			brown, hard						
					D51-2I	39	14.2	88	
	5								
					D51-3I	43	17.7	110	
	10		Boring was terminated at approximately 10.0 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 53

Project: Green Island Logistics Center
Project Location: American Canyon, California
WKA Number: 12883.01

LOG OF SOIL BORING D52

Sheet 1 of 1

Date(s) Drilled	**10/1/20**	Logged By	**DB**	Checked By	**JRY**
Drilling Method	**Solid Flight Auger**	Drilling Contractor	**V&W Drilling**	Total Depth of Drill Hole	**16.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**6**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**2.0" Modified California with 6-inch sleeve**	Drill Hole Backfill	**Neat Cement**
Remarks	**Bulk @ 0-4'**			Driving Method and Drop	**140lb auto. hammer with 30" drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, very stiff, sandy LEAN CLAY (CL)						
					D52-1I	30	14.6		PI
	5		hard		D52-2I	42	16.4	106	UCC= 4.1 tsf
	10				D52-3I	44	16.8	110	
	15				D52-4I	37			
			Boring was terminated at approximately 16.5 feet below existing ground surface. Groundwater was not encountered.						

BORING LOG 12883.01 - GREEN ISLAND LOGISTICS CENTER.GPJ WKA.GDT 11/6/20 3:33 PM

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FIGURE 54

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

MAJOR DIVISIONS		USCS[4]	CODE	CHARACTERISTICS
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS[1] (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels or gravel - sand mixtures, trace or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, trace or no fines
		GM		Silty gravels, gravel - sand - silt mixtures, containing little to some fines[2]
		GC		Clayey gravels, gravel - sand - clay mixtures, containing little to some fines[2]
	SANDS[1] (50% or more of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or sand - gravel mixtures, trace or no fines
		SP		Poorly graded sands or sand - gravel mixtures, trace or no fines
		SM		Silty sands, sand - gravel - silt mixtures, containing little to some fines[2]
		SC		Clayey sands, sand - gravel - clay mixtures, containing little to some fines[2]
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts, gravely silts, and sandy silts that are non-plastic or with low plasticity
		CL		Inorganic lean clays, gravelly lean clays, sandy lean clays of low to medium plasticity[3]
		OL		Organic silts, organic lean clays, and organic silty clays
	SILTS & CLAYS LL ≥ 50	MH		Inorganic elastic silts, gravelly elastic silts, and sandy elastic silts
		CH		Inorganic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
		OH		Organic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

CR = Corrosion
PI = Plasticity Index
EI = Expansion Index
UCC = Unconfined Compression Test (TSF)
TR = Triaxial Compression Test
GR = Gradational Analysis (Sieve/Hydro)
FC = Wash (Fines Content)
PP = Pocket Penetrometer Test (TSF)
PID = Photo Ionization Detector Test (PPM)
RV = Resistance ("R") Value

REF = Refusal (>50 blows in 6 inches)

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS (b)	Above 12"	Above 300
COBBLES (c)	12" to 3"	300 to 75
GRAVEL (g) coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	75 to 4.75 75 to 19 19 to 4.75
SAND coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.075 4.75 to 2.00 2.00 to 0.425 0.425 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

Trace - Less than 5 percent
Few - 5 to 10 percent
Little - 15 to 25 percent
Some - 35 to 45 percent
Mostly - 50 to 100 percent

* Percents as given in ASTM D2488

NOTES:

1. Coarse grained soils containing 5% to 12% fines, use dual classification symbol (ex. SP-SM).
2. If fines classify as CL-ML (4<PI<7), use dual symbol (ex. SC-SM).
3. Silty Clays, use dual symbol (CL-ML).
4. Borderline soils with uncertain classification list both classifications (ex. CL/ML).

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UNIFIED SOIL CLASSIFICATION SYSTEM

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	55
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

APPENDICES

APPENDIX A
General Project Information, Field and Laboratory Test Results

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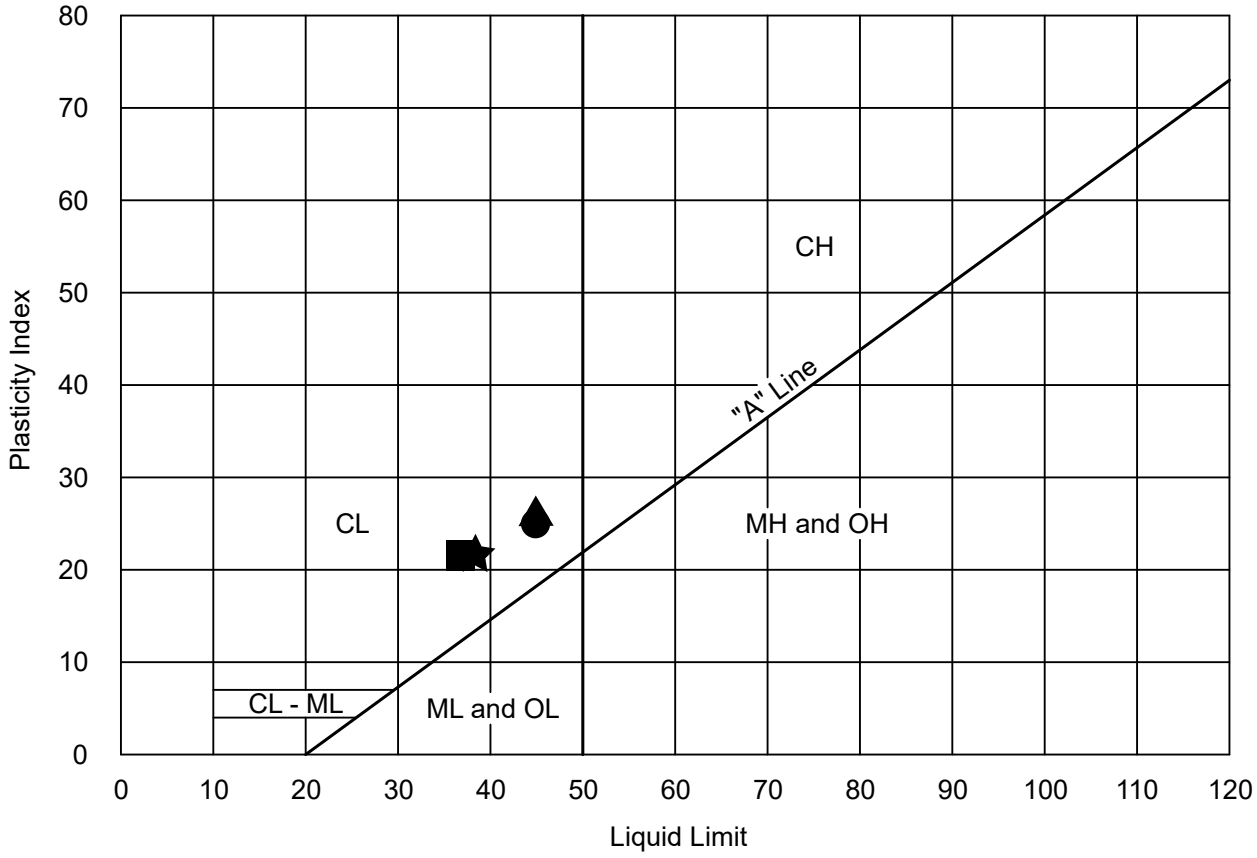
ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D3	0'-4.0'	---	45	25	---	CL
▲	D3-2	6'-6.5'	---	45	27	---	CL
■	D3-5	21'-21.5'	---	37	21	---	CL
★	D3-8	36'-36.5'	---	38	21	---	CL

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ATTERBERG LIMITS

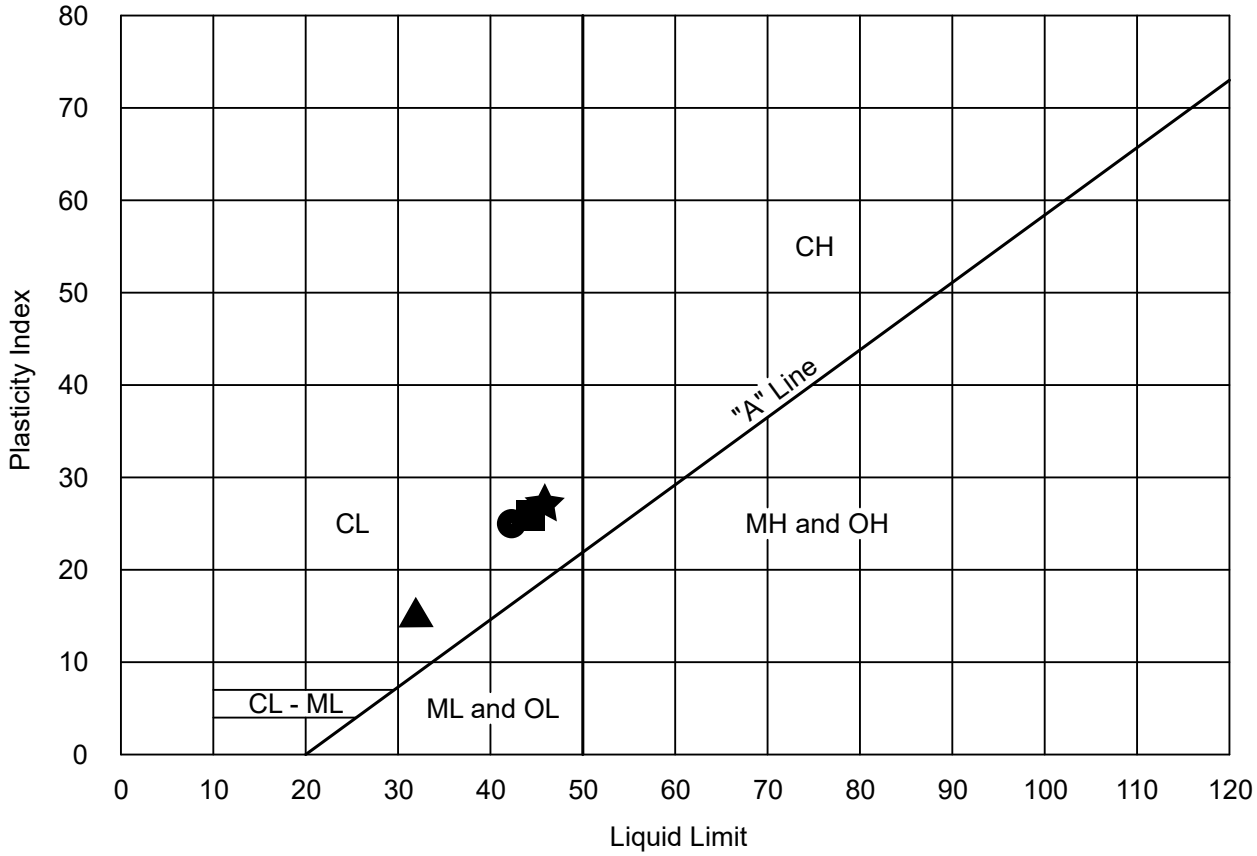
GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO. 12883.01	

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D21	0'-4.0'	---	42	25	---	CL
▲	D21-1	3'-3.5'	---	32	15	---	CL
■	D21-7	21'-21.5'	---	44	26	---	CL
★	D26	0'-4.0'	---	46	28	---	CL

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ATTERBERG LIMITS

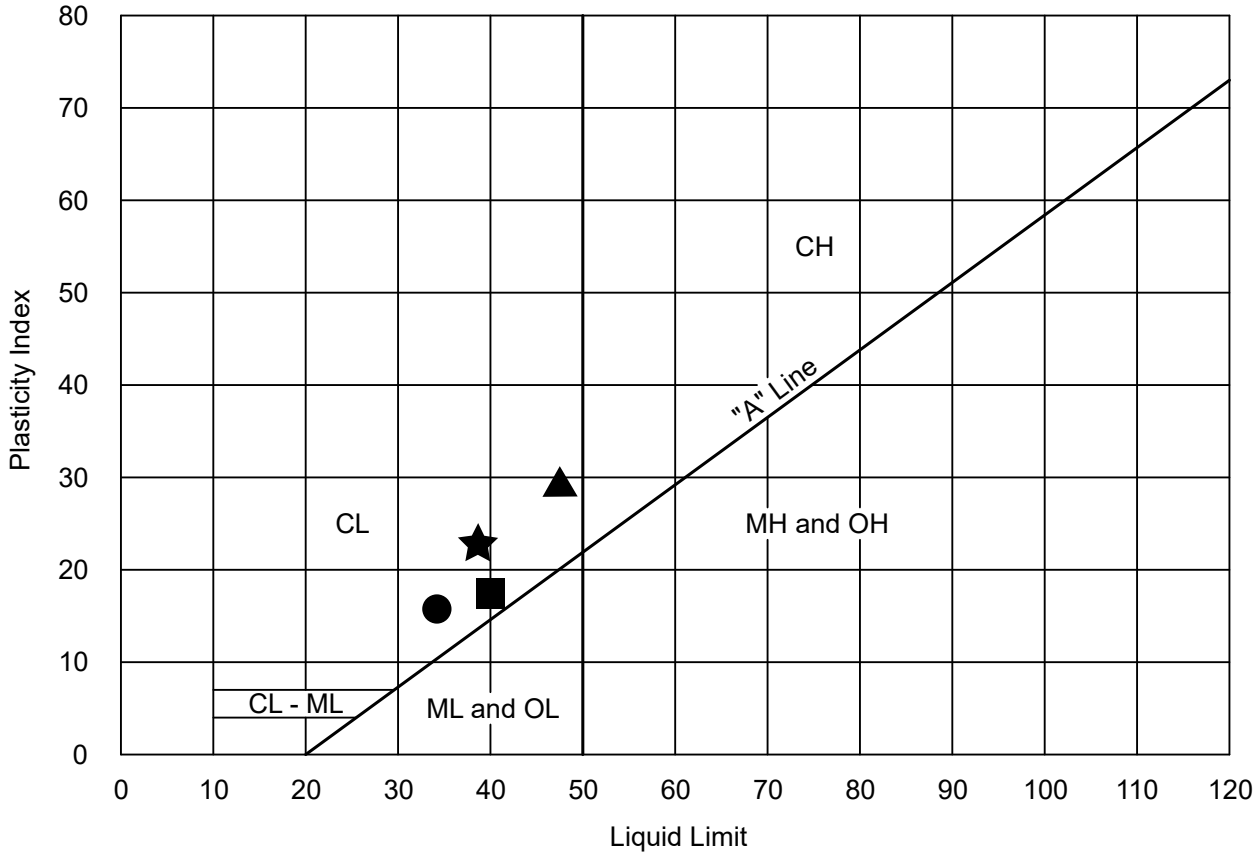
GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO. 12883.01	

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D32-2	6'-6.5'	---	34	16	---	CL
▲	D32-5	21'-21.5'	---	48	29	---	CL
■	D32-8	36'-36.5'	---	40	18	---	CL
★	D40	0'-4.0'	---	39	23	---	CL

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ATTERBERG LIMITS

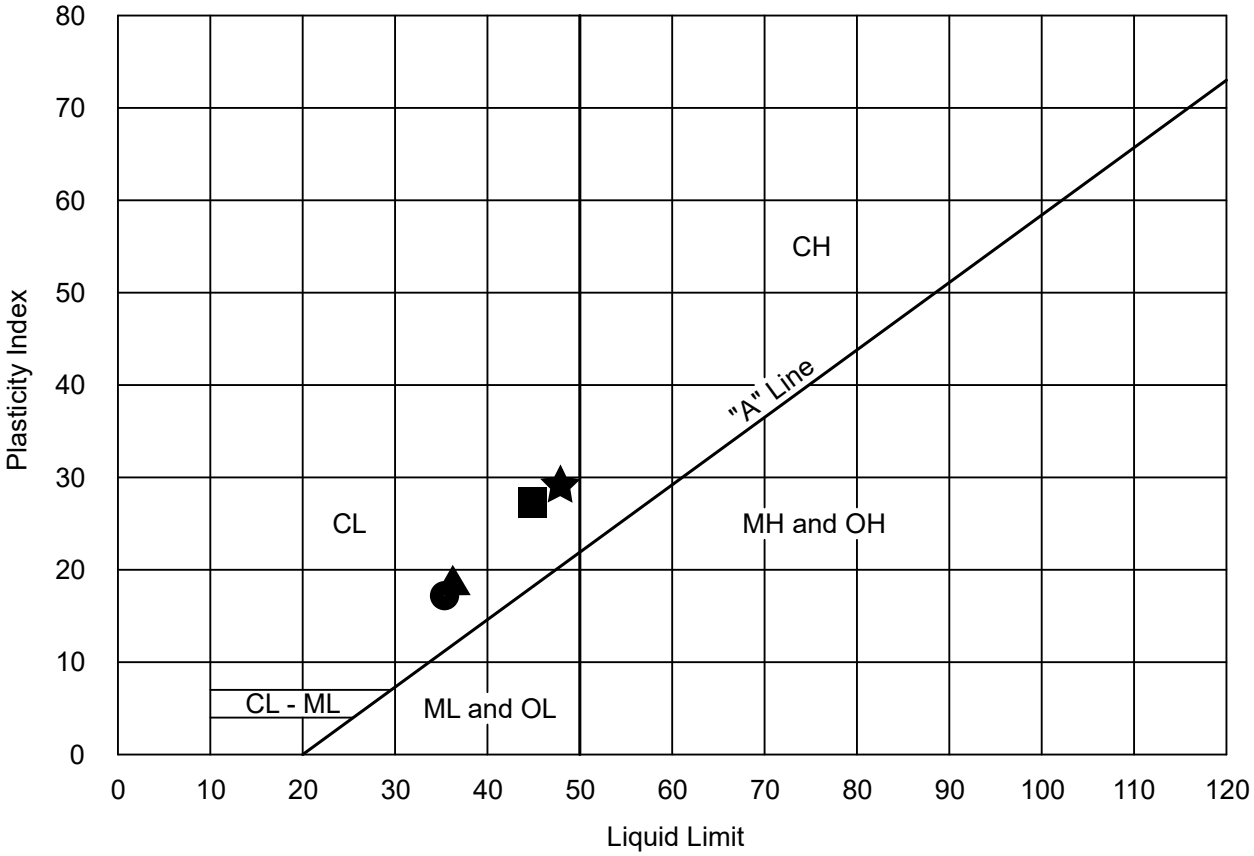
GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO. 12883.01	

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D46-2	6'-6.5'	---	35	18	---	CL
▲	D46-5	21'-21.5'	---	36	19	---	CL
■	D46-8	36'-36.5'	---	45	27	---	CL
★	D52	0'-4.0'	---	48	29	---	CL

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ATTERBERG LIMITS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A4
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO. 12883.01	

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Dark brown, silty lean clay

LOCATION: D3

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 4'	14.5	29.7	93	**39**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	**Low**
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A5
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12883.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, sandy lean clay

LOCATION: D21

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 4'	11.5	21.9	105	**33**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	**Low**
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A6
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12883.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Dark reddish brown, silty lean clay

LOCATION: D26

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 4'	12.0	25.6	104	**95**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	**High**
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A7
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12883.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Light brown, silty lean clay

LOCATION: D40

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0’ - 4’	11.0	25.7	105	**108**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	**High**
Above 130	Very High

* From ASTM D4829, Table 1

Wallace Kuhl & ASSOCIATES

EXPANSION INDEX

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A8
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12883.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, sand lean clay

LOCATION: D52

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 4'	11.0	25.7	105	**101**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	**High**
Above 130	Very High

* From ASTM D4829, Table 1

Wallace Kuhl & ASSOCIATES

EXPANSION INDEX

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A9
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020

WKA NO. 12883.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Dark brown, silty lean clay

LOCATION: B1 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	109	18.2	686	49	212	*

* Sample extruded, therefore R-Value = 5

MATERIAL DESCRIPTION: Dark brown, silty lean clay with 4% lime added

LOCATION: B1 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	104	21.7	355	8	35	83
2	105	21.4	477	10	43	84
3	103	22.4	255	6	26	81

R-Value at 300 psi exudation pressure = 82

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A10
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown, silty lean clay

LOCATION: B2 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	115	15.2	604	31	134	*

* Sample extruded, therefore R-Value = 5

MATERIAL DESCRIPTION: Brown, silty lean clay with 4% lime added

LOCATION: B2 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	109	17.5	360	20	87	85
2	110	17.7	313	21	91	84
3	108	18.1	251	22	95	83

R-Value at 300 psi exudation pressure = 84

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A11
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Dark brown, lean clay

LOCATION: B3 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	112	17.4	638	34	147	*

* Sample extruded, therefore R-Value = 5

MATERIAL DESCRIPTION: Dark brown, lean clay with 4% lime added

LOCATION: B3 (0' - 4')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	122	4.9	350	4	17	87
2	122	5.4	294	1	4	83
3	120	5.8	255	0	0	77

R-Value at 300 psi exudation pressure = 84

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A12
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: D12-2I
Visual Description:
Date Cast 9/28/20
Remarks:

Sample Depth, ft.: N/A
Sample Type: Tube
Age, days: 8

Lab No.: 56490

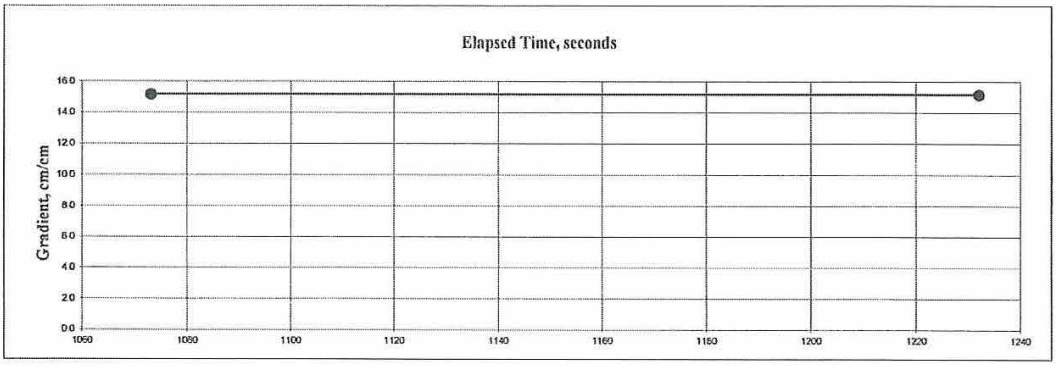
TEST RESULTS

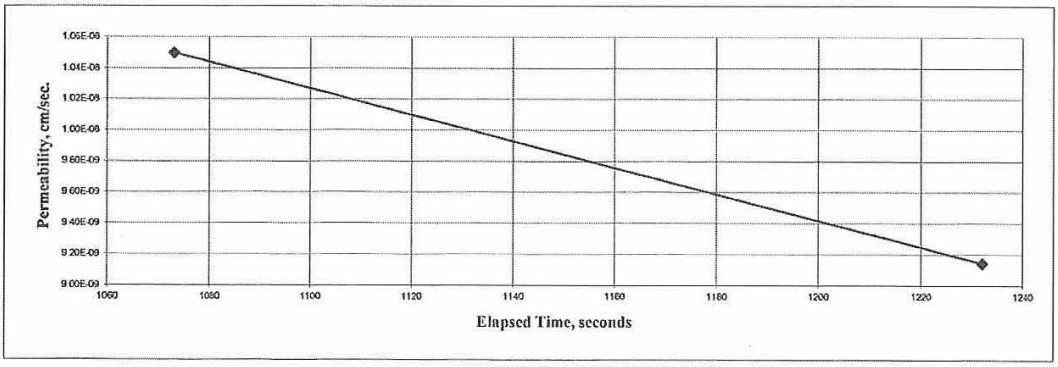
Permeability, cm/sec.: 9.82E-09
Chamber Pressure, psi: 70.0
Back Pressure, psi: 60.0
Consolidation Pressure: 10.0
"B" Coefficient: 79%

Average Hydraulic Gradient: 15.17
Initial Hydraulic Gradient: 15.2
Final Hydraulic Gradient: 15.2
Burrett Area (cm^2): 0.03
Permeant Liquid Used: Tap Water

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	5.87	*Specimen Height, cm:*	5.84
Specimen Diameter, cm:	4.78	*Specimen Diameter, cm:*	4.80
Dry Unit Weight, pcf:	101.2	*Dry Unit Weight, pcf:*	100.0
Moisture Content, %:	22.5	*Moisture Content, %:*	25.3
Specific Gravity, Assumed:	2.70	*Specific Gravity (assumed):*	2.70
Percent Saturation:	92.7	*Final Saturation, %:*	99.4





Test Method: ASTM D5084 Method F

PROJECT NUMBER:	20-239	October 6, 2020

GULF SHORE EXPLORATION AND TESTING
3362 Fitzgerald Road
Rancho Cordova, CA 95742
Phone: (916) 939-4117
Fax: (916) 635-4215

12883.01

WallaceKuhl & ASSOCIATES

HYDRAULIC CONDUCTIVITY TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A13
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: D44-2I
Visual Description:
Date Cast 10/5/20
Remarks:

Sample Depth, ft.: N/A
Sample Type: Tube
Age, days: 1

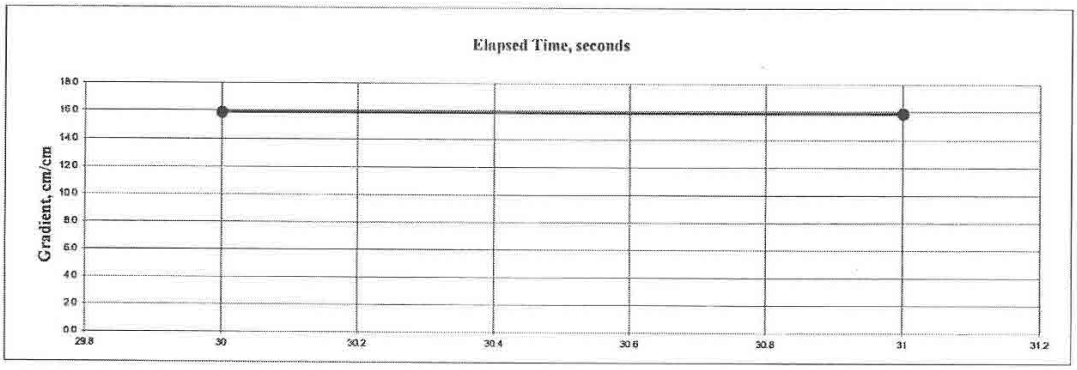
Lab No.: 56517

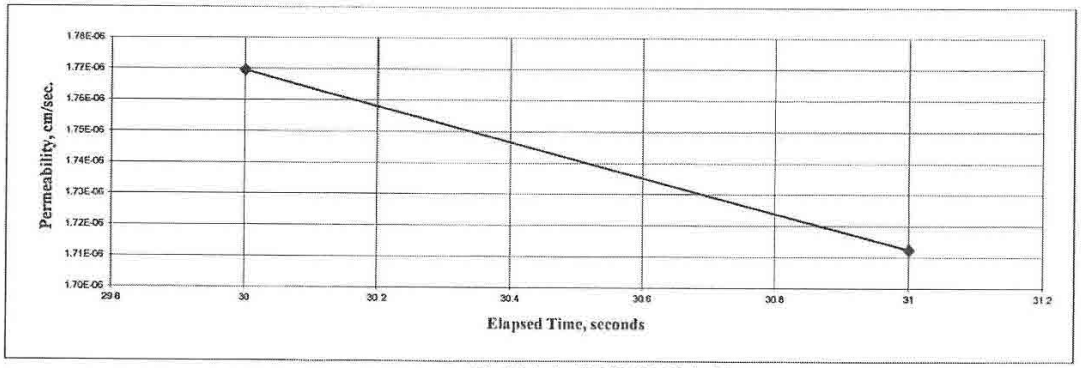
TEST RESULTS

Permeability, cm/sec.:	**1.74E-06**	**Average Hydraulic Gradient:**	**15.89**
Chamber Pressure, psi:	70.0	*Initial Hydraulic Gradient:*	15.9
Back Pressure, psi:	60.0	*Final Hydraulic Gradient:*	15.9
Consolidation Pressure:	10.0	*Burrett Area (cm^2):*	0.03
"B" Coefficient:	95%	*Permeant Liquid Used:*	Tap Water

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	7.98	*Specimen Height, cm:*	7.87
Specimen Diameter, cm:	4.80	*Specimen Diameter, cm:*	4.85
Dry Unit Weight, pcf:	99.3	*Dry Unit Weight, pcf:*	99.5
Moisture Content, %:	25.5	*Moisture Content, %:*	25.3
Specific Gravity, Assumed:	2.70	*Specific Gravity (assumed):*	2.70
Percent Saturation:	96.5	*Final Saturation, %:*	98.4





Test Method: ASTM D5084 Method F

PROJECT NUMBER:	20-239	October 6, 2020

GULF SHORE EXPLORATION AND TESTING

3362 Fitzgerald Road
Rancho Cordova, CA 95742
Phone: (916) 939-4117
Fax: (916) 635-4215

12883.01

WallaceKuhl & ASSOCIATES

HYDRAULIC CONDUCTIVITY TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A□□
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D6@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173476.

EVALUATION FOR SOIL CORROSION

Soil pH	6.48		
Minimum Resistivity	0.54 ohm-cm (x1000)		
Chloride	323.0 ppm	00.03230	%
Sulfate	167.4 ppm	00.01674	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A15
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D6@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173477.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	179.4	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D14@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173478.

EVALUATION FOR SOIL CORROSION

Soil pH	6.89	
Minimum Resistivity	0.22 ohm-cm (x1000)	
Chloride	758.8 ppm	00.07588 %
Sulfate	821.2 ppm	00.08212 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D14@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173479.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	783.1	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A□□
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D22@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173480.

EVALUATION FOR SOIL CORROSION

Soil pH	5.41	
Minimum Resistivity	0.88 ohm-cm (x1000)	
Chloride	61.6 ppm	00.00616 %
Sulfate	185.2 ppm	00.01852 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A□□
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 09/30/2020
Date Submitted 09/25/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D22@0-5FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83114-173481.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	194.2	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D33 @ 0-5 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173600.

EVALUATION FOR SOIL CORROSION

Soil pH	5.78		
Minimum Resistivity	0.38	ohm-cm (x1000)	
Chloride	379.7 ppm	00.03797	%
Sulfate	443.5 ppm	00.04435	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D33 @ 0-5 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173601.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	493.8	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A22
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D40 @ 0-4 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173602.

EVALUATION FOR SOIL CORROSION

Soil pH	6.77	
Minimum Resistivity	0.64 ohm-cm (x1000)	
Chloride	374.8 ppm	00.03748 %
Sulfate	295.9 ppm	00.02959 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D40 @ 0-4 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173603.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	313.5	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES	**CORROSION TEST RESULTS** GREEN ISLAND ROAD LOGISTICS CENTER American Canyon, California	FIGURE A2 DRAWN BY RWO CHECKED BY JRY PROJECT MGR GHG DATE 11/2020 WKA NO. 12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D49 @ 0-5 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173604.

EVALUATION FOR SOIL CORROSION

Soil pH	6.72		
Minimum Resistivity	1.07 ohm-cm (x1000)		
Chloride	9.0 ppm	00.00090	%
Sulfate	3.0 ppm	00.00030	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A25
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 10/09/2020
Date Submitted 10/05/2020

To: Kylie Lim
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12883.01 Site ID : D49 @ 0-5 FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 83178-173605.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	3.1	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

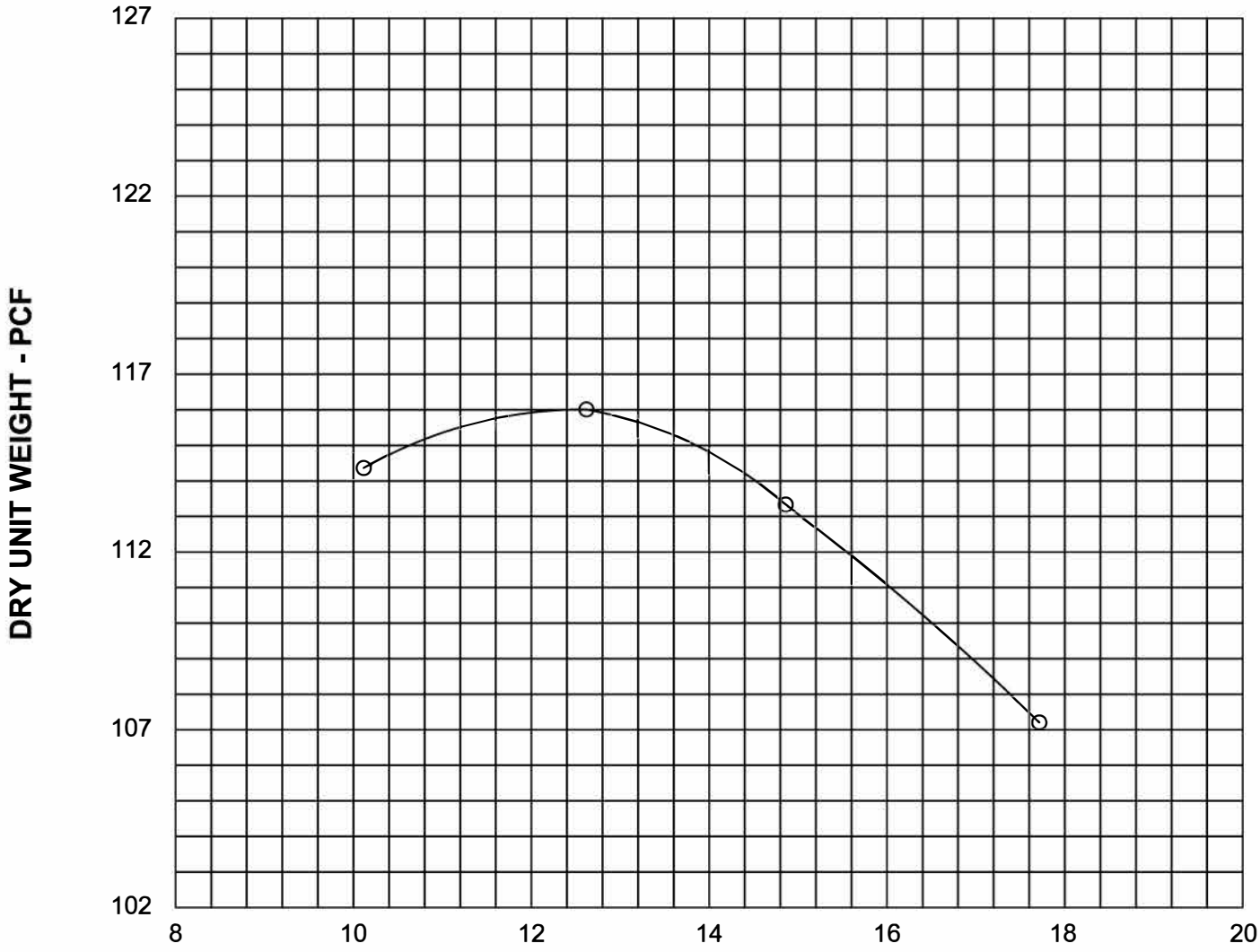
CORROSION TEST RESULTS

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A26
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	11/2020
WKA NO.	12883.01

MOISTURE-DENSITY RELATION



Material: Dark reddish brown, sandy lean clay

Location: D15 (0' - 5')

Test Method: ASTM D1557 "A"

Maximum Dry Unit Weight - PCF: 116.0

Optimum Moisture - %: 12.4

WallaceKuhl & ASSOCIATES

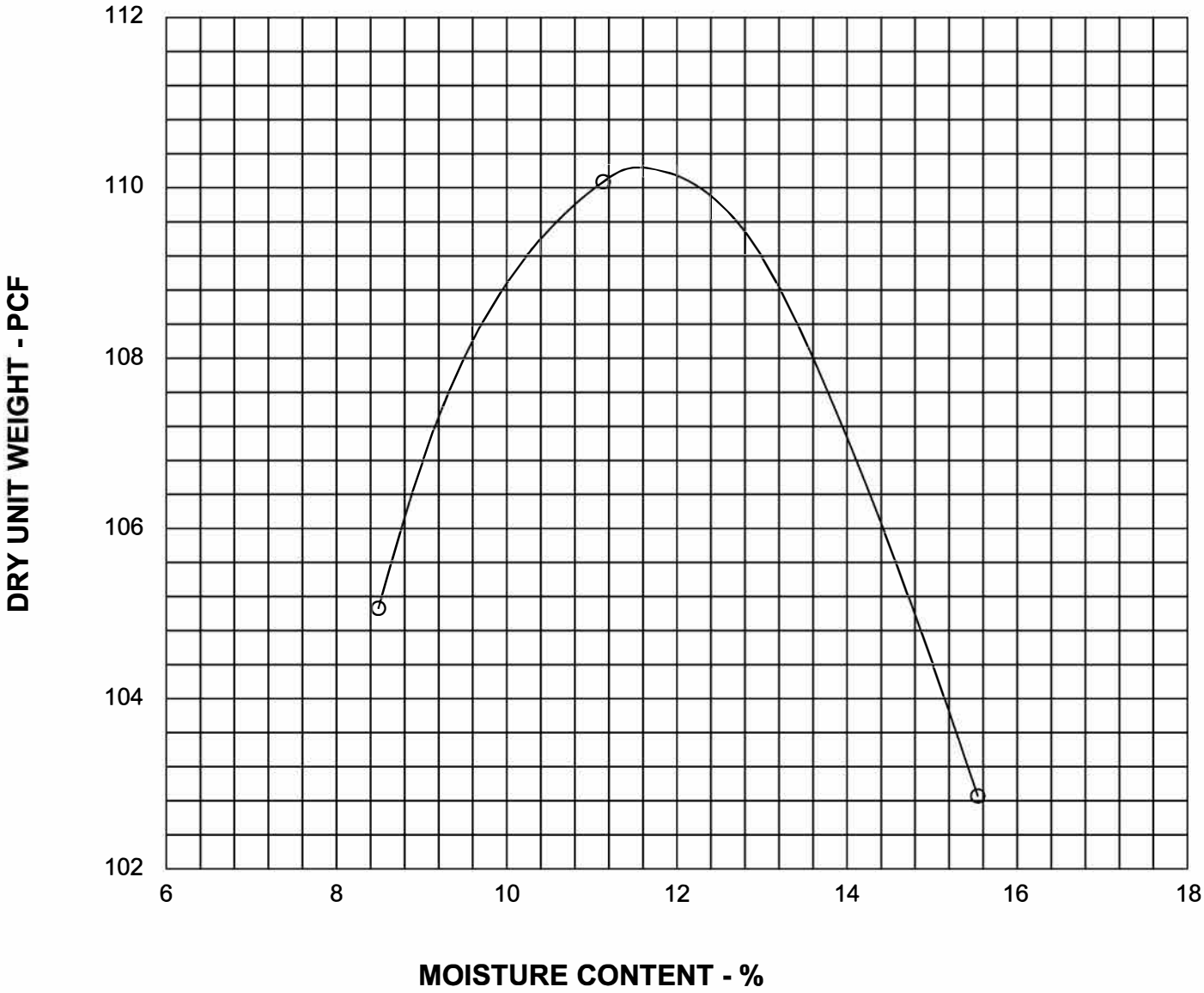
COMPACTION CURVE

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A27
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	
WKA NO.	1393

MOISTURE-DENSITY RELATION



Material: Light brown, silty lean clay

Location: D38 (0' - 4')

Test Method: ASTM D1557 "A"

Maximum Dry Unit Weight - PCF: 110.5

Optimum Moisture - %: 11.6

WallaceKuhl & ASSOCIATES

COMPACTION CURVE

GREEN ISLAND ROAD LOGISTICS CENTER

American Canyon, California

FIGURE	A28
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	GHG
DATE	
WKA NO.	1394

APPENDIX B
Guide Earthwork Specifications

□□R□□□□ G□□□R□□

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CORNERSTONE EARTH GROUP

TYPE OF SERVICES	G□□□

CORNERSTONE EARTH GROUP

Type of Services	**Geological Fault Investigation** **New Sanitary Sewer Main**
Project Name	**Giovannoni Property**
Location	**Devlin Road** **American Canyon, California**
Client	**Orchard Partners, LLC**
Client Address	**3697 Mt. Diablo Boulevard, Suite 200** **Lafayette, California**
Project Number	**582-4-1**
Date	**November 2, 2017**

Prepared by **Ryan A. McKee, P.G.**

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CORNERSTONE EARTH GROUP

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APPENDIX A: SEISMIC DESIGN AND ASSESSMENT GUIDLINES

Type of Services	**Geologic Fault Investigation**
Project Name	**Giovannoni Property**
Location	**Devlin Road** **American Canyon, California**

SECTION 1: INTRODUCTION

[illegible]

- [illegible]
- [illegible]

1.1 PROJECT DESCRIPTION

[illegible]

1.2 SCOPE OF SERVICES

[illegible]

and the Property Owner's representatives to [illegible]

1.3 GROUND WATER EXPLORATION PROGRAM

1.4 FAULT INVESTIGATION EXPLORATION PROGRAM

under the supervision of Cornerstone's Certified Engineering Geologist.

1.5 ENVIRONMENTAL SERVICES

[illegible]

SECTION 2: REGIONAL SETTING

[illegible]

2.1 REGIONAL GEOLOGIC SETTING

[illegible]

H[illegible]averas Faults and others (see the “Faulting” section of this report)[illegible]

2.2 LOCAL GEOLOGY

[illegible]

H[illegible]fan deposits (“Qf”)[illegible]Late Pleistocene fan deposits (“Qpf”) and Early to middle Pleistocene [illegible]fan or terrace deposits (“Qoa”).[illegible]The Qf unit is described as; “G[illegible]

[illegible] age is indicated by slight dissection and/or the development of alfisols." [illegible]

[illegible] described as "Fluvial gravel, sand, silt, and clay". [illegible] in the "Faulting" section of this report [illegible]

2.3 REGIONAL SEISMICITY

[illegible]

Table 1: Approximate Fault Distances

Fault Name	Distance (miles)	Distance (kilometers)
[illegible]	[illegible]	[illegible]
Gr[illegible]	[illegible]	[illegible]
R[illegible]	[illegible]	[illegible]
H[illegible]	[illegible]	[illegible]
Gr[illegible]	[illegible]	[illegible]
H[illegible]	[illegible]	[illegible]
Gr[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

SECTION 3: SITE CONDITIONS

[illegible]

3.1 RECENT HISTORY

[illegible]

[illegible]

[illegible]

[illegible]

3.2 SURFACE DESCRIPTION/GEOMORPHOLOGY

[illegible]

3.3 GROUND WATER INVESTIGATION

[illegible]

Gr[illegible] ter[illegible] M[illegible] Gr[illegible] ter[illegible] r[illegible] M[illegible] r[illegible] M[illegible] r[illegible] M

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULTING

[illegible]

[illegible]

[illegible]

[illegible]" Bryant noted the [illegible]"

[illegible] DMG [illegible] ("AP Zone") trends [illegible]

[illegible] ("SNE") [illegible]

[illegible]

rupture didn't jump the gap "releasing"

4.1.1 Proposed Sewer Line

4.2 FAULT SURFACE RUPTURE

evaluations, faults are considered "active" if they display evidence of movement within Holocene time (the last 11,000 years), and "potentially active" if they display evidence of movement within the "Mitigating Fault Surface Ruptures" section of this report

4.2.1 Previous Consultant's Studies

locate and/or "clear"

nt's investigation sites.

[1] i.e., prove lack of evidence for fault surface traces trending through the investigation area.

D r M r Myers stated: “No prominent slickensid d r r d H 2 2 r d H d M r r d r r r d r r r

the previous consultant's investigations performed within the ar

ity's reviewing geologist (Mr. James

Cornerstone's Certified Engineering Geologist. Trenches were exca

4.2.2 Current Fault Investigation

M r r d d d d
r r G Mr r d d r
rr d r d r r
2 2 r
r d r 2 r r r d
r 5 d d r r d
2 5 r d r d r d
r d r r d r r
r r d r r d r r r
r d r re Bezore's mapping indicates the surficial deposits
r r H r r r dd
r rd r G r d r r
d r r d r r r r d
r r d d r rr d d
r d r r r d r r
r r r r d d r d r
d r r r d d r
D r r r d d r d r
r r d r d r r r r r
r d r r d r r 2 2
r r r 5 r d 2
r r d r r r
r r r r r d
d r d r d r r d r r d r
2 2 2 r 2
r 2 d r d r d r 2 r
r r d r r r
r 2 d r d d r rr r r
r r d r 2 r d r
r r r 2 d r d r r
r 5 r 2 d d r 2
extended through an area where Bezore's map shows four geologic units (which include from
H d
r r 2 d r d r d d
d R d d r rd r rr d
d H r d d d r
d rr d d r d d
H r r d d r 5 r 2
d r d r 2 r r

G R R
5 2

4.2.3 Encountered Geologic Units in Exploratory Trenches

Unit 1–H

□ □□□□ □□□□□ □ □□□□□□□□ □□□□H□□□□□□□□□□□□□□□r□□□□□□□□□□□ □□□□□□□d□r□□□□r□□□ □□□□□□□□r□□□ □□□□□□□□R□□□□2□□□□□□□□□□□□□□□

4.2.4 Field Investigation Summary

SECTION 5: CONCLUSIONS

5.1 SUMMARY

5.2 MITIGATING FAULT SURFACE RUPTURE

As already noted, the identified “habitable building exclusion zone shown

SECTION 6: LIMITATIONS

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SECTION 7: REFERENCES

Bailey Scientific, 1991, Geologic Hazards Investigation, Struble Property, Parcel “B”, Green

California Division of Mines and Geology (2008), “Guidelines for Evaluating and Mitigating

G r G r R r r r r
d — d r r r r d r
M D r r 5 r 2 d
G r G d G H rd
H d H rd r
of Jehovah's Witnesses, Commerce & Hanna Drives, American Canyon, California:
d r r 2 2 2
G 2 5 G H rd d r r G
H d r d
G r 2 5 r r d r D G
D r 2 5 r d d
Gr r R r M H r d r 2 M
r r r r G r
M M 2 2 5
H rd D R 2 r 2 r
r d r r
2
H rd r H r
referenced in d r 2 d rr r
H r d r r r rd
r r D M d G 2
revised d 2 dd d
H d H rd D G M r r d
r r r r r G r M d
d M M 25
H Gr r R G r d r M
r r r r d d M
r d d G r R r 2
5
H d 2 r r r 2 2 R r r G
M r r r H 5 5 DR
D d H r DH R r rd
r R d d 5 2 Dr r
r d r r r d r Mr D d r r 22

G R R 2
5 2

https://dx.doi.org/10.3133/ofr20141249

[illegible] Assessor's Parcel No. 059 [illegible] located on Napa County Tax Assessor's Parcel No. [illegible]

R□□□□□G□□□□□□□□□□□□□□2□□□□□□□□□□□□□□□□R□□□□r□H□□□rd□□□□□□□□□□□□□□□Gr□□□□□□□□□□d□
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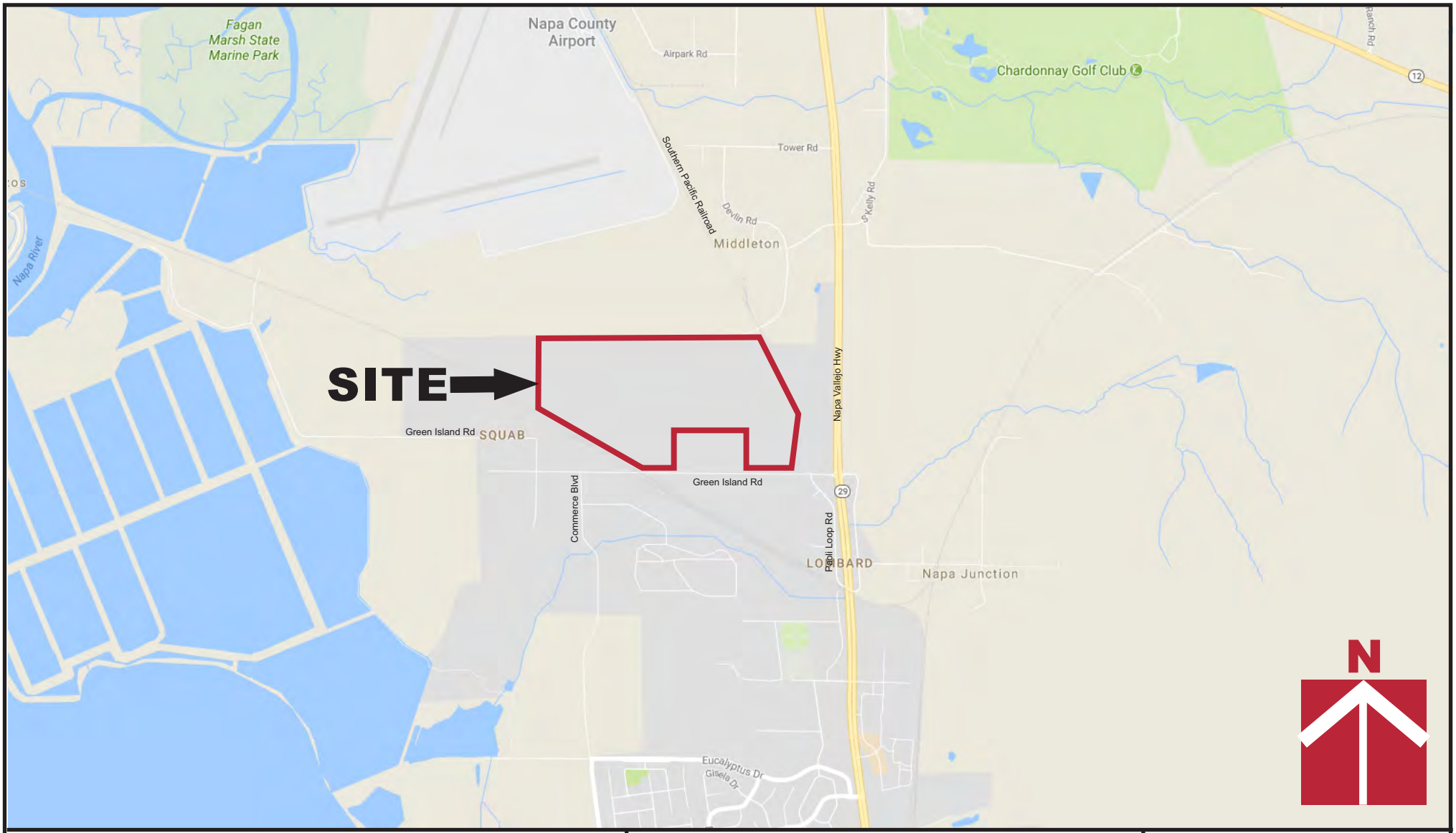
Aerial Photographs:

Description				



CORNERSTONE EARTH GROUP

Vicinity Map

Giovannoni Property
American Canyon, CA

Project Number	582-4-1
Figure Number	Figure 1
Date	October 2017
Drawn By	RR

1437

Earthquake Regulatory Zone

Devlin Road

Southern Pacific Railroad

MW-1 through MW-7
(numbered west to east)

Trench 1

MW-8 through MW-12
(numbered west to east)

Trench 2B

Trench 2A

Existing sewer line

Proposed lift station

Earthquake Regulatory Zone

Green Island Road

Approximate Site Boundary

N

0 400 800

APPROXIMATE SCALE (FEET)

Legend

Approximate location of trench

Approximate location of temporary monitoring well

Approximate mapped location of the West Napa Fault

Bryant et al., 1982

Gryamer et al., 2002

Base by Google Earth, dated 5/20/2017
Overlay: Topographical Map, undated

Project Number 582-4-1

Figure Number Figure 2

Drawn By RRN

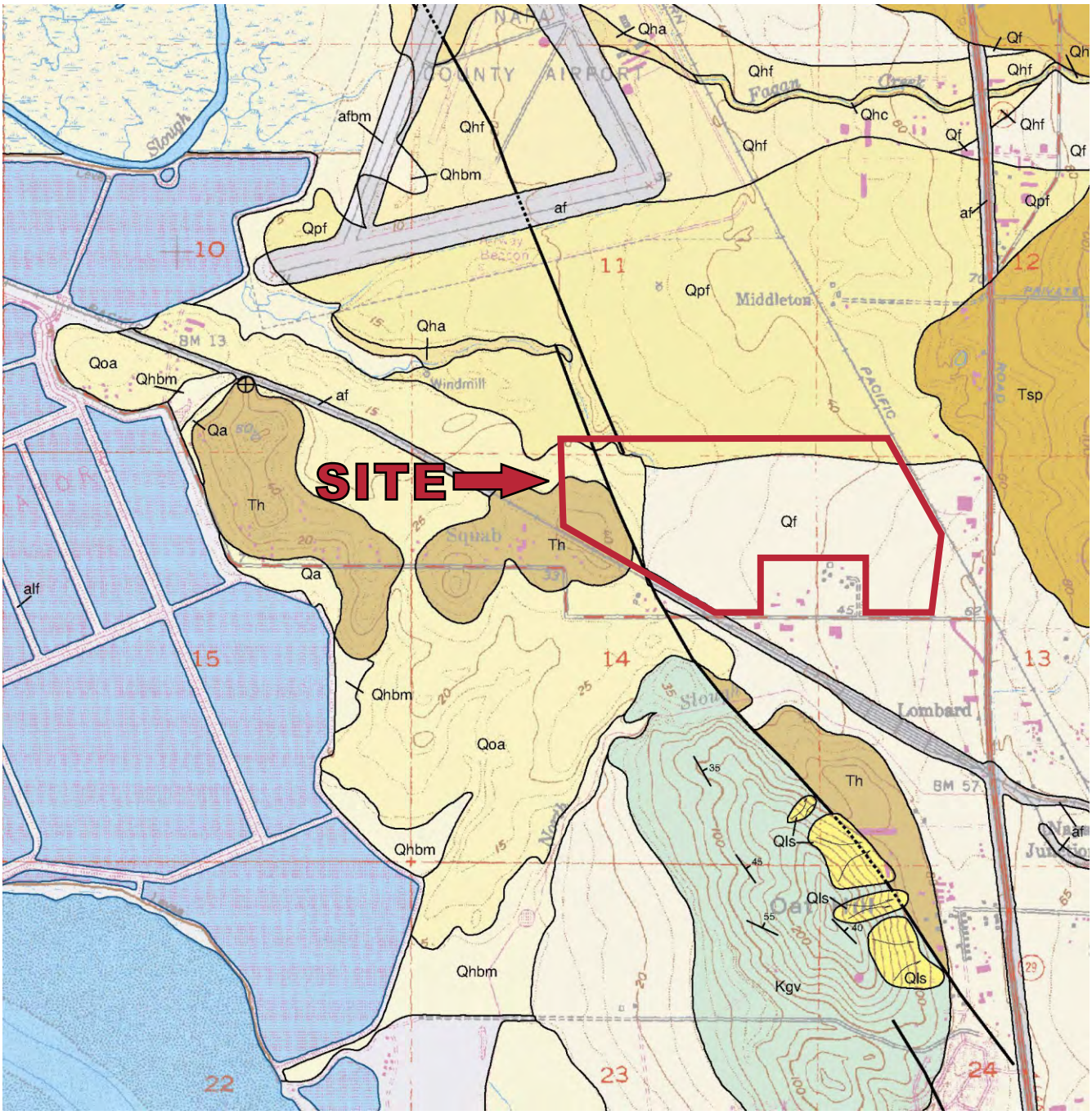
Date October 2017

Site Plan

Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

1438



GEOLOGIC MAP OF THE CUTTINGS WHARF 7.5' QUADRANGLE
NAPA AND SOLANO COUNTIES, CALIFORNIA: A DIGITAL DATABASE
by Stephen Bezore, Carolyn E. Randolph-Loar, and Robert C. Witter

Geologic Units

af Artificial fill

Qha Holocene alluvium, undifferentiated

Qf Late Pleistocene to Holocene fan deposits

Qpf Late Pleistocene fan deposits

Qoa Early to middle Pleistocene fan or terrace deposits

Th Huichica Formation (Pliocene)
Fluvial gravel, sand, silt, and clay

Explanation

Contact- dashed where approximate, dotted where concealed

Fault - solid where accurately located, dashed where approximately located; short dash where inferred; dotted where concealed

N

0 2000 4000

APPROXIMATE SCALE (FEET)

CORNERSTONE EARTH GROUP

Vicinity Geologic Map

Giovannoni Property
American Canyon, CA

Project Number: 582-4-1

Figure Number: Figure 3

Date: October 2017

Drawn By:

1439

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700		? ? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene			? ? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

Base by USGS, California Quaternary Faults, Cooperator California Geological Survey

N

0 4 8

APPROXIMATE SCALE (MILES)

Project Number 582-4-1

Figure Number Figure 4

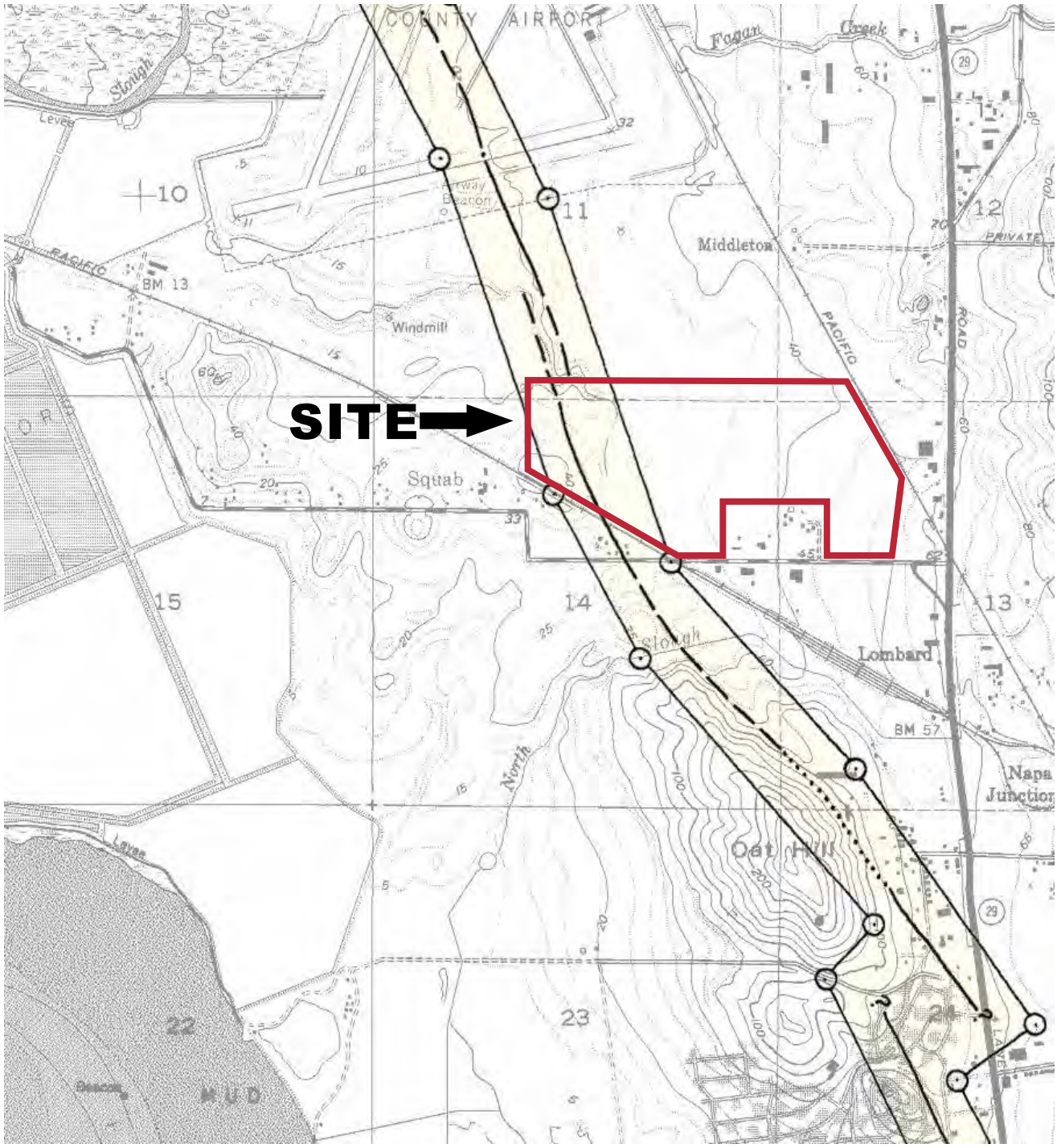
Date October 2017

Drawn By RRN

Regional Fault Map

Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP



MAP EXPLANATION

Potentially Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection of zone boundary.

N

0 2000 4000

APPROXIMATE SCALE (FEET)

Base: State of California, Special Studies Zones, Cutting Wharf Quadrangle

CORNERSTONE EARTH GROUP

AP Earthquake Regulatory Zone Map

Giovannoni Property
American Canyon, CA

Project Number: 582-4-1

Figure Number: Figure 5

Date: October 2017

Drawn By:

1441

Approximate Location of Previous Investigation

1 - Darwin Meyers Associates, 1983
2 - Wesling and Hanson, 2008
3 - Earthtec Limited, 1989
4 - EMRI, 1979
5 - EMRI, 1983
6 - Bailey Scientific, 1989
7 - Bailey Scientific, 1990
8 - Kleinfelder, 1984a, 1984b
Balbi and Chang, 1984
9 - Kleinfelder, 1983
10 - Herzog, 1988, 1989a, 1989b
11 - Bay Soils, 1979
12 - Darwin Meyers Associates, 1985
13 - Kleinfelder, 1990a, 1990b, 1990c
14 - Cornerstone, 2016

N

0 2000 4000

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 5/26/2014

CORNERSTONE EARTH GROUP

Previous Local Investigations within 2¼ Miles

Giovannoni Property
American Canyon, CA

Project Number: 582-4-1

Figure Number: Figure 6

Date: October 2017

Drawn By:

1442

Earthquake Regulatory Zone

Devlin Road

Southern Pacific Railroad

Qha

Qpf

Trench 1

Qoa

Qf

West Napa Fault

Th

Trench 2B

Trench 2A

Qha

Existing sewer line

Proposed lift station

Green Island Road

Approximate Site Boundary

Geologic Units

Qha	Holocene alluvium, undifferentiated
Qf	Late Pleistocene to Holocene fan deposits
Qpf	Late Pleistocene fan deposits
Qoa	Early to middle Pleistocene fan or terrace deposits
Th	Huichica Formation (Pliocene) Fluvial gravel, sand, silt, and clay

Legend

- Approximate location of trench
- Approximate Earthquake Regulatory Zone
- Approximate location of seasonal unnamed creek
- Approximate location of West Napa Fault (this investigation)
- 50 ft setback

N

0 400 800

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 5/20/2017
Overlay: Topographical Map, undated

Project Number 582-4-1

Figure Number Figure 7

Drawn By RRN

Date October 2017

Fault Investigation

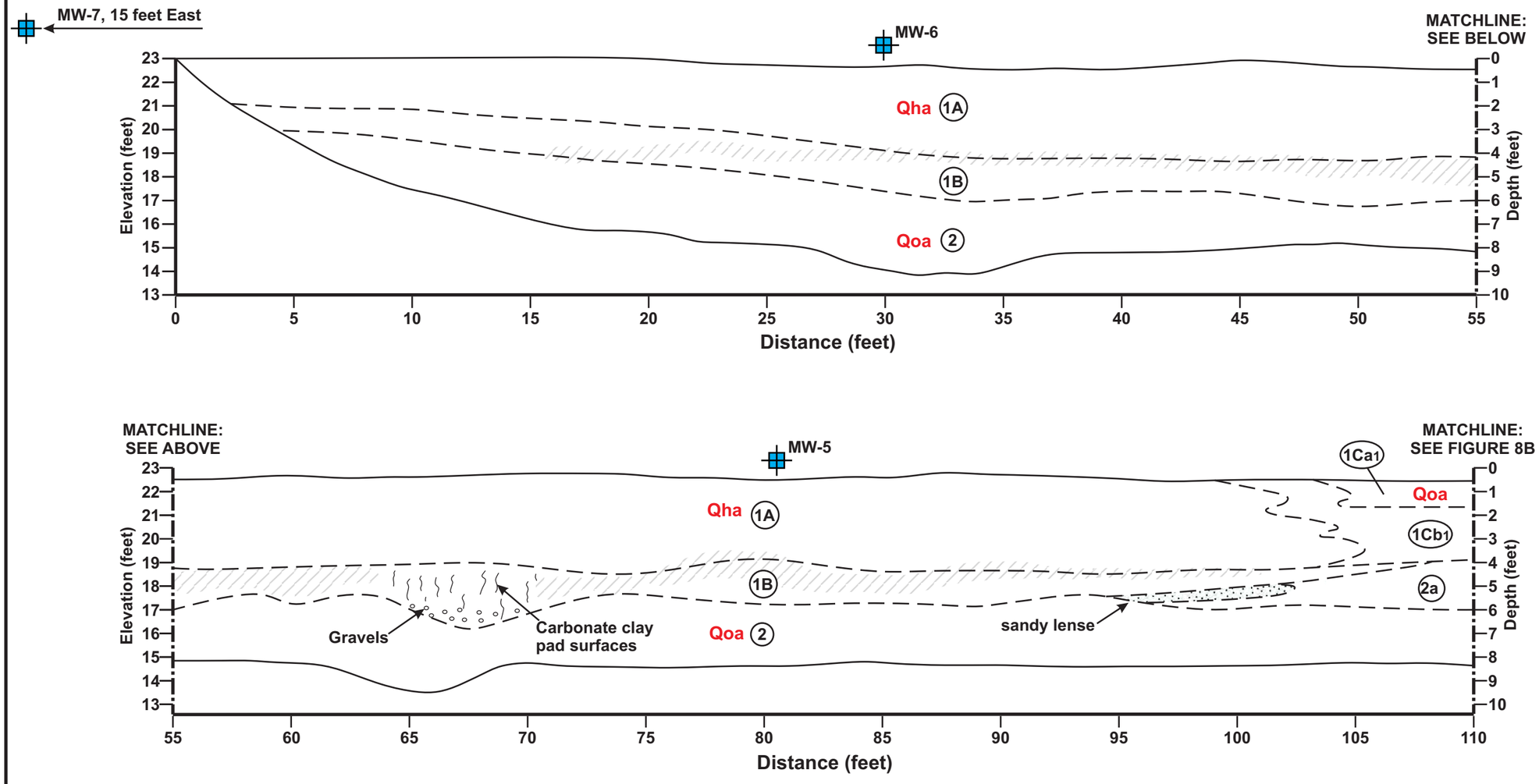
Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

1443

Trench 1

(View Looking South)
1"=5' H:V



Disseminated carbonate (I & II)

Unit 1 – Holocene soils

Qha **1A** **Clay [CL/CH]:**
stiff to very stiff, moist, dark brown to brown [10YR 3-2/1] with fine sand and occasional fine to coarse gravels. Block and prismatic A- and B-horizon soils.

1B **Sandy clay [CL]:**
stiff, moist, brown to gray brown [2.5YR 4-3/2] with fine to medium sand and occasional fine sub-rounded gravels. Weak to moderate blocky B-horizon soils.

Qoa **1Ca1** Dark gray [10YR 4/1] clay with fine sands. A-horizon soils with moderately granular to weak blocky structure.

1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa **2** **Clayey sand and sandy clay with gravel [SC]:**
dense and stiff, moist to wet, light brown to gray [2.5Y 6/2-4/3] fine to medium sands and clays.

Project Number 582-4-1
Figure Number Figure 8A
Drawn By RRN
Date October 2017

Trench 1

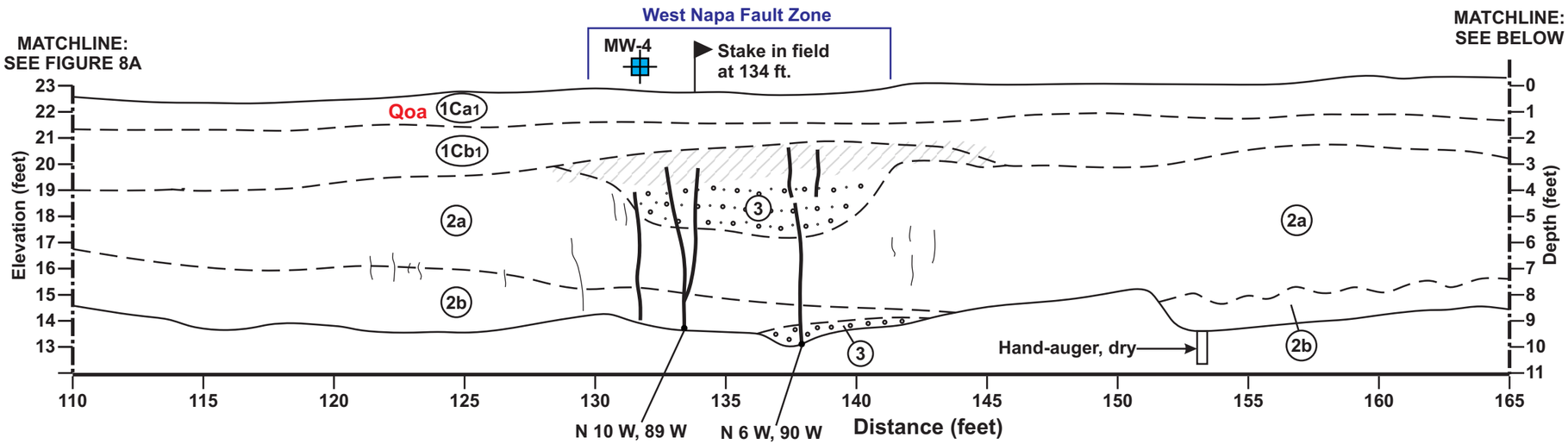
Giovannoni Property
American Canyon, CA

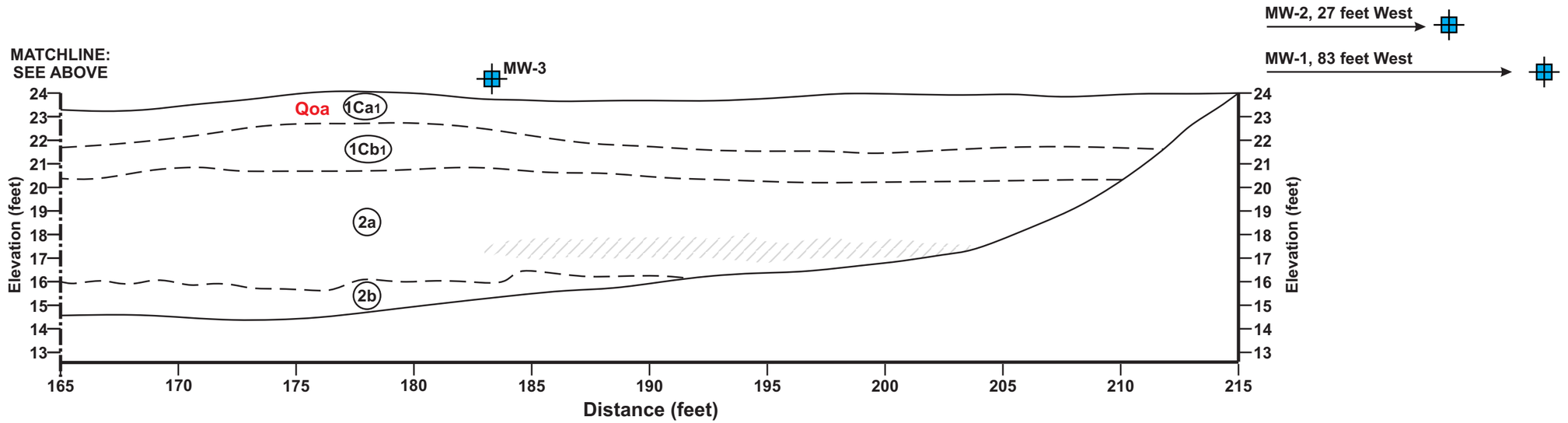
CORNERSTONE EARTH GROUP

Trench 1 (continued)

(View Looking South)
1"=5' H:V

S 88 W





Disseminated carbonate (I & II)

Unit 1 – Holocene soils

Qoa **1Ca1** Dark gray [10YR 4/1] clay with fine sands. A-horizon soils with moderately granular to weak blocky structure.

1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa **2a** **Sandy clay [SC]:**
stiff, moist to wet, light brown [2.5Y 6/3] with fine to medium sands.

2b **Clayed sands [CL]:**
dense, moist to wet, light brown [2.5Y 5/2] with occasional sub-angular to sub rounded gravels. Orange mottles [10YR 5-4/4] common above the saturated zone.

Unit 3 – sandy channel deposits

Qoa **3** **Clayey sand with gravels [SC]:**
dense, moist, light brown to brown [10YR 4/2-3/4] with sub-angular to sub-rounded shale and chert.

Project Number 582-4-1
Figure Number Figure 8B
Drawn By RRN
Date October 2017

Trench 1 (continued)

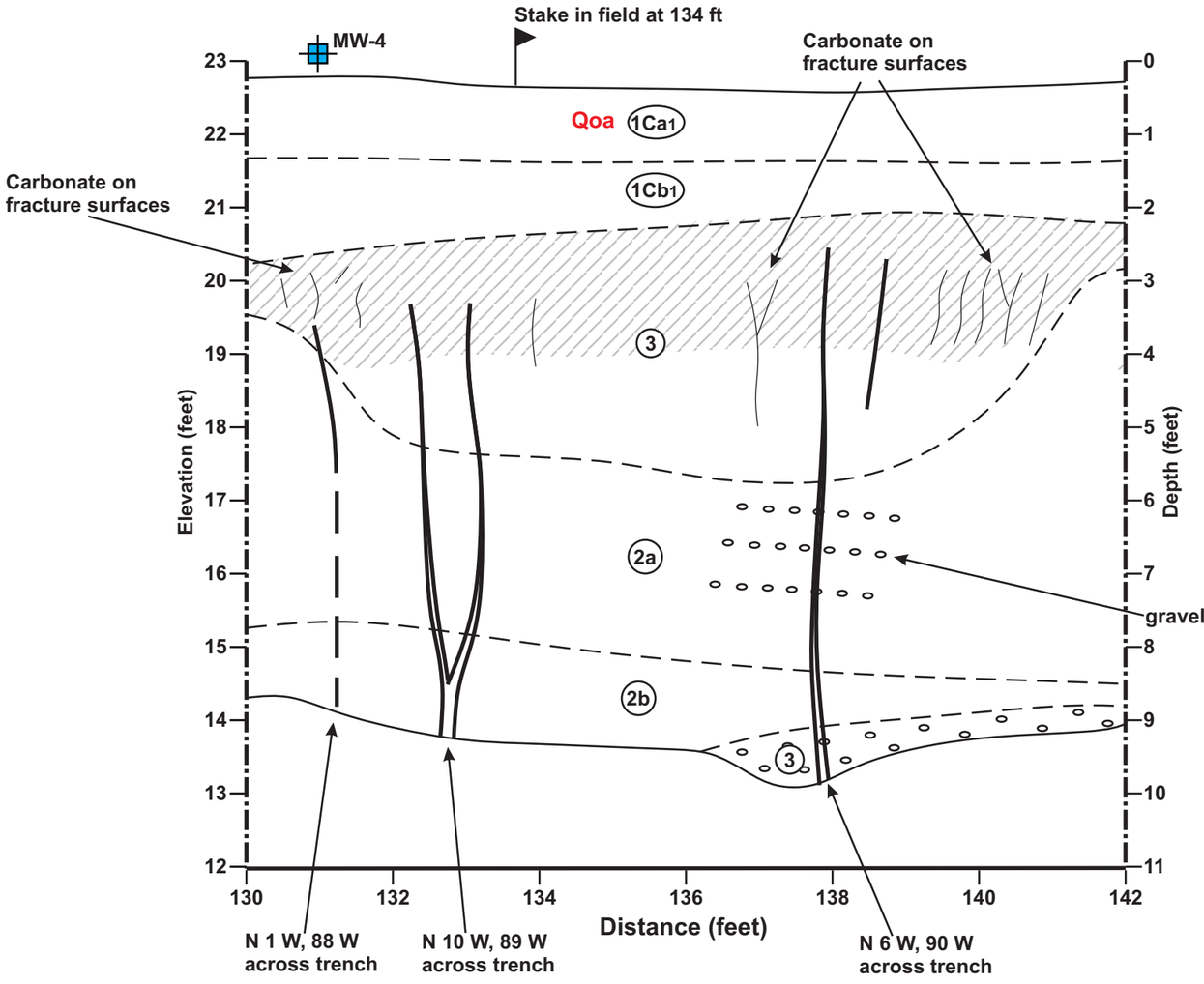
Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

Detail of Trench 1 (130' to 142')

(View Looking South)
1"=5' H:V

S 88 W



Unit 1 – Holocene soils

Qoa **1Ca1** Dark gray [10YR 4/1] clay with fine sands. A-horizon soils with moderately granular to weak blocky structure.

1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa **2a** **Sandy clay [SC]:**
stiff, moist to wet, light brown [2.5Y 6/3] with fine to medium sands.

2b **Clayed sands [CL]:**
dense, moist to wet, light brown [2.5Y 5/2] with occasional sub-angular to sub rounded gravels. Orange mottles [10YR 5-4/4] common above the saturated zone.

Unit 3 – sandy channel deposits

Qoa **3** **Clayey sand with gravels [SC]:**
dense, moist, light brown to brown [10YR 4/2-3/4] with sub-angular to sub-rounded shale and chert.

Disseminated carbonate (I & II)

Project Number	582-4-1
Figure Number	Figure 8C
Drawn By	RRN
Date	October 2017

Detail of Trench 1 (130' to 142')

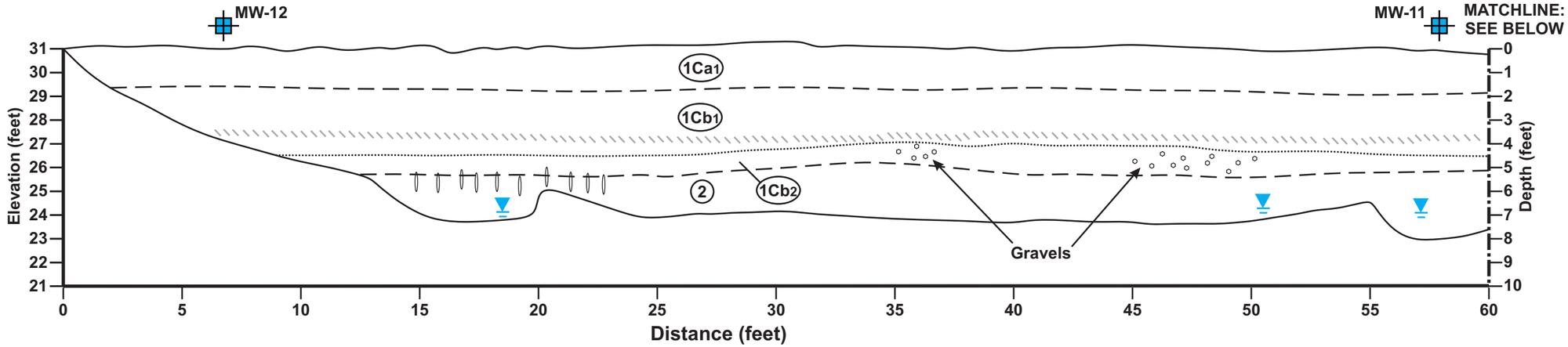
Giovannoni Property
American Canyon, CA

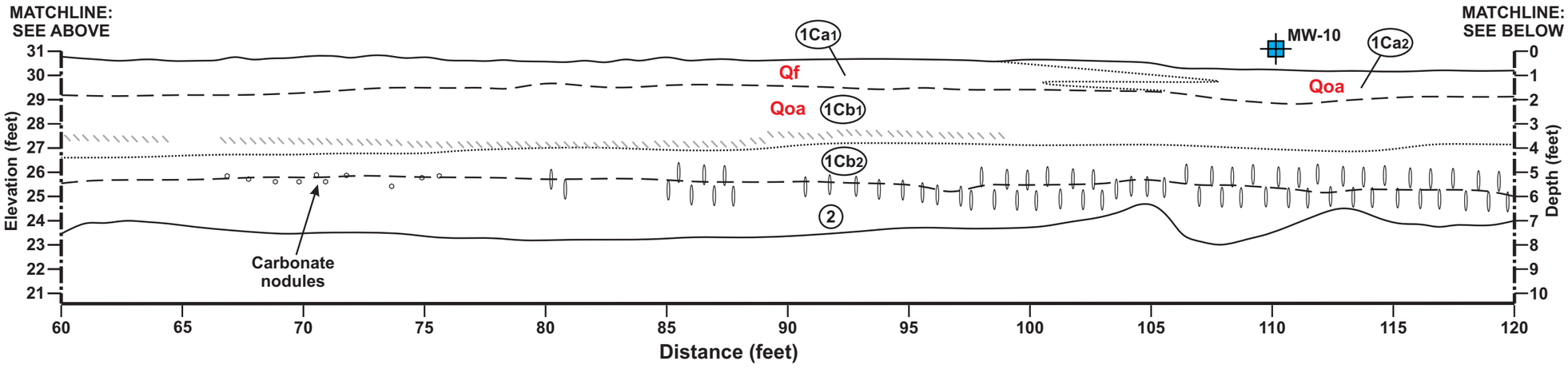
CORNERSTONE EARTH GROUP

Trench 2A

(View Looking South)
1"=5' H:V

N 83 E





Hematite concretions

Disseminated carbonate and carbonate concretions (I, II, & III)

Unit 1 – Holocene soils

Qf	1Ca1	Dark gray [10YR 4/1] clay with fine sands. A-horizon soils with moderately granular to weak blocky structure.
Qoa	1Ca2	Dark gray [5YR 4/1] clay with fine sands and occasional well-rounded gravels at base of horizon. A-horizon soils with massive to moderately granular structure.
	1Cb1	Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.
	1Cb2	Brown to gray brown [10YR 4/3 – 5/2] clay with fine sands. B-horizon soils with moderate blocky structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa	2	**Clayey sand and sandy clay with gravel [SC]:** dense and stiff, moist to wet, light brown to gray [2.5Y 6/2-4/3] fine to medium sands and clays.

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Figure Number Figure 9A
Drawn By RRN
Date October 2017

Trench 2A

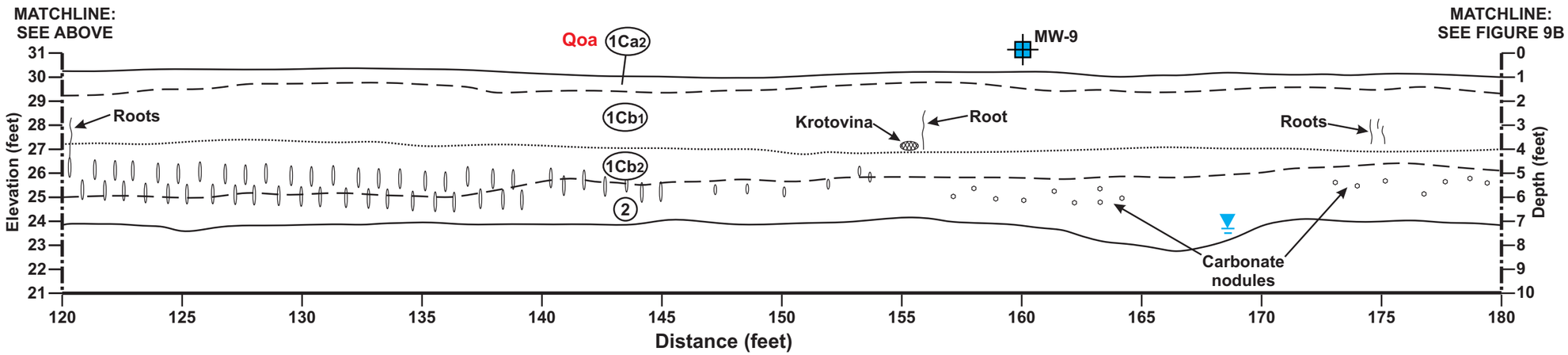
Giovannoni Property
American Canyon, CA

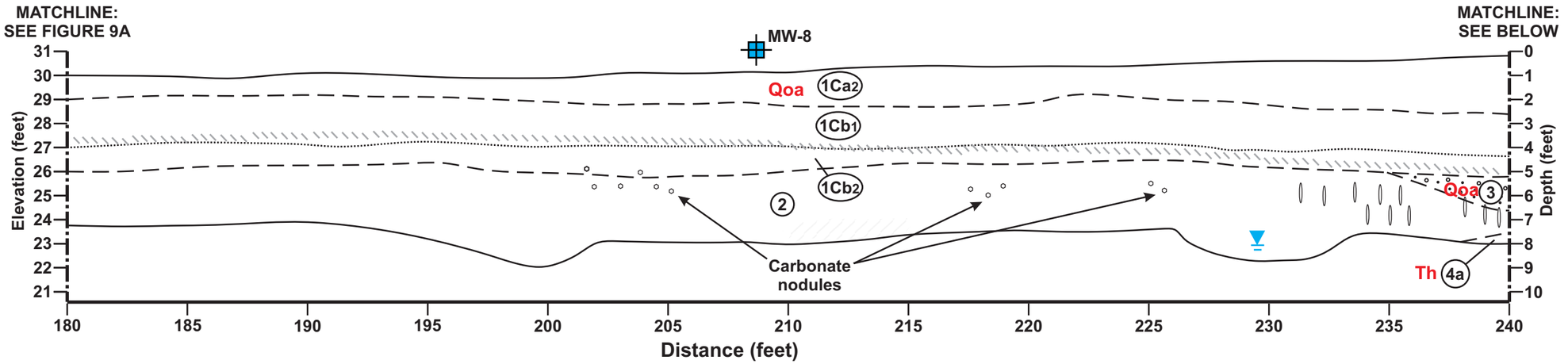
CORNERSTONE EARTH GROUP

Trench 2A (continued)

(View Looking South)
1"=5' H:V

N 83 E





Disseminated carbonate (I & II)

Hematite concretions

Disseminated carbonate and carbonate concretions (I, II, & III)

Unit 1 – Holocene soils

Qoa 1Ca2 Dark gray [5YR 4/1] clay with fine sands and occasional well-rounded gravels at base of horizon. A-horizon soils with massive to moderately granular structure.

1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

1Cb2 Brown to gray brown [10YR 4/3 – 5/2] clay with fine sands. B-horizon soils with moderate blocky structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa 2 **Clayey sand and sandy clay with gravel [SC]:**
dense and stiff, moist to wet, light brown to gray [2.5Y 6/2-4/3] fine to medium sands and clays.

Unit 3 – sandy channel deposits

Qoa 3 **Clayey sand with gravels [SC]:**
dense, moist, light brown to brown [10YR 4/2-3/4] with sub-angular to sub-rounded shale and chert.

Unit 4 - Huichica Formation (Pliocene)

Th 4a **Sandy clay [CL]:**
stiff to very stiff, moist, clay with fine sands, yellowish brown [10YR 5/6], brown [7.5YR 4-5/4-6] and reddish brown [2.5YR 6/3]. Bedding present between sandier and clayey packets of sediment.

Project Number 582-4-1
Figure Number Figure 9B
Drawn By RRN
Date October 2017

Trench 2A (continued)

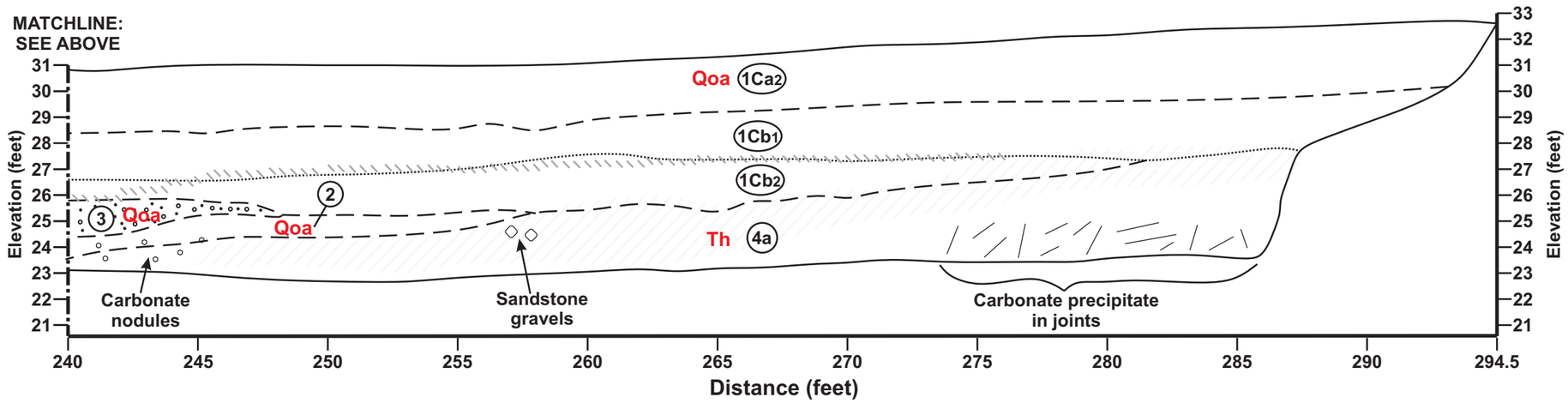
Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

Trench 2A (continued)

(View Looking South)
1"=5' H:V

N 83 E



Disseminated carbonate (I & II)

Hematite concretions

Unit 1 – Holocene soils

Qoa 1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

1Cb2 Brown to gray brown [10YR 4/3 – 5/2] clay with fine sands. B-horizon soils with moderate blocky structure.

Unit 2 – Holocene to Upper Pleistocene

Qoa 2 **Clayey sand and sandy clay with gravel [SC]:** dense and stiff, moist to wet, light brown to gray [2.5Y 6/2-4/3] fine to medium sands and clays.

Unit 3 – sandy channel deposits

Qoa 3 **Clayey sand with gravels [SC]:** dense, moist, light brown to brown [10YR 4/2-3/4] with sub-angular to sub-rounded shale and chert.

Unit 4 - Huichica Formation (Pliocene)

Th 4a **Sandy clay [CL]:** stiff to very stiff, moist, clay with fine sands, yellowish brown [10YR 5/6], brown [7.5YR 4-5/4-6] and reddish brown [2.5YR 6/3]. Bedding present between sandier and clayey packets of sediment.

Project Number 582-4-1
Figure Number Figure 9C
Drawn By RRN
Date October 2017

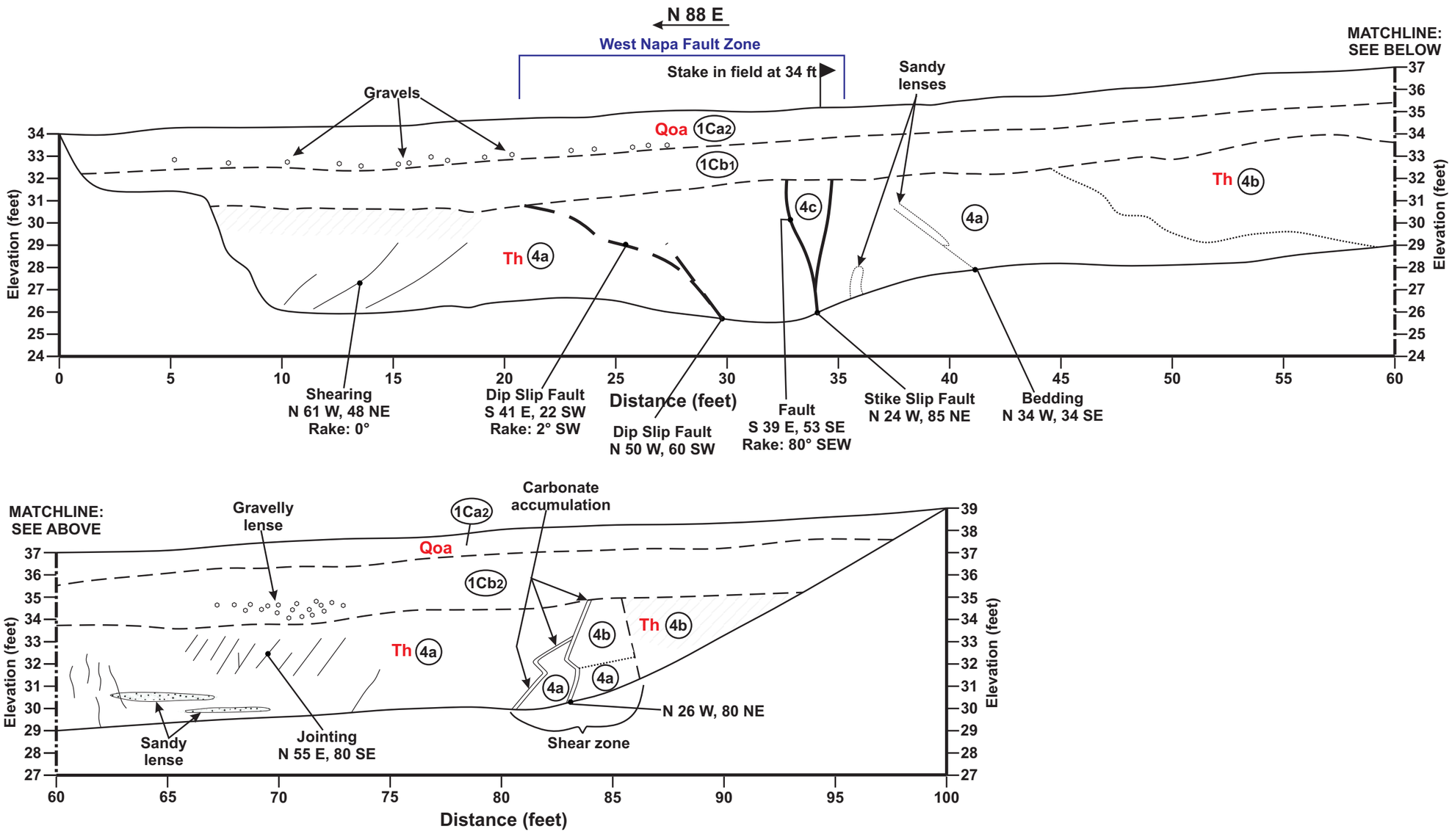
Trench 2A (continued)

Giovannoni Property
American Canyon, CA

CORNERSTONE EARTH GROUP

Trench 2B

(View Looking South, north wall cleaned, log is reversed)
1"=5' H:V



Unit 1 – Holocene soils

Qoa **1Ca2** Dark gray [5YR 4/1] clay with fine sands and occasional well-rounded gravels at base of horizon. A-horizon soils with massive to moderately granular structure.

1Cb1 Brown [10YR 4/3] clay with fine sands and occasional fine sub-angular gravels. B-horizon soils with strong blocky to prismatic structure.

Unit 4 - Huichica Formation (Pliocene)

Th **4a** **Sandy clay [CL]:**
stiff to very stiff, moist, clay with fine sands, yellowish brown [10YR 5/6], brown [7.5YR 4-5/4-6] and reddish brown [2.5YR 6/3]. Bedding present between sandier and clayey packets of sediment.

4b **Clayey sands with gravels [SC]:**
very dense, moist, yellowish red to reddish brown [5YR 4-5/4-6].

4c **Clay with silt [CL]:**
medium stiff, moist, olive yellow [2.5Y 6/6], clay with silt and some fine to coarse angular to sub-angular gravel and fine carbonate nodules. Carbonate accumulations formed on the vertical margins where the slide planes of the fault were observed. Fault gouge.

Disseminated carbonate (I & II)

Project Number	582-4-1
Figure Number	Figure 9D
Date	October 2017
Drawn By	RRN

Trench 2B

Giovannoni Property
American Canyon, CA

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APPENDIX A : SEISMIC DESIGN AND ASSESSMENT GUIDLINES

Catalog No. L51927

Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines

Contract PR-268-9823

Prepared for the
Pipeline Design, Construction & Operations Technical Committee

of
Pipeline Research Council International, Inc.

Prepared by the following Research Agencies:

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Southern California Gas Company

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Foothills Pipe Lines, Ltd.

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BP

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Visitless Integrity Assessment Ltd.

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TransCanada PipeLines Ltd.

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Introduction

Project PR-268-9823 was initiated in February 1998 by PRCI to provide current seismic guidelines for the design and assessment of natural gas transmission pipelines. These guidelines were refined using two rounds of review by outside technical experts in 1999 and 2000. The PRCI ad hoc steering group for the project also provided regular input regarding the scope and technical content for these guidelines. A decision was made in late 2000 to expand the scope to liquid hydrocarbon pipelines (crude oil and refined products) based upon the identical analytical treatment of seismic design and assessment of these types of pipelines.

Much of the current seismic practice can be traced to research conducted in the 1970s to develop design criteria and procedures for the Trans-Alaska oil pipeline. Many of the procedures in these guidelines have been implemented, in one form or another, by the major natural gas pipeline operators in California. The recognition of credible seismic hazards in other parts of the United States has been the primary driver for extending current practices in California to the rest of the United States. The experience in designing pipelines in seismically active regions of the United States has also provided a basis for specifying pipeline seismic design practices in other parts of the world.

The first comprehensive set of seismic guidelines for oil and gas pipeline systems was published in 1984 by the American Society of Civil Engineers[1]. These guidelines were the product of a collaborative effort among pipeline operators, consultants, and researchers. The 1984 ASCE guidelines have become accepted as a de-facto standard for seismic design within the oil and gas industry. Since their publication in 1984, considerable advancements have been made in seismic hazard definition and the understanding of pipeline response to earthquake hazards.

The present guidelines are intended to be an update of the 1984 ASCE guidelines relating to buried pipelines transporting natural gas and liquid hydrocarbons. To that end, preparation of these guidelines attempts to take full advantage of recent research findings with respect to soil loading on buried pipelines, acceptable strain-based pipeline limit states, and current analysis tools. To the extent possible, these guidelines have been stated in a concise manner with minimal discussion so as to keep the main text clear and concise. More in-depth discussions of the bases for recommendations in these guidelines are provided in a comprehensive Commentary at the end of this document. These guidelines are the product of considerable peer review by experts within the pipeline industry, key investigators at various research organizations, and consultants providing seismic design and assessment services to natural gas pipeline operators.

There continue to be advancements in understanding pipeline behavior and seismic hazard definition. It is anticipated that these guidelines will be updated as ongoing research is incorporated into actual practice.

[1] Nyman, D.J. (ed.), 1984. *Guidelines for the Seismic Design of Oil and Gas Pipeline Systems*, American Society of Civil Engineers.

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GUIDELINES FOR THE SEISMIC DESIGN AND ASSESSMENT OF NATURAL GAS AND LIQUID HYDROCARBON PIPELINES

PART I

GUIDELINES AND RECOMMENDED PROCEDURES

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1.0 GENERAL PROVISIONS

These guidelines provide recommended procedures and methods for the assessment of new and existing natural gas and liquid hydrocarbon pipelines subjected to seismic-related loading conditions. These guidelines are believed to be representative of, and consistent with, current practices for seismic hazard mitigation for these pipelines.

The specific procedures contained in these guidelines are related to determining pipeline response to predefined seismic hazards (e.g., liquefaction, fault displacement, slope instability). The process of defining these hazards is not part of the scope of these guidelines, although considerable guidance is given on typical practice and simplified approaches for estimating the potential severity of seismic hazards. The suitability of the methods described in these guidelines to define seismic hazards should be confirmed by specialists with appropriate knowledge and expertise.

1.1 Application

These guidelines are limited to onshore and offshore buried steel pipelines fabricated with full-penetration girth welds. Although the procedures of these guidelines may be extended to other applications (e.g., low-pressure distribution mains), the special considerations that apply to buried piping systems with conditions such as numerous tie-ins of distribution facilities and potential fatigue effects of large cyclic pressure fluctuations may occur during operation are not addressed.

1.2 Process

The general process for performing a design or an assessment of a buried pipeline is illustrated by the flow chart in Figure 1.1. As indicated in the flow chart, application of the procedures in these guidelines may require input from experts in specialized technical disciplines, particularly in the areas of seismology, geology, soil mechanics, and materials and welding technology. The content of these guidelines is limited to guidance regarding typical practices in these areas as they relate to the seismic assessment of buried pipelines. This information is also valuable to facilitate interaction among pipeline engineers and individuals having the requisite specialized expertise.

Most of the approaches for quantifying seismic hazards presented in these guidelines are based upon empirical relationships developed from past earthquake observations. As a result, each such approach is limited to the particular conditions characteristic of the earthquake data used to develop the underlying empirical relationship. Understanding the relative importance of these limits and rational approaches for implementing modifications for site-specific conditions is the primary reason for relying on individuals with special technical expertise.

The procedures in this document assume that the performance criteria and critical pipeline locations have been identified. The level of required seismic performance, as

defined by the annual probability of occurrence of an unacceptable condition, is a decision that needs to be made on a case-by-case basis considering public safety, environmental impacts, operational requirements, economic consequences, regulatory requirements and corporate policies. Factors to be considered when establishing performance requirements are discussed in Appendix A.

The state of knowledge in the field of pipeline response does not allow the definition of well-defined post-yield strain limits associated with some levels of pipeline performance. This is particularly true for cases where detailed knowledge of the pipeline material properties is lacking and the performance level is associated with maintaining pipeline pressure integrity. Considerable uncertainty also exists in defining seismic hazards. In these guidelines, the specification of partial safety factors associated with a rigorous reliability analysis has not been attempted. While such an approach may be desirable for specific pipelines, it is not considered practical for general application and, therefore, is not provided in these guidelines. The philosophy adopted in these guidelines is to consider conservative estimates of seismic hazards that are likely to occur. The likelihood of experiencing a seismic hazard is assumed to be equal to the acceptable probability of not achieving the performance goals for the pipeline. Pipeline response to the seismic hazard defined in this manner is assumed to utilize estimates of pipeline strength and strain capacity that are equal to or slightly more conservative than the median. The determination of what constitutes a "conservative" hazard definition and "median" pipeline strength and strain capacity is based largely upon judgment and procedures implemented in many pipeline projects and approved by various regulatory and oversight agencies over the past two decades.

These guidelines address the site-specific evaluation of a pipeline to a particular seismic ground displacement hazard. For a single pipeline, the number of site-specific conditions to be evaluated is typically based upon an assessment of conditions within 200 m to 300 m of the pipeline right-of-way. For transmission systems providing multiple feeds to large metropolitan regions, an alternate approach may be to first identify critical pipeline segments within the system. The critical segments are those portions of the system necessary to maintain life safety, avoid environmental damage, and provide reliable service. Critical segments of the pipeline may also include locations where options are not available for rapidly reconfiguring the system to isolate earthquake damage and reroute flow to maintain service. Identification of seismic hazards would then focus on the critical pipeline segments within the system. For large transmission systems in areas with numerous seismic hazards, this approach has the advantage of significantly reducing the level of effort for quantifying seismic hazards. A drawback of this approach is that damage that might occur to less critical portions of the pipeline system is not identified. Of course, when examining a single pipeline for the level of reliable service, the entire pipeline becomes a critical segment as damage anywhere along the pipeline can lead to service interruption.

1.3 Alternate Procedures

These guidelines do not preclude the use of alternate procedures for determining pipeline performance when subjected to seismic-induced load conditions. Alternative methods may be equally acceptable if based upon sound engineering and rational analysis satisfying the intent of provisions given in these guidelines. In most cases, alternative procedures are justified and feasible if they accommodate the use of site- or project-specific conditions such as those listed below:

1. Site-specific seismic hazard definition based upon more detailed knowledge of the tectonic and geologic setting in which the pipeline is operated;
2. Site-specific assessment of geotechnical conditions, e.g., potential liquefaction areas;
3. Improved characterization of pipe-soil interaction based upon field testing of in situ soil conditions or laboratory tests representative of in situ conditions; and
4. Determination of alternative pipeline limit-state criteria based upon laboratory tests representative of the full range of expected pipeline cross-sections, materials, applied load conditions and deformation states.

Alternative analysis methods must be capable of correctly capturing non-linear soil behavior, the influence of large pipeline deformations on computed pipeline strains, and post-yield or post-buckling pipeline strength characteristics.

1.4 Required Information

The analysis procedures contained in these guidelines require the following engineering information.

□□□□□□ □□□□□□□□□□□r□ □□□□□

1. Outside diameter and wall thickness of the pipe, elbows or induction bends;
2. Stress-strain relationships representative of the pipe material;
3. Toughness properties of the pipe, girth weld, seam weld, and weld heat-affected zone;
4. External coating specifications (as it relates to the pipe-soil friction interface) and thickness and type of insulation or shielding material (if any);
5. Maximum allowable operating pressure;
6. Design temperature differential between installed and operating conditions;
7. Pipeline alignment details (plan, profile, and location of fittings); and
8. For existing pipelines, reduced strain limits based upon type of girth-weld, expected material and weld defects in the girth weld and seam weld, and corrosion condition over a length of pipeline experiencing strains resulting from permanent ground displacement.

□□□2□ □□□□□r□ □□□□□

1. Depth of soil cover over a length of pipeline experiencing strains from permanent ground displacement;
2. Backfill specifications;
3. Depth to water table;
4. Water depth for offshore pipelines in the area of potential permanent ground displacement;
5. Soil strength parameters over a length of pipeline experiencing strains from permanent ground displacement and to a depth equal to the bottom of the pipe trench. The needed parameters include:
   a. Total unit weight
   b. Internal friction angle
   c. Cohesion

□□□□□□ Gr□□□d□D□□r□ □□□□□H□□rd□D□□□□□□

1. Expected amount and dominant direction of permanent ground deformation (usually defined at the ground surface);
2. Length of pipeline exposed to permanent ground deformation;
3. Variation of permanent ground deformation with depth, if any, along the length of the pipeline under consideration;
4. Variation in the direction of permanent ground deformation; and
5. Uncertainty in the location of the fault with respect to the pipeline crossing.

1.5 Acronyms

APE	annual probability of exceedance
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
CPT	cone penetrometer test
EPS	expanded polystyrene
HAZ	heat affected zone
NPS	nominal pipe size (NPS 12 corresponds to 12-inch and 323 mm pipe)
SMYS	specified minimum yield strength

SPT	standard penetration test
TGD	transient ground displacement
XPS	extruded polystyrene

1.6 Nomenclature

To the extent possible, the nomenclature in these guidelines matches the nomenclature in equations from various reference sources. In several cases, this leads to duplication in nomenclature. Since many terms are well established in various technical disciplines, the potential for confusion in the use of unfamiliar terms is considered a more significant drawback than duplication.

A_c	critical acceleration to trigger seismic slope instability
AD	average surface fault displacement in a vertical plane parallel to fault strike
c	cohesion representative of the soil backfill
c	apparent wave propagation velocity for estimating strains from wave propagation
c'	effective cohesive strength of slope material for landslide assessment
C_B	borehole diameter correction (assume 1.0 if unknown)
C_E	hammer energy correction ($C_E = E_{eff}/60$; assume 1.0 if unknown)
C_N	overburden correction ($\sqrt{P_a / \sigma_{ve}} \leq 2.0$)
C_Q	correction factor for assessing liquefaction using CPT test data
C_R	rod length correction ($C_R = 0.75 + 0.25(L_{rod} - 4)$; $0.75 \leq C_R \leq 1.0$)
CRR	cyclic resistance ratio for assessing liquefaction
C_S	sample liner correction (1.2 if no liner; if unknown, assume 1.0)
CSR	cyclic stress ratio for assessing liquefaction
d_s	average depth to top of seismogenic rupture zone in attenuation relationship
D	outside pipe diameter
D	depth to basement rock
D′	ovalization parameter
$D50_{15}$	mean soil particle diameter for saturated, liquefiable soils with $(N_1)_{60}$ values less than 15
D_{bore}	SPT bore hole diameter
D_F	total fault displacement

D_{FS}	component of fault displacement in a vertical plane parallel to the fault strike (quantity provided by the Wells and Coppersmith empirical fault displacement relationship)
D_{min}	minimum pipe diameter from assumed ovaling
D_r	relative density, %
D_w	depth to water table
E	random error term used in ground shaking attenuation relationships
E	modulus of elasticity
E_{eff}	percentage of hammer energy delivered to sampling rod in SPT test
f	pipe coating factor for estimating interface friction angle from internal friction angle
f_s	sleeve friction measured in a CPT conducted in accordance with ASTM D-3441
F	attenuation modification factor (0 for normal or strike-slip faulting, 1 for reverse or thrust faulting, if type of faulting unknown, use 0.5)
FFH	free face height for lateral spread displacement equation, m
FFL	distance from toe of free face, m
F_{15}	percentage of material passing through a #200 sieve from a sample of liquefiable soil with an $(N_1)_{60}$ value less than 15
F_ℓ	factor of safety against liquefaction, CRR/CSR
FC	fines content of soil as measured by percentage of a sample passing a #200 sieve
g	acceleration due to gravity
h	thickness of potential sliding soil mass
H	depth from the ground surface to the centerline of a buried pipeline
H	rupture depth, km, in attenuation relationship
H_B	depth to bottom of fault, km
H_F	horizontal component of fault displacement parallel to fault strike
H_S	depth to top of seismogenic zone, km
H_T	depth to top of fault, km
$I_{0.5}$	index parameter in CPT liquefaction assessment procedure computed for $n = 0.5$
I_1	index parameter in CPT liquefaction assessment procedure computed for $n = 1.0$

I_n	index parameter in CPT liquefaction assessment procedure computed for a specific value of n
K_c	fines content correction factor for liquefaction assessment using CPT data
K_o	coefficient of earth pressure at rest
K_σ	overburden correction factor to account for overburden stresses greater than 100 kPa
L_{anchor}	length of burial sufficient to develop yield in the pipe under relative axial soil displacement
L_D	estimated slope displacement for assessing whether or not large landslide movements are possible
L_{rod}	length of rod connected to SPT sampler, m
LSD	mean lateral spread displacement
M	earthquake moment magnitude
MD	maximum surface fault displacement in a vertical plane parallel fault strike
MSF	magnitude scaling factor for computing cyclic resistance factor
n	factor in CPT liquefaction assessment related to fines content of soil
N	SPT blow counts collected in accordance with ASTM D-1586
$(N_1)_{60}$	standard penetration resistance normalized to an overburden pressure of 1 tsf (96 kPa) and a hammer energy efficiency ratio of 60%
$(N_1)_{60FC}$	$(N_1)_{60}$ corrected for fined content of the soil
N_c	soil bearing capacity factor for vertically downward loading in clay
N_{ch}	soil bearing capacity factor for horizontal loading in clay
N_{cv}	soil bearing capacity factor for vertically upward loading in clay
N_q	soil bearing capacity factor for vertically downward loading in sand
N_{qh}	soil bearing capacity factor for horizontal loading in sand
N_{qv}	soil bearing capacity factor for vertically upward loading in sand
N_γ	soil bearing capacity factor for vertically downward loading in sand
p	internal pipeline pressure
p_y	internal pipeline pressure that produces a hoop stress equal to σ_y
P_a	reference pressure (100 kPa ≈ 14.5 psi ≈ 1 tsf)
P_{cr}	predicted collapse pressure from external pressure
P_e	elastic buckling pressure
P_{ext}	net external pressure on pipe (total external pressure - internal pressure)
P_{fr}	average annual probability of fault displacement

P_g	average annual probability associated with exceeding specified performance goal for the pipeline (e.g., 0.001 annual probability for loss of pressure integrity)
P_u	maximum lateral soil load caused by pipe lateral movement relative to the surrounding soil
P_y	axial load in a pipeline corresponding to a uniform tensile stress equal to the SMYS
PGA	peak ground acceleration at surface
q_c	tip resistance measured in a CPT conducted in accordance with ASTM D-3441
q_{c1N}	q_c normalized to an overburden pressure of P_a
$(q_{c1N})_{FC}$	q_{c1N} corrected to account for fines content
Q_d	maximum lateral soil load caused by pipe vertically downward movement relative to the surrounding soil
Q_u	maximum lateral soil load caused by pipe vertically upward movement relative to the surrounding soil
r	amount of rattle-space for culvert mitigation concept
r_d	cyclic stress reduction coefficient for assessing liquefaction using SPT data
R	earthquake source distance parameter (variously defined in equations)
R_{fp}	fault displacement reduction factor accounting for probability of fault displacement
R_S	closest distance to seismogenic rupture surface, km
*R**	effective distance from site to earthquake epicenter, km, used in lateral spread displacement equation
RLD	fault rupture length at depth
sr	fault slip rate
S	percentage of surface slope for estimating lateral spread displacement
S_{HR}	attenuation relationship surficial soil correction parameter (0 for soft rock, alluvium and firm soil, and 1 for hard rock)
S_{SR}	attenuation relationship surficial soil correction parameter (0 for hard rock, alluvium and firm soil, and 1 for soft rock)
SRL	surface rupture length, km
t	pipe wall thickness
t_u	maximum soil force on pipeline from relative axial movement
T_{15}	thickness of saturated, liquefiable, soils with $(N_1)_{60}$ values less than 15
T_F	component of fault displacement perpendicular to fault strike

V_F	component of vertical fault displacement
V_{max}	maximum ground velocity from ground shaking
W	free face ratio, expressed as percent, for estimating lateral spread displacement
W	expected down-dip fault width, km
z	depth below ground of SPT or CPT test measurement
Z_T	factor in attenuation relationship, 0 for interface event, 1 for intra-slab event in attenuation relationship
α	fault dip angle, degrees
α	coefficient for determining fines correction factor in liquefaction assessment
α	adhesion factor for estimating axial pipeline soil load
α_ε	ground strain coefficient for computing axial strains from wave propagation
α_κ	ground strain coefficient for computing bending strains from wave propagation
β	angle of regional stress azimuth for estimating fault displacement, degrees
β	coefficient for determining fines correction factor in liquefaction assessment
δ	soil interface friction angle
δ_o	initial ovalization of pipe cross-section
Δ	girth weld offset used to compute compression strain limit
Δ_d	vertical downward relative pipeline displacement caused by liquefaction
Δ_p	relative displacement between pipe and soil in lateral direction necessary to develop P_u
Δ_{qd}	relative displacement between pipe and soil in vertically downward direction necessary to develop Q_d
Δ_{qu}	relative displacement between pipe and soil in vertically upward direction necessary to develop Q_u
Δ_t	relative displacement between pipe and soil in axial direction necessary to develop T_u
Δ_u	vertical upward relative pipeline displacement caused by liquefaction
ε_{cl}	longitudinal compression strain limit for load-controlled conditions
ε_{co}	longitudinal compression strain limit for continued operation
ε_{cp}	longitudinal compression strain limit for pressure integrity
ε_{cr}	critical longitudinal compression strain
$\varepsilon_{cr\text{-}p}$	critical longitudinal compression strain for conditions with external pressure

ε_{tl}	longitudinal tension strain limit for load-controlled conditions
ε_g	ground strain related to seismic wave propagation
ε_{to}	longitudinal tension strain limit for continued operation
ε_{tp}	longitudinal tension strain limit for pressure integrity
ε_v	volumetric strain experienced by soil as the result of liquefaction
ϕ	soil internal friction angle
ϕ'	effective angle of internal friction for slope stability assessment
Φ	standard normal probability function
γ	total unit weight of soil
$\bar{\gamma}$	effective (or submerged) unit weight of soil
γ_{max}	maximum soil shear strain
γ_w	unit weight of water
κ_g	ground curvature from seismic wave propagation
λ	ratio of pore pressure to overburden stress
σ	standard deviation
σ_t	axial stress in pipeline from thermal differential
σ_y	pipe material yield stress
σ_{vo}	total soil overburden pressure
σ'_{vo}	effective soil overburden pressure
σ_{AD}	standard deviation of average fault displacement
σ_{MD}	standard deviation of maximum fault displacement
θ	slope angle

1.7 References

For clarity, references have been largely omitted from the Procedures section of these guidelines. References to the basis documents used in these guidelines are noted in the Commentary section along with a complete reference listing.

1.8 Units

Seismic design and assessment of buried pipelines invariably crosses multiple disciplines with an equal variability in the degree to which English and metric units are adopted. As many of the equations in these guidelines are adopted from other sources, the original unit system has been maintained resulting in a mix of English and metric units within these guidelines. The majority of equations in these guidelines can be used with any consistent set of units. Exceptions are noted and typically relate to empirical relationships or equations fitted to published curves to facilitate calculations using spreadsheets or other computer-based applications.

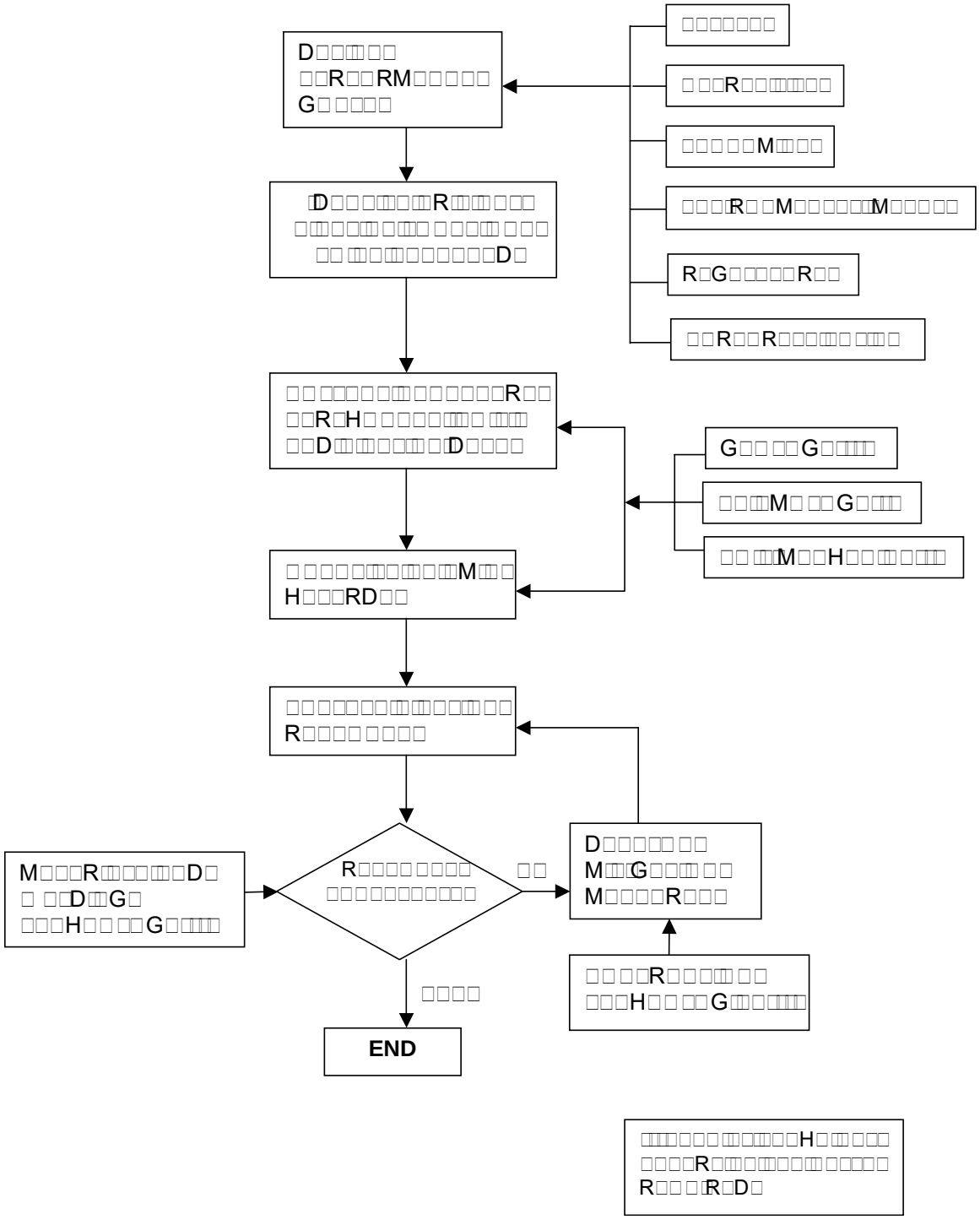

Figure 1.1: Seismic Design and Assessment Process for Assessing Seismic Hazards for Buried Natural Gas and Liquid Hydrocarbon Pipelines

2.0 QUANTIFYING SEISMIC HAZARDS

Credible seismic hazards for buried steel pressure pipelines are generally limited to those that produce permanent deformation of the ground along the pipeline alignment or large transient ground displacements that result in significant permanent deformation following an earthquake. These hazards primarily include surface faulting, liquefaction, liquefaction-induced lateral spread movement, landslides, and near-surface settlement.

Seismic wave propagation is also a consideration for buried pipelines, but it generally does not have a serious effect on buried welded steel pipelines. Transient ground deformation generally has not been a problem, except in a few special situations that are discussed in Section 2.7.

This section presents the methods and approaches commonly used to define seismic hazards for buried pipelines. Detailed coverage of the theory and development of procedures for collecting data and quantifying seismic hazards is beyond the scope of these guidelines. The information provided relies heavily on project experience and recent advances identifying and characterizing seismic hazards. It is recommended that the definition of seismic hazards be performed by individuals experienced with the methods described in this section and possessing the requisite background in seismology, geology, and soil mechanics.

The discussion of seismic hazards is organized by category and is presented in accordance with the development of parameters to define the hazard. The focus is on direct seismic hazards as opposed to potential indirect hazards from such causes as debris impact (e.g., rockfall impact) or collateral damage resulting from earthquake damage to adjacent pipelines in a common right-of-way or utility corridor.

The definition of potential seismic hazards is often developed during a separate geotechnical or geologic investigation. In lieu of such investigations, the procedures provided in this section can be followed to provide an estimate of the amount and likelihood of ground movement. These procedures are best used as a tool to determine if a pipeline is at significant risk from seismic hazards. The procedures also provide a means to identify the need for, and scope of, a more rigorous geologic or geotechnical investigation.

2.1 Surface Faulting

Surface fault rupture is an important consideration for buried pipelines, because pipelines crossing fault zones must deform longitudinally and in flexure to accommodate ground displacement. If a pipeline crosses an active fault, it is necessary to delineate its location, orientation, width of fault rupture zone, and the amount and direction of potential fault displacement.

The term “active fault” implies a judgment on the part of a geologist that the fault could experience surface rupture within the time frame established by the performance goals for

the pipeline (e.g., an average annual probability of exceedance less than $1x10^{-3}$). Generally, a fault is considered active if it can be demonstrated to have displaced the ground surface during the Holocene epoch (i.e., within the past 11,000 years).

For some faults, a characteristic earthquake and associated recurrence interval may have been established through field studies and historical seismicity. For such cases, the expected fault displacement may be estimated as the cumulative slip between characteristic earthquakes (i.e., the slip rate per year times the recurrence interval). Otherwise, it is more meaningful to rely on empirical relationships such as those described in Section 2.1.1.

Some faults experience aseismic creep in addition to surface rupture produced by an earthquake. For pipeline design, the total fault movement, including creep, is important since both lead to deformation of the pipeline. The effects of creep need to be considered separately because the slow rate of displacement is consistent with drained soil loading conditions while fault displacement occurs rapidly under undrained conditions. This impacts the determination of soil loads on the pipeline as discussed in Section 4.

It is recommended that fault displacement estimates for the design or assessment of pipeline response be approached as a three-stage process:

1. Estimate the expected fault displacement of an active fault;

2. Adjust the estimate of expected fault displacement based upon the consequences of pipeline damage and pipeline performance objectives to obtain the design fault displacement; and

3. Convert the design fault displacement to orthogonal displacement components relative to the fault (i.e., vertical component, horizontal component parallel to the fault strike, and horizontal displacement perpendicular to the fault strike).

2 r M d r D

The most common method for estimating surface fault displacements relies on observations of fault displacements during past earthquakes. Wells and Coppersmith (1994) developed a series of empirical relationships that relate moment magnitude, *M*, surface rupture length, subsurface rupture length, down-dip rupture width, rupture area, and maximum and average displacement per event. The most commonly used Wells and Coppersmith relationships that are used when other information is lacking provide maximum and average fault displacements (MD and AD) as function of fault surface rupture length or moment magnitude.

Estimating MD and AD as a function of surface rupture length is generally preferred because the determination of fault displacement is based directly upon the geologic attributes of the fault. Using earthquake moment magnitude to estimate MD and AD is more indirect because it is based upon a two-stage correlation of moment magnitude to fault parameters (typically either surface rupture length or seismogenic rupture area) and

fault displacement to magnitude. However, relating fault displacement to earthquake magnitude is preferable for situations where earthquake magnitude has been previously established by other geologic investigations.

For estimating fault displacement (MD or AD) as a function of surface rupture length (SRL), the following regression formulae from Wells and Coppersmith (1994) apply:

$$\log(MD) = -1.38 + 1.02 \cdot \log(SRL) \qquad [\log(\sigma_{MD}) = 0.41] \qquad (2\text{-}1a)$$

$$\log(AD) = -1.43 + 0.88 \cdot \log(SRL) \qquad [\log(\sigma_{AD}) = 0.31] \qquad (2\text{-}1b)$$

where:

- AD = Average surface fault displacement, m
- MD = Maximum surface fault displacement, m
- SRL = Surface rupture length, km. The surface rupture length is the maximum length of the fault segment crossing the pipeline that, by reasonable and qualified judgment, can be expected to rupture during an earthquake.
- σ_{MD} = Standard deviation of maximum displacement regression
- σ_{AD} = Standard deviation of average displacement regression

The data sets for the two regression equations listed above include displacement data for all types of slip, i.e., strike-slip, normal and reverse faulting. The displacements estimated by the relationships of Wells and Coppersmith (1994) is the vector sum of the horizontal and vertical slip components along the fault strike. The implications of this definition on determining three-dimensional components of fault displacement are discussed further in Section 2.1.2.

Wells and Coppersmith (1994) also provide relationships for estimating maximum and average fault displacements as a function of moment magnitude (M). These relationships are provided below.

$$\log(MD) = -5.46 + 0.82 \cdot M \qquad [\log(\sigma_{MD}) = 0.42] \qquad (2\text{-}2a)$$

$$\log(AD) = -4.80 + 0.69 \cdot M \qquad [\log(\sigma_{AD}) = 0.36] \qquad (2\text{-}2b)$$

2.1.2.2 Orthogonal Components of Fault Displacement

As a final step in defining fault displacement, the design fault displacement determined in Section 2.1.2 must be transformed into orthogonal components of fault displacement. This is necessary only if fault displacement is estimated using equations (2-1) or (2-2), since these expressions only provide the net displacement in a vertical plane perpendicular to the strike of the fault. The transformation to orthogonal displacement components relative to the fault strike is illustrated in Figure 2.1. The following equations provide the transformation:

Total fault displacement, D_F:

$$D_F = \frac{D_{FS}}{\sqrt{\sin^2\alpha + \left(\cos^2\alpha\right)\left(\cos^2\beta\right)}} \quad \text{(2-3a)}$$

Vertical displacement, V_F:

$$V_F = D_F \sin\alpha \quad \text{(2-3b)}$$

Horizontal displacement parallel to the fault strike, H_F:

$$H_F = D_F \cos\alpha \cos\beta \quad \text{(2-3c)}$$

Transverse horizontal displacement perpendicular to the fault strike, T_F:

$$T_F = D_F \cos\alpha \sin\beta \quad \text{(2-3d)}$$

Apparent dip angle, α:

$$\tan\alpha = \tan\delta \sin\beta \quad \text{(2-3e)}$$

where:

D_{FS} = fault displacement in a vertical plane parallel to the fault strike

δ = fault dip angle corresponding to "average" dip angle inherent in equations (2-1) and (2-2) (see Commentary). Lacking other information, the dip angle can be taken as 75° for strike slip faults, 60° for normal slip faults, and 45° for reverse or thrust faults.

β = horizontal angle between fault strike and regional stress azimuth. For faults that are predominantly strike slip, this angle is 0°, and for faults that are predominantly reverse or normal faults, this angle will be 90°. Other faults will have some combination of strike and reverse/normal slip, with an angle, β, between 0° and 90°.

2 D D

Determination of a design fault displacement is based upon estimates of expected average and maximum fault displacements described in Section 2.1.1. Design fault displacements are determined based upon consideration of the performance requirements for the pipeline and the consequences for loss of pipeline pressure integrity. Two modifications are recommended for determining design fault displacements, one to account for the consequences of loss of pipeline pressure integrity and another to account for faults with a low likelihood of occurrence relative to the pipeline performance criteria.

2.1.3.1 Accounting for Consequences of Loss of Pressure Integrity

It is preferable that design fault displacements be based upon the uncertainty in fault displacement and site-specific consideration of the potential risk (likelihood of a particular type of damage and consequences) associated with earthquake-related pipeline damage. In lieu of such considerations, the following design factors are recommended to account for the consequences of loss of pipeline pressure integrity and the expected recurrence interval for fault displacement:

1. Consider the mean maximum fault displacement for natural gas pipelines and flammable or explosive petroleum products pipelines in Location Class 4 areas (ASME B31.8).
2. Consider two-thirds of the mean maximum fault displacement for natural gas pipelines and flammable or explosive petroleum products pipelines in Location Class 3 areas (ASME B31.8).
3. Consider two-thirds of the mean maximum fault displacement for petroleum products pipelines located in environmentally sensitive areas.
4. Other natural gas or liquid hydrocarbon pipelines in other areas than above should be designed for the mean average fault displacement.

Prior to use, the above guidelines should be carefully reviewed and evaluated by the pipeline owner or its representatives for consistency with project objectives and regulatory requirements.

2.1.3.2 Accounting for Expected Occurrence of Fault Displacement

The time frame for defining a fault to be active is typically an order of magnitude greater than the typical performance goals for a pipeline (e.g., 11,000 years for the Holocene epoch versus a pipeline performance goal of a 1,000-year average return period for experiencing loss of pressure integrity). To account for this, it is recommended that the expected fault displacements be reduced when the estimated likelihood of fault displacement is less than the acceptable probability of not achieving pipeline performance goals. A simple correction factor based upon the ratio of the probability of fault displacement and pipeline performance goal is recommended as defined by equation (2-4):

$$R_{fp} = \frac{P_{fr}}{2P_g} \tag{2-4}$$

where:

R_{fp} = reduction factor accounting for probability of fault displacement

P_{fr} = average annual probability of fault displacement

P_g = average annual probability associated specified performance goal (e.g., $1x10^{-3}$ mean annual probability for loss of pressure integrity)

If fault displacements are determined by other means than equation (2-1) or (2-2), appropriate steps should be taken to determine orthogonal components in the vertical, horizontal and transverse directions.

2.2 Peak Ground Acceleration

Estimates of peak ground acceleration (PGA) are required for quantifying permanent ground displacement hazards related to liquefaction, lateral spread movement, and landslide movement. Ground shaking is estimated using empirical attenuation equations representing the decrease in ground motion with increasing distance from the fault rupture plane. There are many attenuation relationships available, and many are developed to represent specific types of earthquakes and specific geologic and tectonic environments.

Peak ground acceleration can be obtained from the results of probabilistic hazard analyses or deterministically based upon a postulated earthquake on a known fault. Probabilistic hazard analyses typically form the basis for building code earthquake hazard maps. The details of how probabilistic hazard analyses are performed is a specialized field and is beyond the scope of these guidelines. However, a summary of the general procedures is provided in Appendix C to familiarize the reader with the general concepts.

Deterministic estimates of peak ground acceleration are relatively straightforward to apply provided an attenuation relationship is selected that is appropriate for the earthquake mechanism and tectonic and geologic characteristics of the area.

A deterministic approach to estimating peak ground acceleration is required for assessing other hazards related to liquefaction and some approaches for assessing slope instability. Where probabilistic hazard analyses are available, it may be possible to infer a magnitude and acceleration value from the details of the calculation of the probabilistic hazard. Selecting a suitable combination of magnitude and acceleration from a probabilistic hazard estimate should be performed by individuals familiar with the generation of the probabilistic hazard and the seismicity of the region.

The two relationships presented in Sections 2.2.1 and 2.2.2 are provided to illustrate some of the general characteristics and differences in attenuation relationships. These relationships were developed for near-source earthquakes (western United States) and subduction zone (Cascadia region) earthquakes. It is ***strongly*** recommended that users seek out specific attenuation relationships applicable for the region in which the pipeline is located.

Both attenuation relationships contain an error term, E, that represents a factor that can be used in conjunction with a standard normal probability table to estimate the probability of exceeding the mean of ln(PGA) represented by the equation. For example, for a mean estimate, the standard normal probability, $\Phi(x)$ is 0.5 (50%) and the value of x is 0. If the probability of exceedance is desired to be less than 16%, $\Phi(x)$ is 0.84, x is 1.0 and the value of ln(PGA) is increased by E which is equivalent to multiplying the PGA by e^E.

Other percentile levels may be established by selecting values of $\Phi(x)$ consistent with the percentile associated with the desired probability of non-exceedance.

The attenuation relationships also illustrate the potential variability in the amount and types of information needed for their application. This is particularly true for definitions of source-to-site distance. The near source earthquake relationship requires more descriptive information on the fault plane and the portions of the fault capable of generating earthquake ground motions (the seismogenic part of the fault) in order to compute this distance. There is also a difference in the number of parameters used to characterize the site.

2.2 [illegible]

$$\ln(PGA) = -3.512 + 0.904M - 1.328\ln\sqrt{R_S^2 + \left[0.149e^{0.647M}\right]^2} + \left[1.125 - 0.112\ln(R_S) - 0.0957M\right]F + \left[0.440 - 0.171\ln(R_S)\right]S_{SR} + \left[0.405 - 0.222\ln(R_S)\right]S_{HR} + f_A(D) + E\Phi^{-1}(x) \quad (2\text{-}5)$$

where:

PGA = peak ground acceleration, g

M = moment magnitude

F = 0 for normal and strike-slip faulting

= 1 for reverse or thrust faulting

= 0.5 if type of faulting unknown

R_S = closest distance to seismogenic rupture, km

= $\sqrt{R^2 + d_S^2}$

R = horizontal projection of closest site to seismogenic rupture distance, km

d_S = average depth to the top of the seismogenic rupture zone, km

= $\frac{1}{2}\left[H_B + H_T + W\sin(\alpha)\right] \geq H_S$

H_B = depth to bottom of fault, km

H_S = depth to top of seismogenic part of the crust, km

H_T depth to top of fault, km

W = expected down-dip fault width, km

= $10^{-1.01+0.32M}$

α = fault dip angle

$f_A(D)$ = 0 if D ≥ 1 km, otherwise

= $\left\{\left[0.405 - 0.22\ln(R_S)\right] - \left[0.440 - 0.171\ln(R_S)\right]S_{SR}\right\}(1-D)(1-S_{SR})$

D = depth to basement rock, km

E = random error term = $0.889 - 0.691M$

Φ = standard normal probability function

x = cumulative probability of actual *PGA* being less than or equal to *PGA* from the attenuation relationship

S_{SR} = 0 for hard rock, alluvium, and firm soil

= 1 for soft rock

S_{HR} = 1 for hard rock

= 0 for soft rock, alluvium, and firm soil

For generic rock sites, S_{SR} = 1, S_{HR} = 0, and D = 1 km.

For generic soil sites, S_{SR} = 0, S_{HR} = 0, and D = 5 km.

2.2.2 [illegible]

$$\ln(PGA) = 0.2418 + 1.414M - 2.2.552\ln\left(R + 1.7818e^{0.554M}\right) + 0.00607H + 0.3846Z_T + E\Phi^{-1}(x) \quad \text{for rock} \qquad (2\text{-}6a)$$

$$\ln(PGA) = -0.6687 + 1.438M - 2.329\ln\left(R + 1.097e^{0.617M}\right) + 0.00648H + 0.3643Z_T + E\Phi^{-1}(x) \quad \text{for soil} \qquad (2\text{-}6b)$$

where:

H = rupture depth, km

R = closest distance to fault rupture, km

Z_T = 0 for interface event, 1 for intra-slab event

E = $1.45 - 0.1M$ but not greater than 0.65

2.3 Liquefaction

Liquefaction hazards to pipelines include flotation, sinking, and general ground settlement from dissipation of excess pore water pressure. Pipeline flotation or sinking requires the pipe to be located below the ground water table within a zone of liquefiable soil. Ground settlement occurs when a liquefiable soil layer beneath a layer of competent

soil densifies. If the pipeline is located in the layer of competent soil near the surface, it will be subjected to displacement associated with subsidence of the ground.

Quantification of liquefaction hazards requires site-specific information on the subsurface soil properties and peak ground acceleration. Soils information can most commonly be obtained through subsurface investigations using the standard penetration test (SPT) and cone penetration test (CPT). These investigations should be performed by personnel experienced in the interpretation of soil boring logs and liquefaction assessment. Parameters used in the assessment of liquefaction potential are summarized in Table 2.1.

Liquefaction also may cause lateral spreads or flow slides. These hazards are discussed in Sections 2.4 and 2.5.

2□□□□□ □□□□□□

$$r_d = \frac{1-0.4113\sqrt{z}+0.04052z+0.001753z^{1.5}}{1-0.4177\sqrt{z}+0.05729z-0.006205z^{1.5}+0.001210z^2}$$

z = depth of interest (z must be in meters for computing r_d)

σ_{vo} = total overburden soil pressure at test location = γz

σ'_{vo} = effective soil overburden pressure = $\gamma z - \gamma_w(z - D_w)$

D_w = depth to water table

γ = unit weight of soil

γ_w = unit weight of water

2.3.1.1 Assessment of Liquefaction Using SPT Data

The *CRR* is computed as follows:

for $x \geq 3$,

$$CRR = \frac{MSF \cdot K_\sigma (4.8(10)^{-2} - 4.721(10)^{-3}x + 6.136(10)^{-4}x^2 - 1.673(10)^{-5}x^3)}{1-1.248(10)^{-1}x + 9.578(10)^{-3}x^2 - 3.285(10)^{-4}x^3 + 3.714(10)^{-6}x^4} \quad (2\text{-}8a)$$

for $x < 3$,

$$CRR = 0.05 \cdot MSF \cdot K_\sigma \quad (2\text{-}8b)$$

where:

x = $(N_1)_{60FC}$, the normalized SPT data corrected for fines content

MSF = magnitude scaling factor for approximately a 32% chance of liquefaction

= $10^{3.74}/M^{4.33}$

K_σ = overburden pressure correction factor for $\sigma'_{vo} > P_a$

= 1 for $\sigma'_{vo} \leq P_a$

$= 0.514 + \frac{0.897}{\left(\sigma'_{vo}/P_a\right)} - \frac{0.411}{\left(\sigma'_{vo}/P_a\right)^2}$ for $P_a < \sigma'_{vo} < 10P_a$

= 0.6 for $\sigma'_{vo} \geq 10P_a$

P_a = reference pressure (100 kPa ´ 14.5 psi ´ 1 tsf)

The expression for *CRR* is based largely upon past earthquake observations for earthquakes with magnitudes of approximately 7.5. This expression is depicted graphically in Figure 2.2 as a function of $(N_1)_{60FC}$ for *MSF* and K_σ equal to 1.0.

Two steps are used to correct the measured SPT data. First, the measured SPT value, *N*, is corrected using equation (2-9) to account for specific test procedures and normalized to an effective overburden pressure equal to P_a. The second correction accounts for the greater liquefaction resistance of soils with larger quantities of fine-grained material. In this case, the fines content, *FC*, is determined as the percentage of material passing through a #200 sieve (0.074 mm opening). The normalized SPT value, $(N_1)_{60}$, is computed as follows:

$$\left(N_1\right)_{60} = N \cdot C_N \cdot C_E \cdot C_B \cdot C_R \cdot C_S \qquad (2\text{-}9)$$

where:

$\left(N_1\right)_{60}$ = SPT value normalized to P_a and 60% hammer energy efficiency

N = measured SPT

C_N = overburden correction = $\sqrt{P_a / \sigma'_{vo}} \le 2.0$

C_E = hammer energy correction

= $E_{eff}/60$ (assume 1.0 if unknown)

E_{eff} = hammer energy efficiency, percentage

C_B = borehole diameter correction (assume 1.0 if unknown)

C_R = rod length correction

= $0.75 + 0.04(L_{rod} - 4)$ $\qquad (0.75 \le C_R \le 1.0)$

L_{rod} = length of rod in SPT test (L_{rod} must be in meters for computing C_R)

C_S = sample liner correction (1.2 if no liner; assume 1.0 if unknown)

The following expression corrects the $(N_1)_{60}$ value for the effect of fines content, *FC*:

$$(N_1)_{60FC} = \alpha + \beta (N_1)_{60} \qquad (2\text{-}10)$$

where α and β are defined as follows:

Fines Content, *FC*	α	β
5% or less	0	1.0
Greater than 5% to less than 35%	$e^{1.76-\frac{190}{FC^2}}$	$0.99+\frac{FC^{1.5}}{1000}$
35% or greater	5	1.2

2.3.1.2 Assessment of Liquefaction Using CPT Data

Data collected from cone penetrometer tests (CPT) need to be corrected for normalized test conditions and the fines content of the soil. Since no samples are collected in CPTs, the fines content correction relies on inferred conditions from the ratio of measured tip bearing, q_c, and friction value, f_s. The equation for computing *CRR* from CPT data is given below:

For $(q_{c1N})_{FC} < 50$

$$CRR = \left[\frac{0.833 \cdot (q_{c1N})_{FC}}{1000} + 0.05\right] MSF \tag{2-11a}$$

For $50 \le (q_{c1N})_{FC} < 160$

$$CRR = \left[93\left(\frac{(q_{c1N})_{FC}}{1000}\right)^3 + 0.08\right] MSF \tag{2-11b}$$

where:

$(q_{c1N})_{FC}$ = tip resistance normalized to P_a and corrected for fines content

The measured tip resistance is normalized to an effective overburden pressure equal to P_a and corrected for fines content. These corrections are dependent upon the value of I_n, a parameter related to the granular nature of the soil.

$$I_n = \sqrt{(3.47 - \log Q_n)^2 + (1.22 + \log F)^2} \tag{2-12}$$

$$Q_n = \frac{(q_c - \sigma_{vo})}{100}\left(\frac{100}{\sigma'_{vo}}\right)^n \tag{2-13}$$

$$F = \left[\frac{f_s}{q_c - \sigma_{vo}}\right] 100\% \tag{2-14}$$

where:

q_c = CPT tip bearing pressure

f_s = CPT side friction pressure

The value of n used in equations (2-13) and (2-14) is, in turn, dependent upon the resulting value of I_n. Determination of n requires computing I_n for values of n equal to 0.5 ($I_{0.5}$) and 0.1 (I_1). The value of n is then determined as follows:

n = 1.0 if I_1 greater than 2.6 (clayey)

n = 0.5 if I_1 and $I_{0.5}$ less than 2.6 (granular)

n = 0.7 if I_1 less than 2.6 and $I_{0.5}$ greater than 2.6 (silty)

The normalized CPT tip resistance, $(q_{c1N})_{FC}$, is then computed as shown below:

$$(q_{c1N})_{FC} = K_c C_Q \left(\frac{q_c}{P_a} \right) \tag{2-15}$$

where:

K_c = 1.0 for $I_n \leq 1.64$

= $-17.88 + 33.75 I_n - 21.63 I_n^2 + 5.581 I_n^3 - 0.403 I_n^4$ for $I_n > 1.64$

C_Q = $\left(\frac{P_a}{\sigma'_{vo}} \right)^n$

2□□2□ D□□□□□□□ □□□□□□ □□□□□□□□d□□ □□□R□□□□□□□□ □□□□□□□□□

Pipeline flotation is a displacement-controlled phenomenon for onshore pipelines. The amount of displacement is limited by the distance between the bottom of the pipe and the water table or the depth of soil cover plus about 1/3 the pipe diameter for cases where the water table is at the ground surface. This is an upper limit assuming that the liquefied state is maintained for a long time. Otherwise, the displacement is further limited by the velocity at which the pipeline moves through the liquefied material and the "drag" as the pipe moves through the liquefied soil. Offshore pipelines or pipelines crossing bodies of water will tend to float if they are not at least neutrally buoyant with respect to the unit weight of the liquefied soil.

Pipelines that are negatively buoyant with respect to the unit weight of the liquefied soil are subject to sinking if they are located within a liquefiable soil deposit. The amount of sinking is limited by the distance between the bottom of the pipe and the depth to non-liquefiable soil. This is an upper limit assuming that the liquefied state is maintained for a long time. Otherwise, the displacement is further limited by the velocity at which the pipeline moves through the liquefied material similar to flotation.

The length of pipeline exposed to liquefaction is dependent upon the subsurface extent of liquefiable soil and the alignment of the pipeline through the zone of liquefaction. Determining the length of exposed pipeline can be made through subsurface investigations at regular intervals along the pipeline. Alternatively, the extent of

exposure may be estimated based upon obvious changes in surface geology (e.g., a transition from deltaic deposits to rock or glacial till).

2 [illegible] D [illegible] R [illegible] d [illegible] d [illegible]

Liquefaction-induced settlements are credible hazards to pipelines located within liquefiable layers of soil. For the more typical onshore case where the pipeline is located above the water table, liquefaction-induced settlement is a credible hazard if the liquefiable layer is close enough to the surface to produce settlement in near-surface soil layers. One means to determine this possibility is to compare the thickness of the liquefied layer and the depth to the liquefied layer. The screening curves in Figure 2.3 are based upon observations of where surface settlements have been sufficient to cause structural damage in past earthquakes. Since buildings are generally more susceptible to damage from settlement, the use of Figure 2.3 can be used as a conservative screening guideline for buried pipelines.

The amount of liquefaction-induced settlement can be estimated for each sandy soil layer using Figure 2.4. For each soil layer, the amount of volumetric strain is taken from Figure 2.4 based upon the factor of safety against liquefaction and the relative density of the soil or the corresponding corrected blowcount, $(N_1)_{60FC}$. The total amount of settlement is estimated by multiplying the volumetric strain by the thickness of each soil layer below the invert of the pipeline. Utilization of Figure 2.4 is made by computing the factor of safety against liquefaction, F_ℓ, as given by the ratio of *CRR* to *CSR*.

2.4 Lateral Spread Movement

The most appropriate method to estimate lateral spread movement is to rely on computer-based approaches that account for the actual strength properties of the liquefied soil. These programs typically are limited to two-dimensional representations of the soil. They have the advantage of being able to quantify variation in the magnitude and direction of soil displacements. Examples of two commonly used programs are SOILSTRESS and DESRA, both developed at the University of British Columbia. In addition, there are many research-oriented programs and special purpose programs used within the geotechnical community.

In lieu of computer analyses, an estimate of lateral spread movement can be obtained using empirical relationships developed from lateral spread and soil data collected in past earthquakes in the United States and Japan (Youd et al., 2002), as shown below.

For sloping ground conditions (Figure 2.5):

$$\begin{aligned} Log(LSD) = & -16.213 + 1.532M - 1.406LogR^* \\ & - 0.012R + 0.338LogS + 0.540LogT_{15} \\ & + 3.413Log(100 - F_{15}) - 0.795Log(D50_{15} + 0.1) \end{aligned} \quad \text{(2-16a)}$$

For free face conditions (Figure 2.6):

$$\begin{aligned} Log(LSD) = & -16.713 + 1.532M - 1.406LogR^{*} \\ & -0.012R + 0.592LogW + 0.540LogT_{15} \\ & +3.413Log(100 - F_{15}) - 0.795Log(D50_{15} + 0.1) \end{aligned} \quad \text{(2-16b)}$$

where:

LSD = horizontal lateral spread movement (m)

M = earthquake moment magnitude $[6.0 < M < 8.0]$

R = epicentral distance, km

R^{*} = $R + R_o$

R_o = $10^{0.89M - 5.64}$

S = ground slope (%) $[0.1 < S < 6.0]$

W = free face ratio (%) = $100(FFH/FFL)$ $[1 < W < 20]$

FFH = height of free face

FFL = distance from base of free face

T_{15} = thickness (m) of saturated cohesionless soils with $(N_1)_{60} < 15$ $[1 < T_{15} < 15]$

$(N_1)_{60}$ = standard penetration blowcount normalized to P_a and 60% driving efficiency

F_{15} = average fines content (%) in T_{15} $[0 < F_{15} < 50]$

$D50_{15}$ = average median particle size (mm) in T_{15} $[0 < D50_{15} < 50]$

The limits associated with the above variables represent the range of values in the Bartlett and Youd data set. The simplified approach may result in significant error if site-specific conditions deviate significantly from these limits. Note that the range of $(N_1)_{60}$ is limited to less than 15. Available data indicate that lateral spread displacement does not occur in sediments with $(N_1)_{60}$ greater than 15.

Variation in ground displacement away from a free face can be estimated by computing the displacement using the free face equation (2-16b) with increasing values of FFL (i.e., decreasing free face ratio, W). This is relatively straightforward because there is only one term dependent upon the free face ratio.

The foregoing methods for estimating permanent ground movement relate to maximum displacements in a lateral spread. For the evaluation of pipeline behavior, it is necessary to estimate a transverse distribution of the pattern of ground deformation within the soil mass that moves across or along a buried pipeline. Considerations for defining the pattern of ground displacement are provided in Section 4.5.

2.5 Landslides

Strong ground shaking during earthquakes may trigger landslides in a variety of geologic and topographic settings as depicted in Figure 2.7. The potential threat to pipeline performance is a function of the following:

1. The amount of landslide displacement;
2. The depth of the landslide relative to the depth of the pipeline;
3. The type of ground displacement associated with the landslide movement (i.e., block-type (coherent) movement or disrupted movement); and
4. The direction of landslide movement relative to the pipeline.

An approximate estimate of the magnitude of triggered landslides can be made using the approach sometimes adopted for regional identification of the extent of landslide hazards. The basis of the recommended approach is the sliding block analysis approach developed by Newmark (1965). The approach is applicable to both disruptive and coherent slides. Disruptive slides typically are shallow and are broken during movement into small blocks, rock fragments, or soil particles. Coherent slides typically are deeper seated movements of intact blocks of soil or rock. For both types of slides, a hazard to the pipeline exists only if the pipeline is above the interface of the potential slide zone.

The recommended approach for identifying the potential for triggered landslides requires an estimate of the critical acceleration, A_c, that will trigger down-slope displacement for the type of slide and material. The critical acceleration can be computed using the following equation developed for the assumption of a constant slope and material strength:

$$A_c = \frac{c'}{\gamma \cdot h} + (1-\lambda)\tan\phi' \cos\theta - \sin\theta \qquad (2\text{-}17)$$

where:

h = thickness of the potential landslide

θ = slope steepness angle

c' = effective cohesion of the slope material under dynamic conditions

ϕ' = effective friction angle of the slope material under dynamic conditions

λ = ratio of the pore pressure to overburden stress = $\gamma_w(h - D_w)/\gamma h \leq 0.6$

D_w = depth to water table

γ = unit weight of soil

γ_w = unit weight of water

Equation (2-17) can be used to plot values of A_c as a function of slope angle for various values of c' , ϕ' , h, γ, and D_w.

An example of a plot of A_c versus slope angle is illustrated in Figure 2.8. The curves in Figure 2.8 are based upon common slope material properties listed in Table 2.2 and assume h = 10 ft and γ = 100 pcf. The two groups of curves in Figure 2.8 correspond to completely saturated conditions (i.e., the water table is at the ground surface) or unsaturated conditions (i.e. the water table depth is greater than h).

The computation of slope displacement generally requires the double integration of earthquake ground accelerations larger than the critical acceleration, A_c, that cause the forces driving slope displacement to exceed the resisting forces. This approach implies that one or more ground motion time histories representative of the site under consideration are available. As a simpler alternative, empirical relationships that envelop the displacements computed for a range of time histories are available for estimating slope displacement as a function of peak ground acceleration, *PGA*.

The amount of landslide movement, L_D, can be estimated using the following bounding relationships.

For very firm ground or rock conditions

$$L_D = 1.7 \cdot PGA \cdot (1 - \frac{A_c}{PGA}) \cdot \left(\frac{PGA}{A_c} \right)^2 \qquad \text{(2-17a)}$$

For soil conditions

$$L_D = 3.0 \cdot PGA \cdot (1 - \frac{A_c}{PGA}) \cdot \left(\frac{PGA}{A_c} \right)^2 \qquad L_D \text{ in inches for Group C} \qquad \text{(2-17b)}$$

where:

A_c = critical acceleration (% of gravity) from Figure 2.8

Triggered landslides should be considered possible if L_D is greater than 1 inch (25 mm) for disruptive landslides or 4 inches (100 mm) for coherent landslides. If the possibility of a triggered landslide exists, site-specific investigations should be performed to quantify the magnitude, extent, and likelihood of landslide movements.

The evaluation of pipeline behavior in landslide areas requires the definition of a displacement pattern for the displaced soil mass as shown in Section 4.5.

2.6 Seismic Wave Propagation

Body waves, including compression waves and shear waves, propagate radially from the source of earthquake energy release (hypocenter) into the surrounding rock and soil medium. Compression waves cause axial compression and tension strains in the ground in a radial direction away from the hypocenter. Shear waves cause shear strains in the ground perpendicular to these radial lines. When the compression waves and shear waves are reflected by interaction with the ground surface, surface waves (Love waves and Rayleigh waves) are generated. Except at very large distances from the epicenter, the magnitudes of surface waves are much less than body waves.

A pipeline buried in soil that is subject to the passage of these ground waves will incur longitudinal and bending strains as it conforms to the associated ground strains. In most cases, these strains are relatively small, and welded pipelines typically do not incur damage. Propagating seismic waves also give rise to hoop membrane strains and shearing strains in buried pipelines, but these strains are even smaller and may be neglected.

A relatively simple method based upon an approach developed by Newmark (1965) can be used to obtain an upper-bound estimate of ground strain due to a propagating seismic wave with a constant shape (sine wave). The maximum ground strain, ε_g, is given by:

$$\varepsilon_g = \frac{V_{\max}}{\alpha_\varepsilon c} \tag{2-19}$$

where:

V_{max} = Maximum horizontal ground velocity in the direction of wave propagation

c = Apparent propagation speed of seismic wave (i.e., the component of wave speed parallel to the pipeline under consideration)

α_ε = Ground strain coefficient corresponding to the most critical angle of incidence and type of seismic wave

= 1.0 for compression and Rayleigh waves (ASCE, 1984)

= 2.0 for shear waves (ASCE, 1984)

The apparent propagation velocity is the inverse of the "slowness," a term used in seismology. The slowness is a function of the source-to-site geometry and the wave propagation velocity along the entire path of propagation. Tables of earthquake wave travel times will exist wherever detailed earthquake location work has been performed. An apparent propagation velocity of 2 km/sec can generally be taken as a lower bound estimate to provide a maximum estimate of ground strain.

If there is no slippage of the pipeline relative to the surrounding soil, then the maximum axial strain in the pipeline is equal to maximum ground strain. The ground strain coefficient corrects this ground strain for the effects of pipe orientation relative to the

particular wave motions. If slippage occurs, then pipeline longitudinal strains will be less than the ground strain; hence the assumption that pipeline strain is equal to ground strain is a conservative upper-bound.

The development of the maximum ground strain in the pipeline is dependent upon whether or not there is sufficient pipeline length and a sufficiently long wave length over which to establish equilibrium without longitudinal slipping of the pipeline within the soil. For very soft soils, the assumption of no slipping may lead to a significant overestimate of the strains that can be transferred from the ground to the pipeline.

The maximum ground curvature, κ_g, is the second derivative of the transverse displacement and is given by:

$$\kappa_g = \frac{PGA}{\alpha_\kappa c^2} \tag{2-20}$$

where:

α_κ = Ground curvature coefficient corresponding to the most critical angle of incidence and type of seismic wave

= 1.6 for compression waves (ASCE, 1984)

= 1.0 for shear and Rayleigh waves (ASCE, 1984)

The bending strains calculated by equation (2-20) are of small magnitude. Therefore, as a rule, the effect of curvature associated with seismic wave propagation is neglected.

For buried piping or pipeline segments with significant bends, the strain associated with seismic wave propagation will be influenced by both the virtual anchorage caused by the bend and the local flexibility of the pipe bend. An analysis approach that accounts for these conditions for buried pipelines subjected to thermal strain is provided in Appendix VII of ASME/ANSI B31.1. The same analysis approach may be suitable for determining the effects of seismic wave propagation by equating the seismic strains to thermal strains.

2.7 Transient Ground Deformation

Large transient ground deformations, associated with shear failure of weak soils or liquefaction of subsurface soil layers, have been identified as a potential cause of pipeline damage in recent earthquakes. Two conditions for transient ground deformation (TGD) have been identified based upon investigations following the 1989 Loma Prieta and 1994 Northridge earthquakes in California.

One condition susceptible to TGD is a site close to the earthquake epicenter (typically within 20 km) that is characterized by a narrow valley filled with weak soil overlying much stronger soil deposits and bounded by steep side walls. Such valleys are susceptible to direct lateral loading as the surrounding side walls experience long period displacement pulses associated with the directivity of earthquake rupture (i.e., earthquake

"fling"). During the earthquake, the motions imparted to the soft soil by the surrounding side walls of the valley are sufficient to generate shear failure in the weak soil. This shear failure decouples the soft soil from the motions of the surrounding side walls and can lead to large transient relative motions at the interface between the weak soil and the stronger soil deposits at depth.

The second condition susceptible to TGD is a site experiencing liquefaction in soil confined by non-liquefiable material. In this case, liquefaction acts to decouple the soil response from that of the surrounding non-liquefiable material leading to the potential for large transient relative motions at the boundaries between liquefied and competent soils.

There are no established procedures for identifying and quantifying TGD. Techniques that have been used to identify TGD are limited to studies to identify the cause of failures in older pipelines not typical of current construction practices (i.e., girth welds with severe defects, pipelines with large-angle mitre joints, or pipelines with corrosion defects). The few past studies performed have used detailed subsurface information and analyses incorporating actual earthquake time histories from nearby ground motion recording stations.

Table 2.1 Information Required for Performing Liquefaction Assessment

	Information Required	Notation
SPT Assessment	SPT blow counts collected in accordance with ASTM D-1586	N
	SPT bore hole diameter	D_{bore}
	Length of rod connected to SPT sampler	L_{rod}
	Percentage of hammer energy delivered to sampling rod in SPT	E_{eff}
	Fines content of soil as measured by % of a sample passing a #200 sieve	FC
CPT Assessment	CPT tip resistance in accordance with ASTM D-3441	q_c
	CPT sleeve friction in accordance with ASTM D-3441	f_s
SPT and CPT Assessment	Depth to water table at the time of the SPT or CPT	D_w
	Earthquake moment magnitude	M
	Peak ground acceleration at surface	PGA
	Unit weight of soil	γ
	Depth below ground of test measurement	z

Table 2.2 Slope Material Strengths for Three Common Slope Materials

LABLE IN FIGURE 2.8	SLOPE MATERIAL / SOIL CONDITION	Effective Cohesion, c' (psf)	Effective Friction Angle ϕ'
A	Strongly cemented rocks, crystalline rock, and well-cemented sandstone	300	0
B	Weakly cemented rocks, sandy soil, and poorly cemented sandstone	0	35°
C	Argillaceous rocks, clayey soil, and shale	0	20°

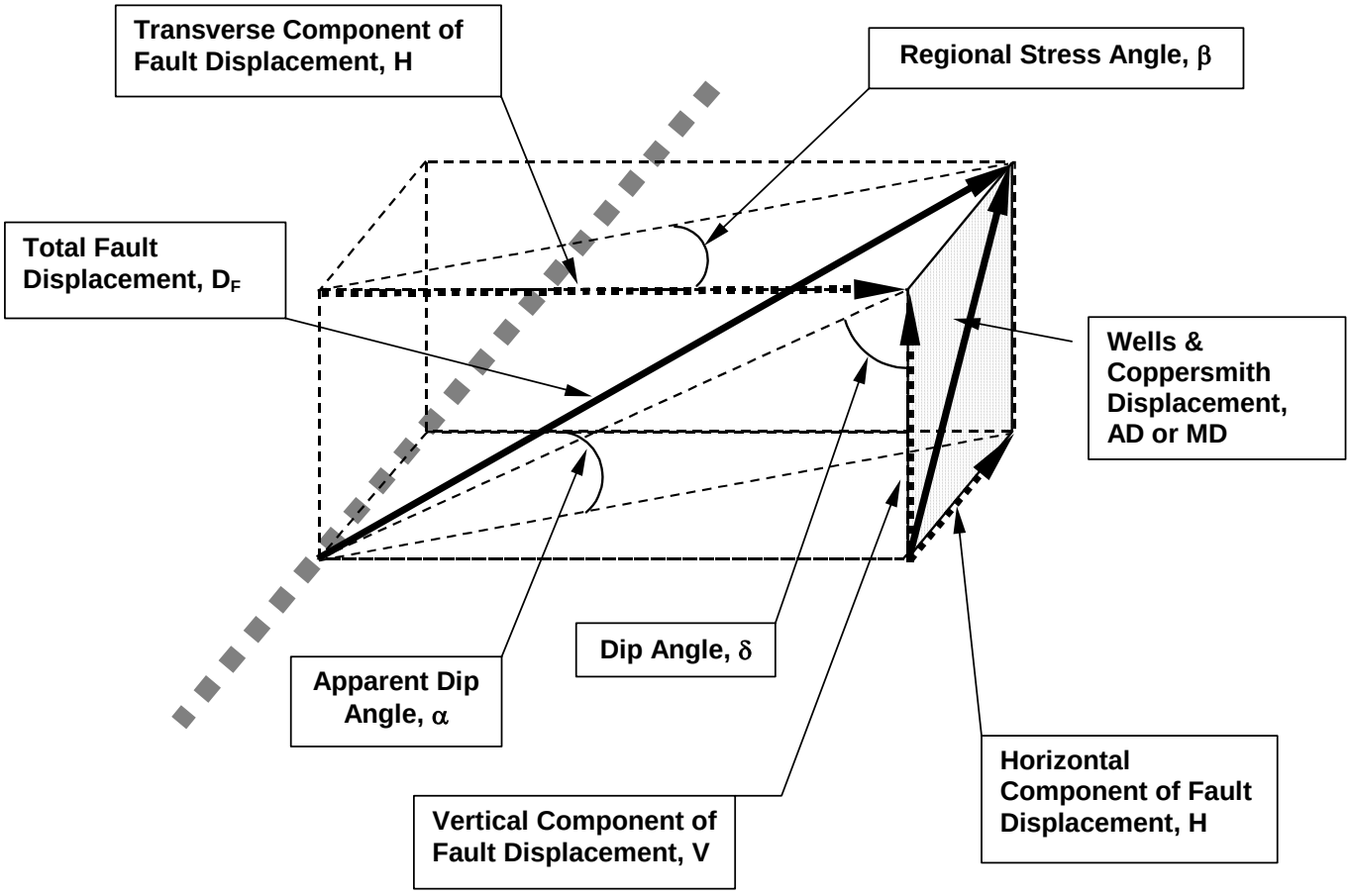

Figure 2.1 Determination of Components of Actual Fault Displacement Based Upon Fault Dip Angle and Regional Stress Azimuth

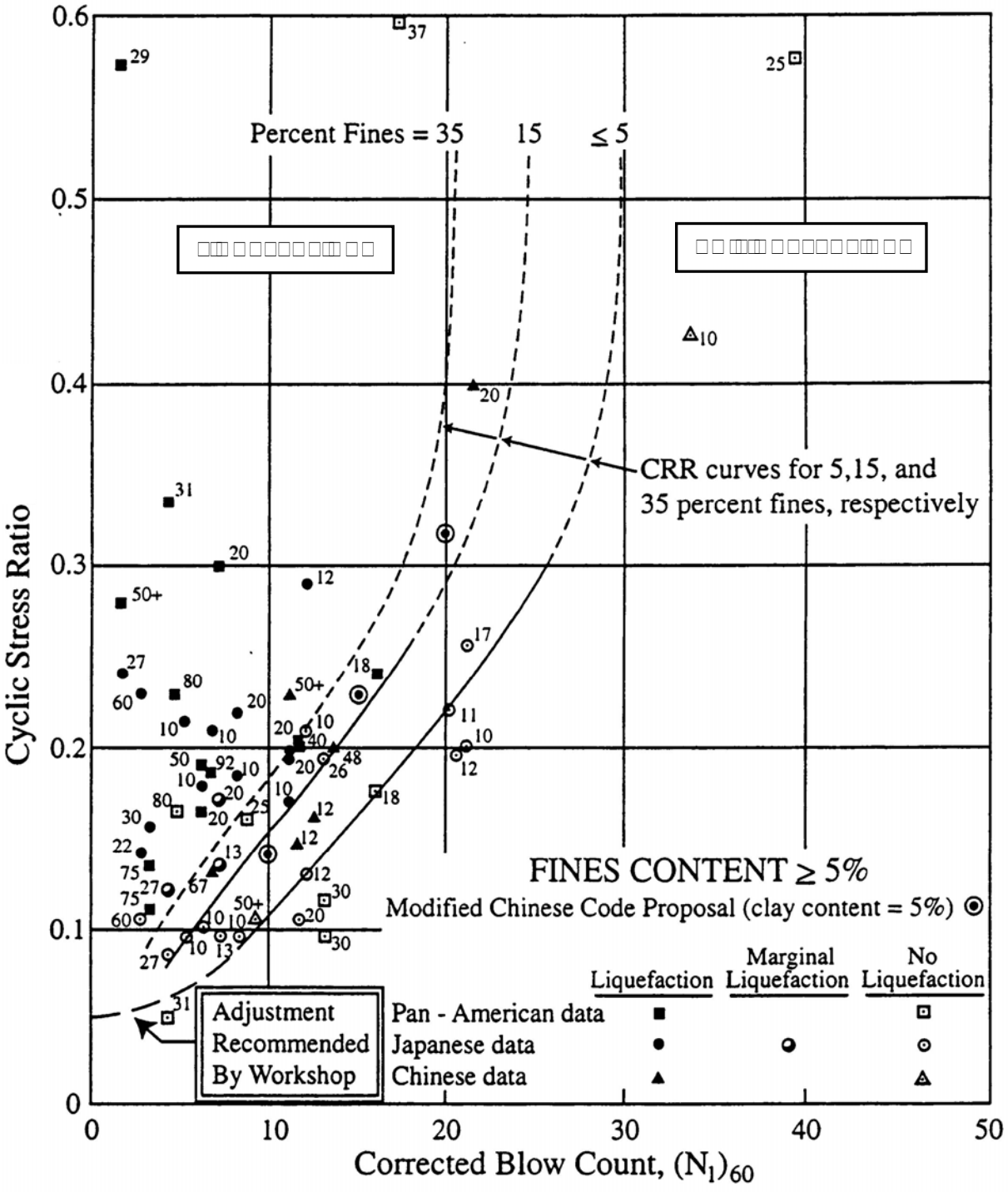

Figure 2.2 CRR Required to Prevent Liquefaction vs. $(N_1)_{60FC}$ (from Youd and Idriss, 1997)

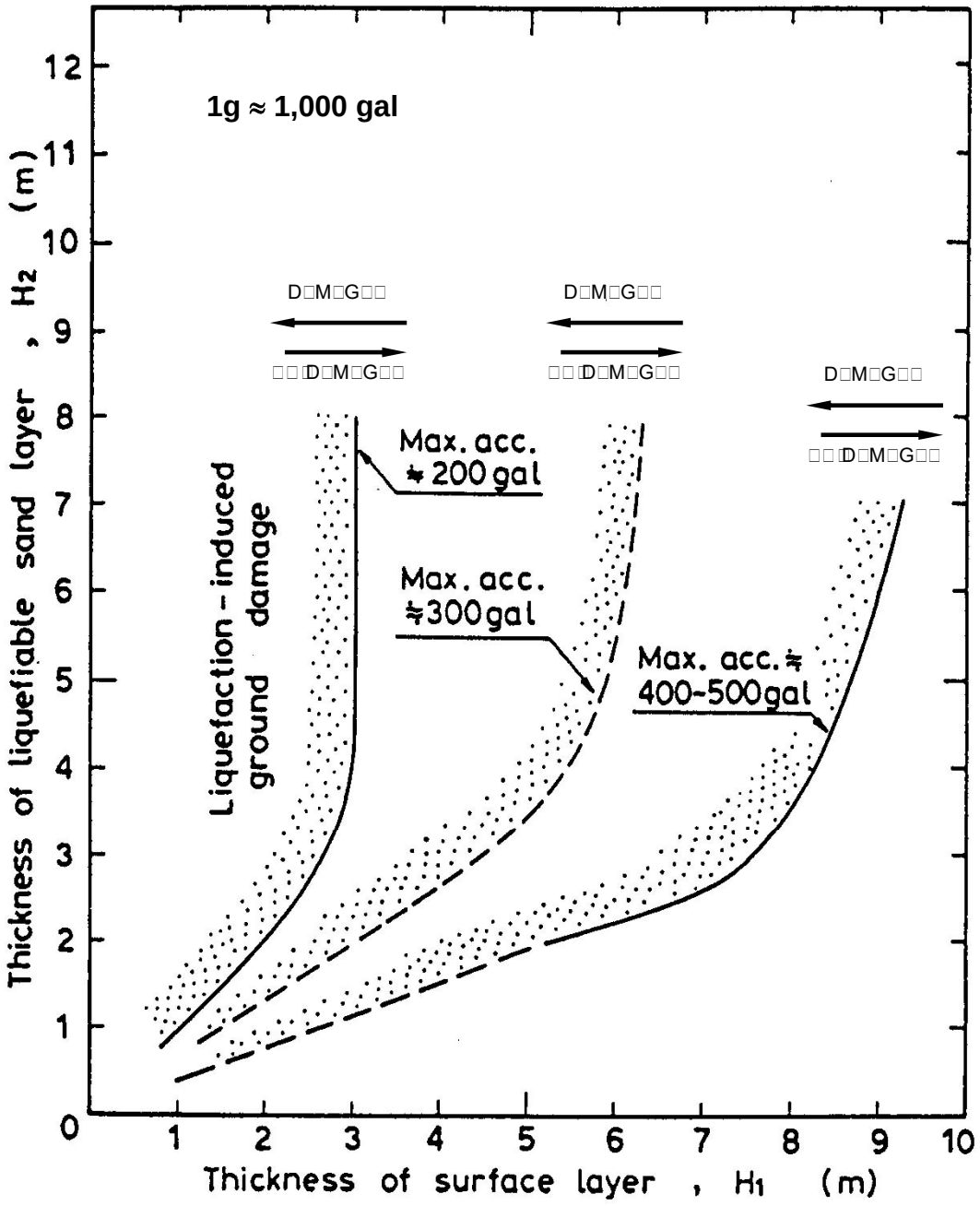

Figure 2.3 Screening Chart for Determining whether Consolidation of Liquefied Soil is a Credible Seismic Hazard (from Ishihara, 1985)

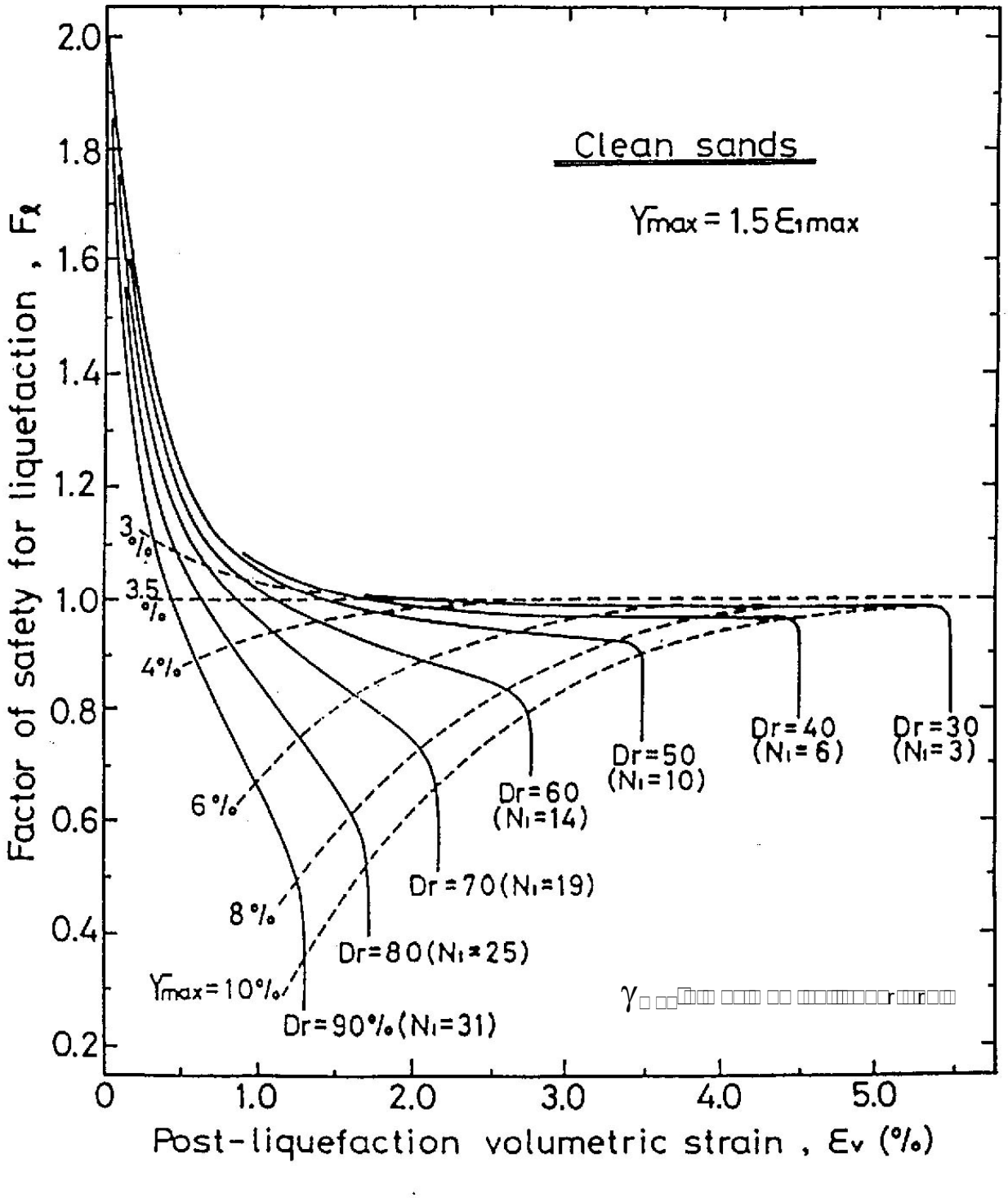

Figure 2.4 Chart to Estimate Earthquake-Related Volumetric Strain in Saturated Clean Sand Soil Deposits (from Ishihara, 1990)

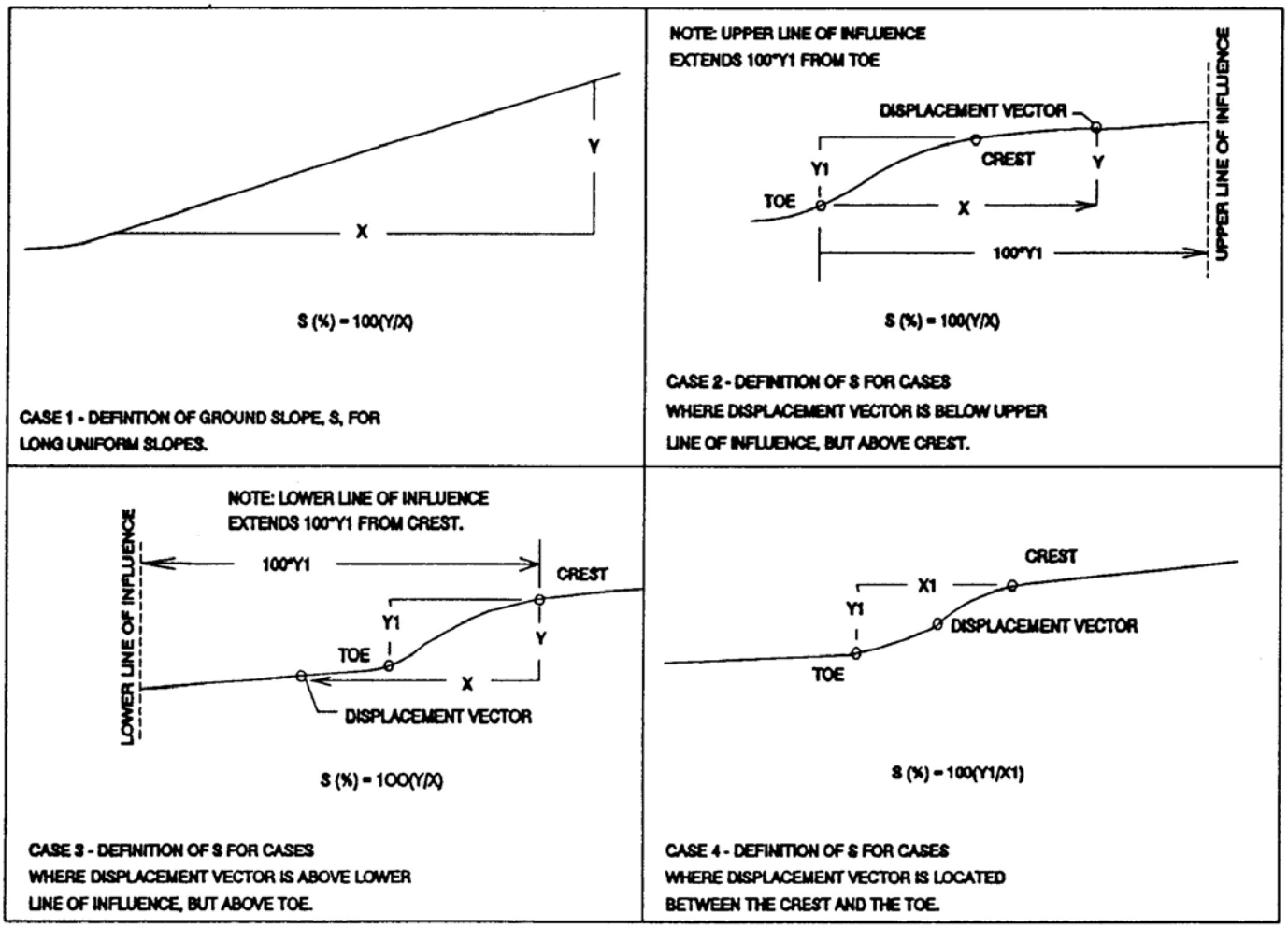

Figure 2.5 Geometry Assumed for Estimating Lateral Spread Displacement for Ground Slope Conditions (from Bartlett and Youd, 1992)

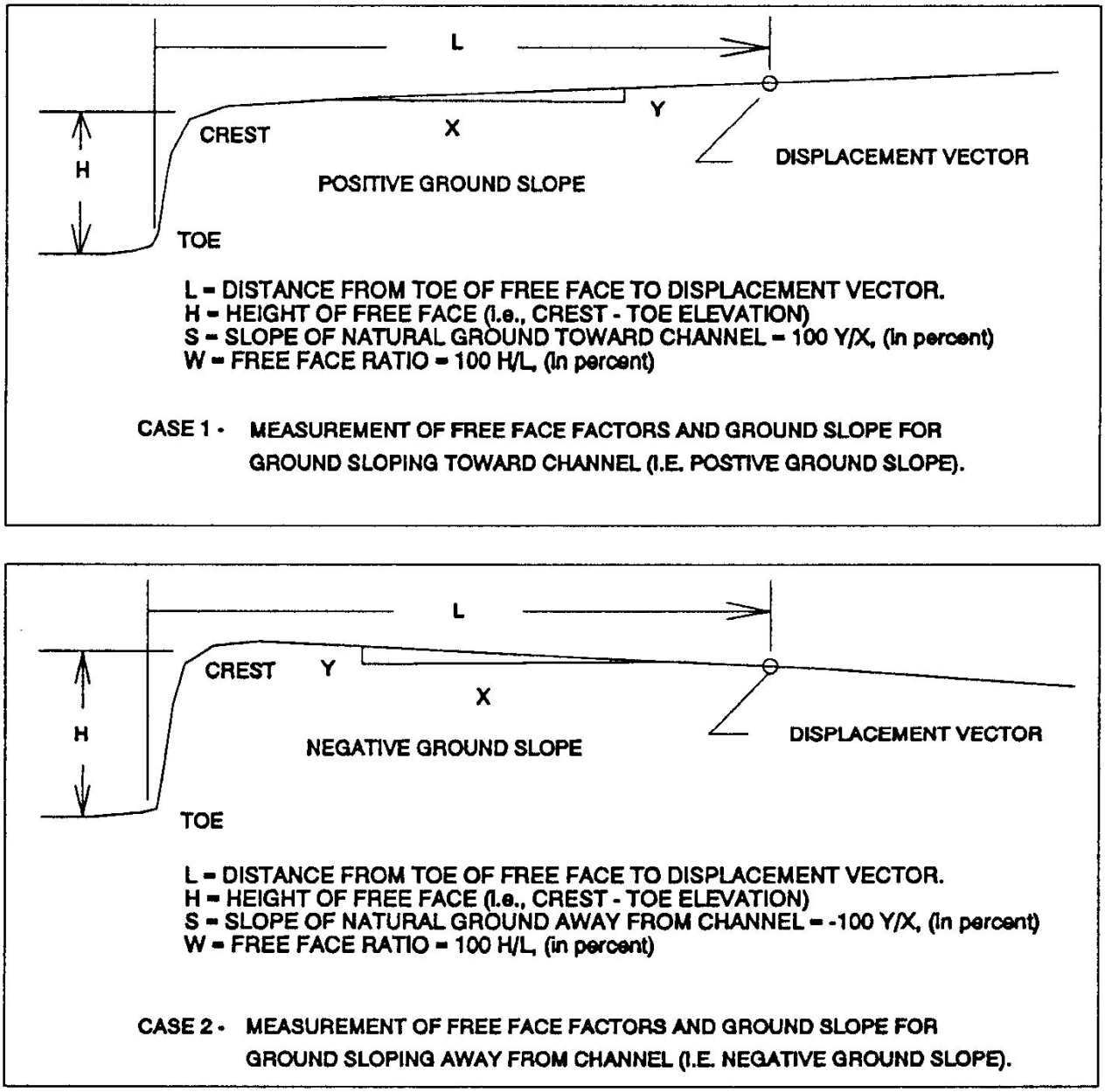

Figure 2.6 Geometry Assumed for Estimating Lateral Spread Displacement for Free Face Conditions (from Bartlett and Youd, 1992)

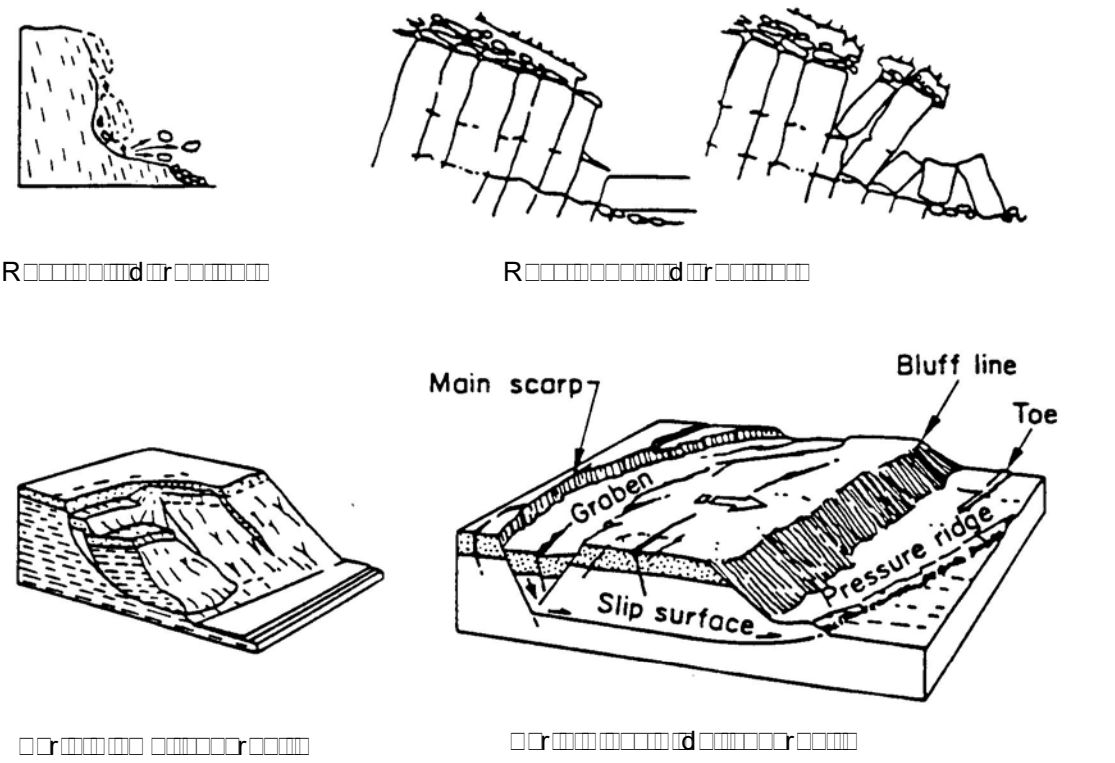

Figure 2.7 Examples of Various Types of Landslides (Varnes, 1978)

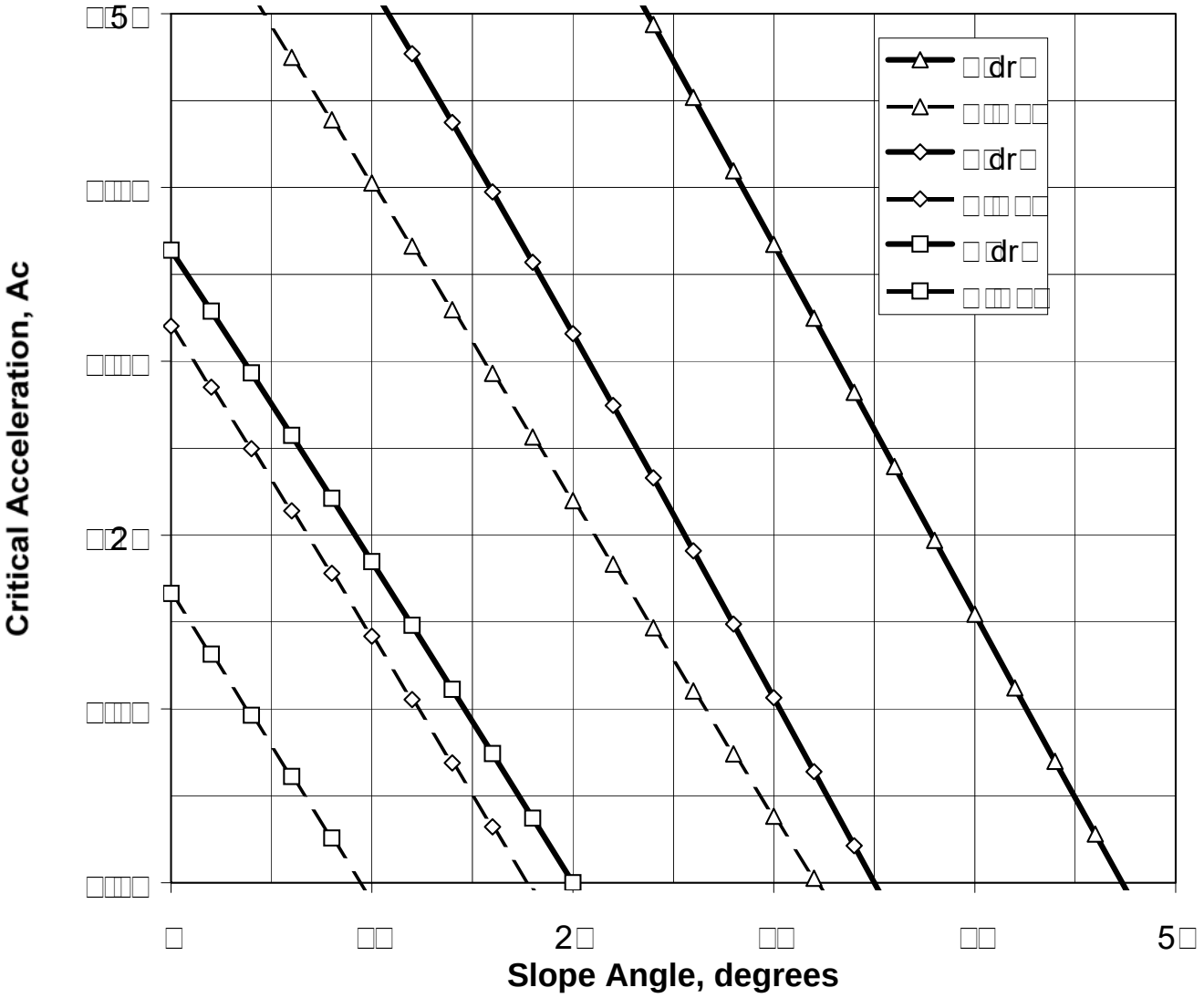

Figure 2.8 Critical Acceleration for Constant Slope and Soil Strength

3.0 PIPELINE PERFORMANCE CRITERIA

The most common type of loads generated on a buried pipeline by seismic hazards is generated by ground movement relative to the pipeline. The pipeline sees no further soil load once it has deformed sufficiently to match the ground movement. This type of loading is commonly referred to as displacement-controlled. Guidance is provided for two performance goals associated with displacement-controlled conditions, maintaining strains to a level that normal operations can continue and maintaining the pressure integrity of the pipeline.

Pipelines buried with minimal soil cover or in relatively weak soils and subjected to high axial loads as a result of ground movement may experience upheaval buckling. While initial pipeline response is displacement controlled, upheaval of the pipeline can lead to some strain relaxation and a related concentration of compression strain in the vicinity of pipeline upheaval. The amount of strain concentration that can occur is limited by the axial soil restraint on the portion of the pipeline that remains buried. This type of behavior is referred to as displacement-limited. Development of significant pipeline compression sufficient to cause upheaval buckling should be avoided by proper orientation of the pipeline relative to the direction of ground movement. Where upheaval buckling can not be avoided, the potential for pipe strains to concentrate needs to be investigated. Such an investigations will typically consider the bending moment capacity of the pipeline, the length of pipeline that might release strain into the portion pipeline undergoing upheaval displacement, and changes in soil restraint as a function of pipeline upheaval displacement. Full treatment of upheaval buckling is beyond the scope of these guidelines.

In some cases, a seismic hazard results in a condition where loads act continuously on the pipeline. This type of loading is commonly referred to as load-controlled. Pipeline strains for load-controlled loading conditions must remain below the strain associated with reduced load carrying capacity of the pipeline. Guidance is also provided for strain limits associated with load-controlled conditions.

All of the strain limit equations in this section are based upon recommendations from previous testing programs. In nearly all cases, strains were measured over a length of pipe, often referred to as the gauge length, equal to 0.5 to 2.0 pipe diameters. For tests that produced wrinkles or buckling in the pipe wall, the gauge length encompassed the wrinkle and buckle. Therefore, the strain limits in this section are applicable to analyses that can resolve global pipe response over a distance of one pipe diameter or less. More refined analytical representation of the pipe (e.g., use of shell elements) will provide information on the strains at a location of local pipe wall distortion. Alternate strain criteria need to be developed to relate pipe performance to these localized strains.

Pipeline performance criteria are defined in terms of allowable longitudinal compression and tension strains for onshore pipelines. The strain criteria assume that an analysis of pipeline response will be performed using finite element techniques and bilinear representation of soil loads as described in Section 4.0. The criteria defined in this section are not applicable to analyses based upon approximations of pipeline response

carried out using hand calculations that cannot resolve pipeline strains within a length of approximately one diameter.

3.1 New Pipelines and Pipelines Compatible with Modern Construction Practices

The strain limits provided in this section are applicable to pipelines that meet the following conditions:

1. Pipe material and fabrication equivalent to that specified in API 5L
2. Joint connections using full-penetration butt welds in portions of the pipeline expected to experience stresses near or above yield (e.g., no belled-end welded joints, slip joints, lap-welded joints, sleeves)
3. Weld quality consistent with current welding procedures (e.g., API 1104)
4. Weld strength matching or exceeding the expected actual pipe strength
5. Pipe, weld, and heat-affected zone toughness:

   (a) Average Charpy energy greater than 40 J (30 ft-lb), or

   (b) Average CTOD toughness greater than 0.20 mm.

6. Ratio of yield strength to tensile strength (Y/T) less than 0.92

Strain limits for computed longitudinal compression and tension strains (hereafter referred to as simply compression and tension strains) are provided for three conditions:

1. Strains resulting from imposed ground displacements with the goal of maintaining pressure integrity of the pipeline with a high likelihood of repairs to the pipeline following the earthquake;
2. Strains resulting from imposed ground displacements with the goal of maintaining normal operation of the pipeline with a low likelihood of repairs to the pipeline following the earthquake; and
3. Strains resulting from load conditions in which the displacement of the pipeline is not limited by ground displacement.

[illegible]

The performance goal, “maintain pressure integrity,” accepts significant ovalization and possible initiation of wrinkle formation in the body of the pipe. With this performance goal, post-earthquake response should include provisions to reduce operating pressure and perform site investigations to identify indications that permanent ground deformation has occurred. Replacement of the damaged portion of the pipeline may be necessary to resume normal operations.

Longitudinal Compression Strain Limit

$$\varepsilon_{cp} = 1.76\frac{t}{D} \quad \leq \quad \text{the longitudinal tension strain limit} \tag{3-1}$$

Longitudinal Tension Strain Limit

$$\varepsilon_{tp} = 0.02 \text{ to } 0.04 \quad \text{(see Commentary)} \tag{3-2}$$

□□□□2□ □□r□r□ □□□□□G□□□□M□□□□□□□□ r□ □□□□ □□r□□□□□□

The performance goal, “maintain normal operability,” provides a high level of confidence of no significant pipeline damage. The expression in equation (3-1) is valid for diameter to pipe wall thickness ratios of 100 or less and provides a term to account for an assumed level of pipe ovaling.

Longitudinal Compression Strain Limit

Recommended relationships for allowable longitudinal compression strains for continued operation are provided for two types of typical pipeline stress-strain curves: (1) those exhibiting typical rounded shapes at yield and (2) those that exhibit a distinct yield plateau.

Rounded Stress-Strain Curve with Plain Pipe Imperfection

$$\varepsilon_{co} = 0.437\left(\frac{t}{D}\right)^{1.72}\left[1-0.892\left(\frac{p}{p_y}\right)\right]^{-1}\left(\frac{E}{\sigma_y}\right)^{0.70}\left(1.09-\left(\frac{\Delta}{t}\right)^{0.086}\right) \tag{3-3a}$$

Rounded Stress-Strain Curve with Pipe End Offset at Girth Weld

$$\varepsilon_{co} = 0.056\left(\frac{t}{D}\right)^{1.59}\left[1-0.868\left(\frac{p}{p_y}\right)\right]^{-1}\left(\frac{E}{\sigma_y}\right)^{0.85}\left(1.27-\left(\frac{imp}{t}\right)^{0.15}\right) \tag{3-3b}$$

Distinct Yield Plateau with Plain Pipe Imperfection

$$\varepsilon_{co} = 1.06\left(\frac{t}{D}\right)^{2}\left[1-0.50\left(\frac{p}{p_y}\right)\right]^{-1}\left(\frac{E}{\sigma_y}\right)^{0.70}\left(1.10-\left(\frac{\Delta}{t}\right)^{0.09}\right) \tag{3-3c}$$

Rounded Stress-Strain Curve with Pipe End Offset at Girth Weld

$$\varepsilon_{co} = 0.404\left(\frac{t}{D}\right)^2\left[1-0.906\left(\frac{p}{p_y}\right)\right]^{-1}\left(\frac{E}{\sigma_y}\right)^{0.80}\left(1.12-\left(\frac{imp}{t}\right)^{0.15}\right) \quad \text{(3-3d)}$$

where:

t = pipe wall thickness

D = pipe outside diameter

p = internal pressure

p_y = internal pressure to produce hoop stress equal to yield stress

σ_y = yield stress

E = modulus of elasticity of pipe material

imp = blister-type initial imperfection expressed as a percentage of wall thickness

Δ = offset between pipe joints at girth weld

Longitudinal Tension Strain Limit

$\varepsilon_{to} = 0.01$ to 0.02 (see Commentary) (3-4)

□□□□□□ □□□d□□ □□□r□□□d□□ □□d□□□□□

The primary earthquake hazards to buried pipelines result in load conditions that are controlled by the ability of the pipeline to conform to the displacement of the ground (displacement-controlled). It is possible that situations can arise in which the loading on the pipeline is not related to permanent ground displacement. For these conditions, pipeline strength is of primary importance. The strain criteria for load-controlled conditions are based upon preventing formation of local wrinkling of the pipe wall and preventing large post-yield tension strains.

Longitudinal Compression Strain Limit:

$$\varepsilon_{cl} = 0.75\varepsilon_{co} \geq 2.42\left(\frac{t}{D}\right)^{1.59} \quad \text{(3-5)}$$

Longitudinal Tension Strain Limit:

$$\varepsilon_{tl} = 0.005 \quad \text{(3-6)}$$

Note that the maximum tension strain limit is equal to the nominal yield strain for pipe materials consistent with API 5L. Given this, the use of the pipe yield stress as a controlling acceptance criterion is also acceptable. If compression strain limits are determined to be less than 0.005, the allowable compression stress limit should be established based upon the stress-strain properties of the pipe material.

3.2 Considerations for Offshore Pipelines

Offshore pipelines that are simply laid on the sea floor with minimum embedment, so as not to be constrained by burial in the soil, can generally accommodate significant levels of deformation without damage. Sections of a pipeline that are trenched into the sea floor will exhibit seismic response characteristics similar to those of onshore pipelines. Both trenched and untrenched pipelines are vulnerable to hazards similar to onshore pipelines including submarine landslides and liquefaction-induced lateral spreads, flow failures, and debris flows. Like onshore debris flows, submarine debris flows can move very quickly and may present a significant load-controlled design condition for an offshore pipeline. In addition, offshore pipelines may be subjected to turbidity currents related to submarine ground failure.

Analysis of offshore pipelines proceeds in the same manner as for onshore pipelines. Assessment of computed pipeline strains needs to address the effects of external pressure to reduce the available compression bending strain. For offshore pipelines, the compression longitudinal bending strain limit is given by equation (3-7):

$$\varepsilon_{cr-p} = \varepsilon_{cr}\left(g - \frac{P_{ext}}{P_{cr}}\right) \tag{3-7}$$

where:

$\varepsilon_{cr\text{-}p}$ = longitudinal compression strain for condition with external pressure

ε_{cr} = limiting compression strain from Section 3.1

P_{ext} = net external pressure = total external pressure – internal pressure

$P_{cr} = \dfrac{P_e \cdot P_y}{\sqrt{P_e^2 + P_y^2}}$ = predicted collapse pressure

$P_e = 2.2 \cdot E\left(\dfrac{t}{D}\right)^3$ = elastic buckling pressure with Poisson's ratio = 0.3

$P_y = \dfrac{2 \cdot \sigma_y \cdot t}{D}$ = pressure to produce cross-section yielding

$$g = \frac{\sqrt{1+\frac{P_y}{P_e}}}{\sqrt{\frac{1}{\left(\sqrt{1+\frac{\delta_o^2 D^2}{t^2}}-\frac{\delta_o D}{t}\right)^2}+\left(\frac{P_y}{P_e}\right)^2}} \le 1$$

δ_o = initial ovalization

3.3 Pipelines Not Compatible with Current Construction Practices

Older pipelines may not conform to the attributes listed in Section 3.1, particularly with respect to pipe toughness and absence of corrosion or weld defects. These conditions may be accounted for in the assessment by appropriate reduction of the allowable strain limits in Sections 3.1.1 through 3.1.3.

Some older pipelines were constructed with a variety of girth weld details with oxyacetylene or arc welding techniques that predated modern day controls on filler material and flux composition and power supply, and lacked good quality control. Bell-and-spigot or bell-bell-chill-ring details are examples of older girth weld details. In addition, older pipelines may have been fabricated in manner that would not be permitted under current codes with such details as mitre bends, wrinkle bends, hot and cold field bends to accommodate changes in alignment. The strain capacity of these types of joints and conditions is highly variable and generally low compared to modern construction. Strain acceptance criteria for these types of pipelines need to be developed on a case-by-case basis. Acceptable approaches for establishing strain criteria include full-scale testing, finite element shell analyses, wide-plate testing, and fracture mechanics evaluations.

More rigorous approaches to establishing allowable strains based upon pipeline inspections and fracture mechanics principles are strongly encouraged. Selecting methods appropriate for specific pipe and load conditions is an area of active research that is not sufficiently developed for incorporation into general seismic guidelines.

4.0 PIPELINE ANALYSIS PROCEDURES

Finite element analysis of pipeline response to imposed ground movements is the preferred means to assess pipeline response using the provisions of these guidelines, particularly considering the advent of high-speed, desktop computers and the proliferation of relatively inexpensive, user-friendly finite element analysis software. The recommended approach is to represent the pipeline with pipe or beam elements and represent the soil loading on the pipeline with discrete spring elements. This approach is illustrated in Figure 4.1.

There are no restrictions on the analysis software that can be used as long as it is capable of capturing the non-linear effects of non-linear soil springs, user-defined stress-strain curves for the pipe material, and large changes in pipeline geometry. The definition of soil springs assumes that the spring forces always act in the axial, horizontal, and vertical directions relative to the pipeline. To maintain this condition for situations where ground and pipeline movements are large, the analysis model should be capable of defining the soil spring displacements relative to the local pipeline coordinate system. The analysis should be capable of accounting for the effects of internal pressure because the hoop stress from internal pressure reduces the longitudinal stress at which the material will yield. It is also very beneficial if the analysis software has the capability to provide computed strains at multiple locations around the circumference of the elements used to represent the pipeline.

4.1 Pipe Element Definition

The pipe element length in regions where the pipe strain is expected to exceed the yield strain (typically at abrupt transitions in ground displacement or locations with abrupt changes in soil restraint such as elbows) generally should not exceed one pipe diameter. Multiple straight or curved pipeline elements can be used to model elbows and bends in the pipeline alignment. The maximum length of pipeline elements used to model elbows should not represent more than a 15° angular change (e.g., at least 6 elements to model a 90° elbow). It is preferable to use multiple curved pipe elements at bends and elbows if they are available. In most cases, the differences in results between using curved pipe elements versus many straight pipe elements are not significant.

4.2 Pipe Stress-Strain Definition

Nonlinear material representation in analysis software is typically based upon a definition of a uniaxial engineering stress-strain curve that is converted to a true stress-strain curve within the software application. Users typically have several options to choose from regarding the modeling of plasticity. For the analysis methodology adopted in these guidelines, bilinear or multilinear isotropic hardening rules based upon a von Mises yield criterion are adequate. Alternate approaches to modeling plastic behavior can also be adopted provided they have a sound basis in engineering mechanics.

4.3 Soil Spring Definition

Soil loading on the pipeline is represented by discrete nonlinear springs as illustrated in Figure 4.1. The maximum soil spring forces and associated relative displacements necessary to develop these forces are computed using the equations given in the sections below.

Soil properties representative of the backfill should be used to compute axial soil spring forces. Other soil spring forces should generally be based upon the native soil properties. Backfill soil properties are appropriate for computing horizontal and upward vertical soil spring forces only when it can be demonstrated that the extent of pipeline movement relative to the surrounding backfill soil is not influenced by the soils outside the pipe trench.

Although tests have indicated that the maximum soil force on the pipeline decreases at large relative displacements, these guidelines are based upon the assumption that the soil force is constant once it reaches the maximum value. The dimension for the maximum soil spring force is force per unit length of pipeline. The equations below are based upon buried pipelines in uniform soil conditions.

For deeply buried pipelines with variable soil properties between the ground surface and the pipeline depth, the equations below may not be representative of the true soil loading conditions. Guidance on how to proceed with variable soil conditions is provided in the Commentary.

Horizontal soil loads on offshore pipelines resting on the sea floor increase more gradually with displacement due to the formation of a mound of soil in front of the pipeline. Determination of the soil spring characteristics for this condition requires special treatment by experienced practitioners and is not covered in these guidelines.

The expressions for maximum soil spring force are based upon laboratory and field experimental investigations on pipeline response, as well as general geotechnical approaches for related structures such as piles, embedded anchor plates, and strip footings. Several of the equations have been derived to fit published curves to facilitate their use in spreadsheets or other computer-based applications.

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$$T_u = \pi D \alpha c + \pi D H \bar{\gamma} \left(\frac{1 + K_o}{2} \right) \tan(\delta) \qquad (4\text{-}1)$$

where:

D = pipe outside diameter

c = soil cohesion representative of the soil backfill

H = depth to pipe centerline

$\bar{\gamma}$ = effective unit weight of soil

K_o = coefficient of pressure at rest

α = adhesion factor, a curve fit to plots of recommended values is

$$\alpha = 0.608 - 0.123c - \frac{0.274}{c^2+1} + \frac{0.695}{c^3+1}$$ where c is in ksf or kPa/50

δ = interface angle of friction for pipe and soil = $f\phi$

ϕ = internal friction angle of the soil

f = coating dependent factor relating the internal friction angle of the soil to the friction angle at the soil-pipe interface

Representative values of f for various types of external pipe coatings are provided below.

PIPE COATING	f
Concrete	1.0
Coal Tar	0.9
Rough Steel	0.8
Smooth Steel	0.7
Fusion Bonded Epoxy	0.6
Polyethylene	0.6

Δ_t = displacement at T_u

= 0.1 inches (3 mm) for dense sand

= 0.2 inches (5 mm) for loose sand

= 0.3 inches (8 mm) for stiff clay

= 0.4 inches (10 mm) for soft clay

□□□2□ □□□r□□□□□□r□□□□□

$$P_u = N_{ch}cD + N_{qh}\bar{\gamma}HD \le Q_d \qquad (4\text{-}2)$$

where:

N_{ch} = horizontal bearing capacity factor for clay (0 for c = 0)

N_{qh} = horizontal bearing capacity factor (0 for $\phi = 0°$)

The expressions below for N_{ch} and N_{qh} are closed-form fits to published empirical (plotted) results (see Commentary).

N_{ch} = horizontal bearing capacity factor for clay (0 for $c = 0$)

$$= a + bx + \frac{c}{(x+1)^2} + \frac{d}{(x+1)^3} \leq 9$$

N_{qh} = horizontal bearing capacity factors for sand (0 for $\phi = 0°$)

$$= a + b(x) + c(x^2) + d(x^3) + e(x^4)$$

Factor	ϕ	x	a	b	c	d	e
N_{ch}	0°	H/D	6.752	0.065	-11.063	7.119	--
N_{qh}	20°	H/D	2.399	0.439	-0.03	$1.059(10)^{-3}$	$-1.754(10)^{-5}$
N_{qh}	25°	H/D	3.332	0.839	-0.090	$5.606(10)^{-3}$	$-1.319(10)^{-4}$
N_{qh}	30°	H/D	4.565	1.234	-0.089	$4.275(10)^{-3}$	$-9.159(10)^{-5}$
N_{qh}	35°	H/D	6.816	2.019	-0.146	$7.651(10)^{-3}$	$-1.683(10)^{-4}$
N_{qh}	40°	H/D	10.959	1.783	0.045	$-5.425(10)^{-3}$	$-1.153(10)^{-4}$
N_{qh}	45°	H/D	17.658	3.309	0.048	$-6.443(10)^{-3}$	$-1.299(10)^{-4}$

N_{qh} can be interpolated for intermediate values of ϕ between 20° and 45°.

Δ_p = displacement at P_u

$$= 0.04\left(H + \frac{D}{2}\right) \leq 0.10D \text{ to } 0.15D$$

□□□□□□ □□r□□□□□ □□□□□ □□□□ □r□□□□

The equations for determining upward vertical soil spring forces are based upon small-scale laboratory tests and theoretical models. For this reason, the applicability of the equations is limited to relatively shallow burial depths, as expressed as the ratio of the depth to pipe centerline to the pipe diameter (*H/D*). Conditions in which the *H/D* ratio is greater than the limit provided below require case-specific geotechnical guidance on the magnitude of soil spring force and the relative displacement necessary to develop this force.

$$Q_u = N_{cv}cD + N_{qv}\gamma HD \qquad (4\text{-}3)$$

where:

N_{cv} = vertical uplift factor for clay (0 for $c = 0$)

N_{qv} = vertical uplift factor for sand (0 for $\phi = 0°$)

$N_{cv} = 2\left(\frac{H}{D}\right) \le 10$ applicable for $\left(\frac{H}{D}\right) \le 10$

$N_{qv} = \tan(\phi)\left(\frac{\phi}{44}\right)\left(\frac{H}{D}\right) \le N_q$ (see Section 4.3.4 for definition of N_q)

Δ_{qu} = displacement at Q_u

= $0.01H$ to $0.02H$ for dense to loose sands $\le 0.1D$

= $0.1H$ to $0.2H$ for stiff to soft clays $\le 0.2D$

□□□□□□ □□r□□□□□□ □□r□□□□ □□□□r□□□□

$$Q_d = N_c cD + N_q \gamma HD + N_\gamma \gamma \frac{D^2}{2} \quad (4\text{-}4)$$

where:

N_c, N_q, N_γ = bearing capacity factors

$N_c = \cot(\phi + 0.001)\left[e^{\pi \tan(\phi+0.001)} \tan^2\left(45 + \frac{\phi + 0.001}{2}\right) - 1\right]$

$N_q = e^{\pi \tan(\phi)} \tan^2\left(45 + \frac{\phi}{2}\right)$

$N_\gamma = e^{(0.18\phi - 2.5)}$ (this is a curve fit to plotted values of N_γ)

γ = total unit weight of soil

Δ_{qd} = displacement at Q_d

= $0.1D$ for granular soils

= $0.2D$ for cohesive soils

4.4 Extent of Pipeline Model

The length of pipeline modeled outside of the zone of applied ground movement is dependent upon the specific pipeline alignment. The length of pipeline needs to be sufficient to assure that small elastic deformations outside the area of high pipeline strains do not significantly change the magnitude of the highest computed longitudinal strains. An estimate of the extent of the model for which the pipe can be considered anchored to the soil, L_{anchor}, can be computed using the following formula:

$$L_{anchor} = \frac{\pi D t \sigma_y}{T_u} \quad (4\text{-}5)$$

The length L_{anchor} is the distance necessary for the axial soil force, T_u, to generate axial yield in the pipeline. Termination of pipelines within a zone of ground deformation should force the pipeline to move with the ground. For example, analysis of straight pipelines crossing faults will have one end of the pipeline model fixed at a distance L_{anchor} from the fault and the other end displaced an amount consistent with the fault movement.

For pipelines that do not have a straight alignment outside of the zone of ground movement (e.g., side bends, over bends, sag bends), a virtual anchor location may exist at a distance considerably less than that estimated by equation (4-6). This actual point at which the pipeline is anchored needs to be considered on a case-by-case basis. If the location of anchorage is not readily apparent, the modeling can include the actual pipe configuration for a pipe length equal to L_{anchor}. Any anchorage provided by the pipe configuration (e.g., bends, elbows, changes in soil cover) will then be captured in the analysis.

4.5 Representation of Applied Ground Movement

Ground movements representative of the displacement patterns and amplitudes for lateral spreads or landslides are applied to the base of the soil spring elements. The ground deformations should be specified based upon estimates of relative ground movement at the depth of the pipeline. Ideally, the expected pattern of ground displacement should be determined on the basis of geotechnical field investigations, but such may not be feasible in all cases considering the spatial extent of pipelines and the potential for numerous hazard areas.

It is always conservative to assume that the ground displacement occurs abruptly. Abrupt ground displacements have been observed at surface faults, as well as the head of landslides and lateral spreads. In some locations, it may be possible to infer future ground displacement patterns from past earthquake displacements. For locations with little earthquake experience to aid in the determination of ground deformation pattern, an abrupt offset cannot be ruled out without the assistance of a specialist in geology or geotechnical engineering.

4.6 Sensitivity Analyses

The selection of material properties, soil strengths, and ground movement patterns is an inherently uncertain process. Generally, additional analyses should be performed to provide information on the sensitivity of the computed strain levels to changes in input parameters when the level of conservatism associated with the input parameters is not well understood. This information can be used to better define the “best estimate” of pipe response and provide information that can be used to assess the level of confidence in the expected pipeline performance. The range of variation to be used in these sensitivity analyses generally can be estimated in conjunction with the selection of baseline parameters and any geotechnical investigations of soil properties and ground deformations. Unless other information is available to determine the amount of variation,

the following are suggestions for examining the sensitivity of the results obtained by analysis:

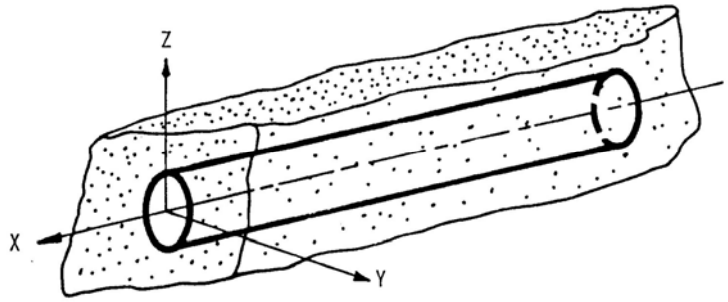
1. Upper-bound estimates of pipe material strength (as opposed to specified minimum values);

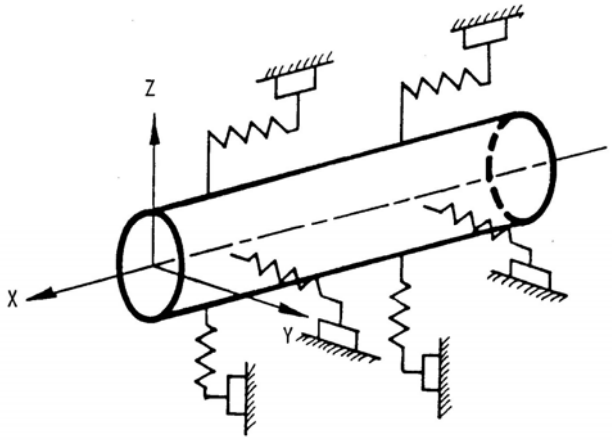
2. Variation in soil strength to capture the reasonable range of upper-bound and lower-bound ranges;

3. Increased applied ground displacement (this can normally be done at the time of the analysis); and

4. Modifications in the ground displacement transitions at boundaries with zones of potential ground movement.

The above variations typically result in a range of acceptable ground displacements or a range of strains for a particular ground displacement value. If a balanced range of parameters is selected, the "best estimate" of pipe response can typically be estimated from the resulting range in pipeline response determined from the variation in input parameters.





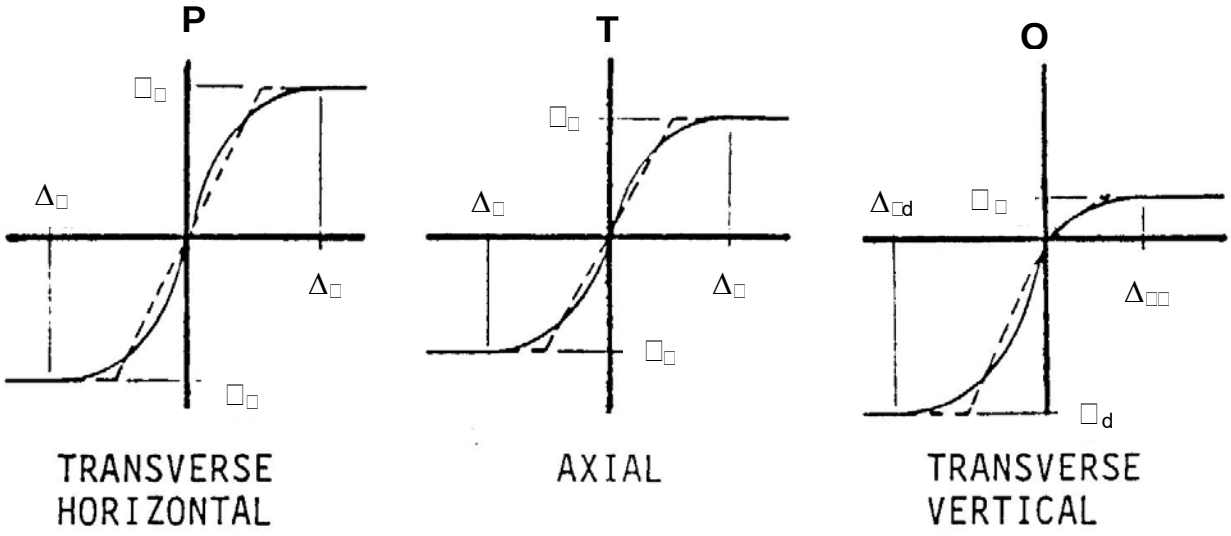


Figure 4.1 Pipeline Modeling Approach

5.0 MITIGATION OPTIONS

There are several options to improve post-earthquake conditions if the pipeline response is found to exceed the acceptance criteria defined in 3.0. Selection of a particular approach is dependent upon considerations that vary with pipeline location, expected failure mode, potential for collateral damage, risk acceptance philosophy, and estimated mitigation costs. Mitigation options fall into one of four categories: (1) relocate the pipeline to avoid the hazard, (2) modify/design the pipe construction to reduce the soil loads on the pipeline, (3) modify the pipeline configuration to increase its ability to resist ground displacement, and (4) modify post-earthquake response procedures to address the consequences of pipeline damage. Relocation to avoid the hazard requires no further explanation. The following discussion focuses on pipeline installation changes and operational measures to improve pipeline performance.

5.1 Modifying Pipeline Loading Conditions

Soil loads on buried pipelines can be reduced in several ways. The most common approach is to minimize the strength of the soils surrounding the pipeline or the frictional characteristics of the pipeline. The alignment of the pipeline can also be modified to change the orientation and distribution of soil loads with respect to the pipeline. Finally, provisions can be made to isolate the pipeline from relative soil movement. Potential options for implementing changes to modify the soil loading on buried pipelines are summarized below. Many of the options have limited applicability because of restrictions related to right-of-way access, the need to avoid existing subsurface structures and utilities, or the compaction requirements associated with various types of land use. Urban environments are particularly restrictive with respect to the feasibility of mitigation options to improve pipeline response.

5 R d M r r

The capacity of a buried pipeline to withstand ground displacements can be improved by minimizing the longitudinal, lateral, and uplift soil resistance to pipe movements.

5.1.1.1 Loose Granular Backfill

A practical means for achieving minimum soil restraint is to bury the pipeline in a shallow trench filled with a loose granular backfill. As depicted in Figure 5.1, the trench walls should be sloped at an angle of about 30° to 45° for horizontal ground displacement components and about 60° for vertical ground displacement components. This trench geometry will allow the soil to fail within the backfill material rather than in the higher strength, undisturbed soil outside the trench.

For typical pipeline trench conditions, loose granular backfills (sand or gravel) will offer less resistance to pipe movement than compacted cohesive backfill materials (clay or silty clay). A granular material with an angle of internal friction of 35° or less is

recommended. To satisfy an angle of internal friction of 35° or less, the backfill material should be a well-graded granular material with 100 percent of the aggregate less than one inch (25 mm) in diameter. The material should be obtained from a natural well-graded fluvial deposit; crushed rock is not acceptable. The backfill should be moderately compacted to a relative density, D_r, of 66 percent or less if achievable.

The assumption of any particular soil condition and the development of spring restraint properties must be consistent with field conditions. In particular, for horizontal relative ground displacement, the logarithmic spiral failure surface (depicted in Figure 5.2) must be enveloped by the limits of the excavated pipe trench that is backfilled with the selected material. Similarly, for vertical relative ground displacements, the upward breakout must occur within the designated backfill. If these trench excavation and backfill requirements are not satisfied, soil parameters applicable to the hybrid situation of in situ soils and trench backfill must be considered in the development of soil restraints for the pipeline, and these restraint properties are typically much higher than for loose granular backfill.

5.1.1.2 Locating Pipeline at or Above Grade

Lateral soil loads can be greatly reduced by placing the pipeline on the ground surface or on aboveground supports. Typcially this is done by attaching sliding shoes to the pipeline that bear on structural steel members tied to the ground or mounted in an aboveground configuration (e.g., aboveground segments of the Trans-Alaska pipeline). Teflon, or other low-friction materials, can be incorporated into the construrction of the sliding shoes to improve the ability of the pipeline to accommodate ground displacement by sliding laterally. Several options for such a modification are shown in Figure 5.3. Where soil cover is required to protect the pipeline from third-party damage, an earthen berm can be used in lieu of burial. Locating pipelines above ground is rarely a practical solution outside of controlled access areas or very remote regions. However, in some cases, it is feasible to construct a sliding support configuration at the bottom of an open trench. The top of the open trench is will generally be covered (e.g., steel grating) to protect the pipeline from vandalism and reduce the impacts on surface activities.

5.1.1.3 Low-Friction Coating or Protective Wrapping

Axial soil friction loads can be further reduced over what is achieved by loose backfill by the use of smooth, hard, low-friction coatings. Larger reductions in axial soil friction can be obtained by creating a preferred slip surface other than the pipe-soil interface. One means of achieving this is to use two separate layers of geosynthetic wrapping as shown in Figure 5.4a. This type of installation forces axial slip to occur at the interface between the two layers of geotextile fabric and can reduce the interface friction angle used to calculate maximum axial soil spring force to less than 10°. In practice, the reduction in axial soil friction force obtained from a double geotextile fabric wrapping should be verified by field tests under soil and backfill conditions that replicate the actual installation. The effects of aging on the low friction interface should also be evaluated.

5.1.1.4 Geosynthetic Lining of Sloped Trench Walls

Additional reduction in horizontal soil load over what can be achieved using loose granular backfill in conjunction with sloped trench walls (see 5.1.1.1) is possible by lining the walls of the trapezoidal trench with two layers of geosynthetic fabric. The two layers of geosynthetic fabric create a low-friction failure surface in lieu of the logarithmic spiral failure surface that would be developed in the backfill material. The load necessary to overcome the friction between the two layers of geosynthetic fabric is much less than that required to develop a shear failure in the backfill soil.

5.1.1.5 Replacing Soil with Geofoam

Geofoam materials offer a means to reduce axial, lateral, and upward vertical soil loads. Geofoam is a rigid cellular plastic foam of either expanded polystyrene (XPS) or extruded polystyrene (EPS). Geofoam has been used extensively in northern Europe for subgrade insulation in regions susceptible to frost heave. Another usage of geofoam in Europe and the U.S. is as low-density fill for construction over weak soils. One common application is to use geofoam as fill for bridge approaches and abutments. Geofoam varies in weight from about 160 N/m^3 (1 lb/ft^3) to 470 N/m^3 (3 lb/ft^3). Compressive strength of XPS is generally less than EPS although the compressive strength of both increases with density. The typical range of compressive strengths is 140 kPa to 240 kPa (20 psi to 35 psi) for EPS and 200 kPa to 500 kPa (30 psi to 75 psi) for XPS.

Replacing soil above the pipeline with geofoam reduces axial friction force by effectively reducing overburden stresses acting normal to the pipeline. Care must be taken to maintain a proper balance between limiting pipeline restraint for ground movement, yet providing sufficient restraint to prevent upheaval buckling of straight pipe and excessive bending stress at pipe bends due to operating load conditions.

Lateral loads/restraints on buried pipelines also can be reduced by using geofoam to replace much of the backfill soil as shown in Figure 5.4b. This load reduction is achieved due to two factors. First, the boundary between soil and geofoam forms a failure surface that is weaker than that corresponding to the logarithmic spiral failure surface depicted in Figure 5.2. Second, the weight of material displaced along the soil-geofoam boundary is much less. The shearing force can be reduced even further by placing loose sand between the geofoam and the native soil or through the use of dual layers of geosynthetic fabric at the interface.

The use of geofoam has some advantages in urban settings because the compressive strength of the geofoam is sufficient to handle light traffic loads. Potential significant drawback to geofoam applications include increased vulnerability to applied external loads, need to prevent contact with gasoline and other organic fluids or vapors, high flammability, and cost.

5.1.1.6 Use of Crushable Material to Limit Maximum Loads on the Pipeline

Controlled strength material around the pipeline can be used to limit the lateral loads that can be exerted normal to the pipe wall. Geofoam and cellular concrete are two materials

well-suited for this purpose since they can experience large compression strain under near-constant compression load. Cellular concrete is a mixture of sand, cement, and water to which a foaming agent or polystyrene beads are added to create small air pockets. The use of crushable material as a mitigation measure is typically only a practical consideration for fault crossings in rock or rock-like materials where very large lateral soil-spring forces can be generated and excavating a trapezoidal trench that can be filled with loose granular material is difficult or impractical. Controlled-strength materials improve pipeline response by allowing the pipe to bend in a more gradual manner to accommodate the imposed ground displacement.

The distance from the pipeline that is to be filled with controlled-strength material is largely governed by the amount of compressive irrecoverable strain that can be accommodated before the material begins to exhibit much higher compressive strength. This strain level is commonly referred to as the lock-up strain. The lock-up strain for cellular concrete can vary from 15% to 35%. The lock-up strain for EPS or XPS geofoam can vary from 25% to more than 50%.

5.2 Ground Displacement

The capacity of a buried pipeline to withstand ground displacement components can be improved by maximizing the distance from the deformation zone (fault rupture, landslide, lateral spread, etc.) to points of virtual anchorage, typically side bends, overbends, and sagbends. Sharp bends, tees, branch fittings, valves, etc. also will have a tendency to anchor the pipeline against axial movement and should be avoided within or near a zone of ground displacement. Good design practice is to provide a straight segment of pipeline as long as practical through and beyond the ground displacement zone to maximize the length of pipeline available to distribute strain.

5.3 Isolation from Ground Displacement

Soil loads on buried pipelines are the result of relative movement between the pipe and the surrounding soil. This relative movement can be minimized or eliminated by providing space around the pipeline that is greater than the relative movement associated with poor pipeline response. Isolating the pipeline from ground displacement is generally practical only when the ground displacements are relatively small, the length of pipeline requiring isolation is relatively short, or the pipeline diameter is relatively small.

Mitigation concepts using culverts allow the pipeline to respond in a manner similar to an on-grade condition. The term culvert refers to any buried structure built partially or completely around the pipeline to provide an unobstructed space for the pipeline to deform in a direction transverse to its axial alignment. Three conceptual culvert configurations are illustrated in Figure 5.5. Culvert concepts are essentially specialized casings and the same problems that can arise for cased pipelines generally apply to culverts. In addition, caution is needed to assure that axial loads from thermal changes or internal pressure do not lead to buckling of the pipe within the culvert. Axial buckling can typically be prevented by incorporating bends or expansion loops in the pipeline.

5.2 Modify Pipeline Configuration

In some cases, minor modifications to proposed or existing pipeline configurations can greatly improve performance. Such modifications include increasing the pipe wall thickness, increasing the strength and toughness of the pipe material, and replacing sharp bends and elbows with induction bends or gradual pipeline field bends.

Increasing the pipe wall thickness increases the allowable longitudinal compression strain and increases the bending and axial strength of the pipeline relative to the soil. Avoiding sharp bends and elbows can minimize the degree to which the pipeline must accommodate the ground displacement through local bending.

Isolation valves, automatic or remotely controlled, may be provided on each side of the zones of ground displacement to mitigate the consequences of possible pipeline ruptures. It should be recognized that the use of automatic or remotely-controlled valves on liquid lines also involves consideration of the effects of hydraulic transients to avoid having a rapid shutdown result in risks from possible overpressurization more significant than the risks from the seismic hazards.

5.3 Modify Emergency Response Procedures

Knowing that a pipeline is susceptible to earthquake damage and planning for the damage in the event an earthquake occurs is often sufficient to assure that the performance criteria for the overall system are met. Planning for pipeline earthquake damage is not fundamentally different than planning for damage from any other source. However, normal emergency response procedures are typically inadequate for dealing with post-earthquake recovery, because there may be multiple emergencies occurring simultaneously at a time when the general civil infrastructure is damaged (e.g., roads, bridges, electric power, communication) and access to the pipeline or coordination of inspection and repair efforts may be impeded.

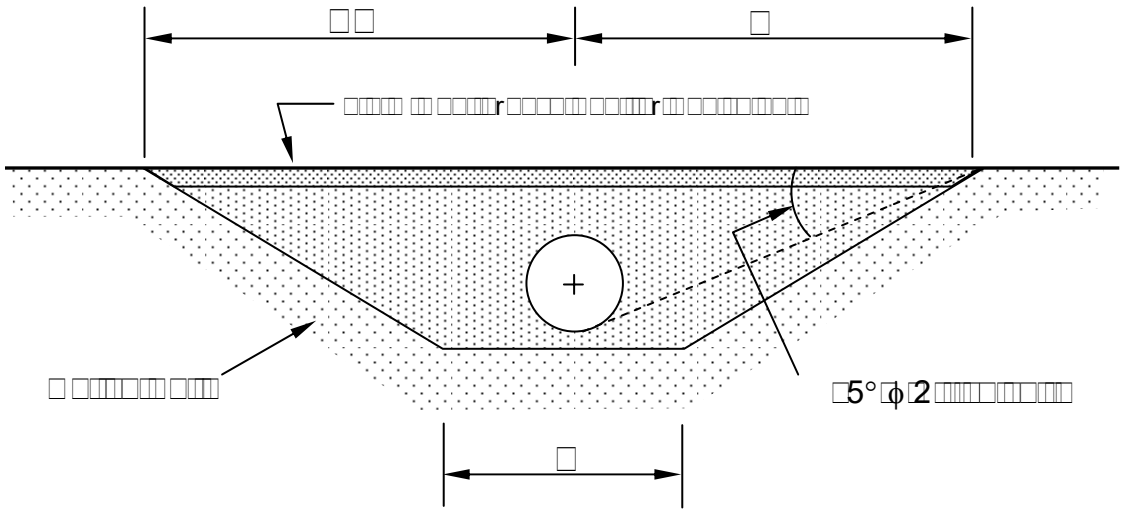
Knowledge of the conditions under which emergency response procedures will be implemented is vital. A partial list of some conditions to consider is provided below:

1. Normal electric power may be lost for several hours to several days.
2. Water and sanitary services may be lost for several hours to weeks.
3. There likely will be reduced demand for product.
4. Telephone services, wire and wireless, may be interrupted or heavily congested.
5. Highway bridges and over passes may be damaged, resulting in road closure.
6. Traffic may be congested due to road damage and emergency activity.
7. Personnel may be unavailable due to property damage, injury, or family needs.

8. Maintenance and construction contractors may be unavailable due to increased demand for their services or damage to their facilities.
9. Repair crews may be hampered by food and fuel shortages and interruption of electric power, water, and sanitary services.
10. Damage to adjacent facilities may hamper access to pipeline repair areas.
11. Replacement pipe, fittings, and valves may be unavailable in the quantities required.

Planning for rapid earthquake response needs to be coordinated with local and regional government authorities, as well as key customers. Identifying potential post-earthquake response needs with local and regional governments can minimize delays in accessing damaged portions of the system and problems that may arise with securing a work site. Also, governmental agencies can provide important information on the earthquake hazard and expected levels of earthquake damage to buildings and services such as electricity, water, sewer, and transportation. Making customers aware of the potential severity and duration of service interruption can allow them to incorporate the information into their own emergency response planning.

Finally, it is not sufficient to simply have an earthquake response plan. Because of the infrequent nature of earthquakes, regular earthquake simulation exercises are necessary to maintain personnel readiness and identify potential planning deficiencies. These exercises should be coordinated with local and regional planning exercises to identify coordination issues and take full advantage of current information on earthquake hazards and other earthquake damage that could potentially jeopardize a rapid response to pipeline damage.



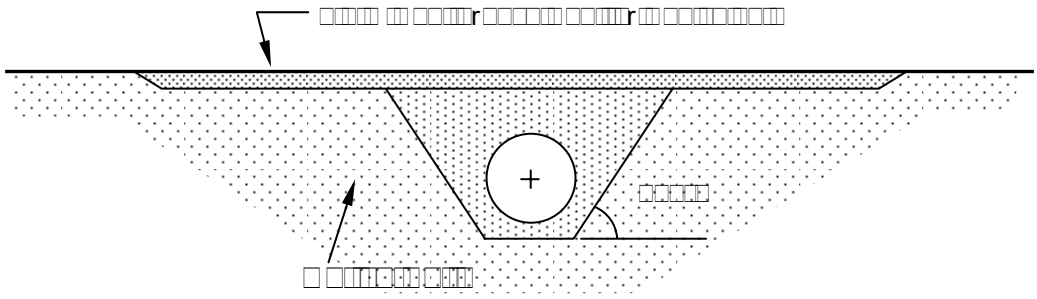


Figure 5.1 Use of Loose Granular Backfill to Reduce Soil Loads

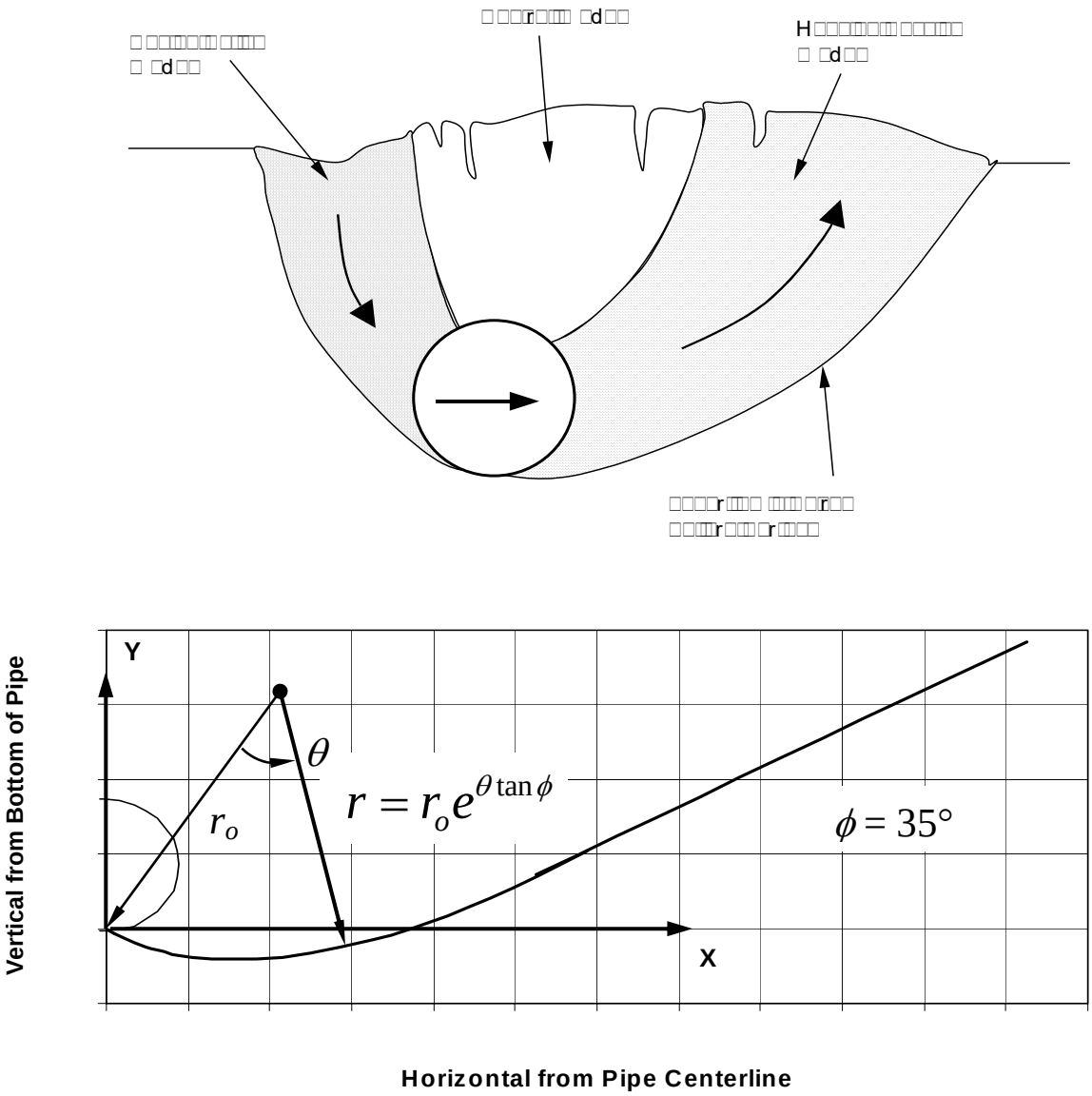
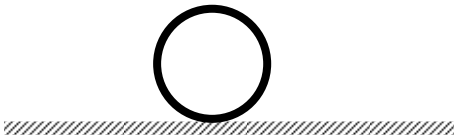
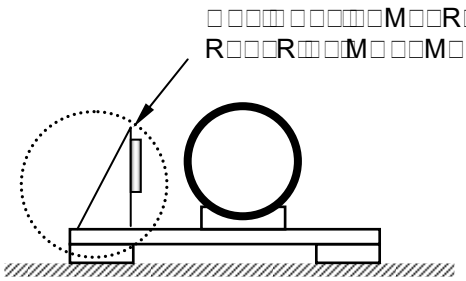
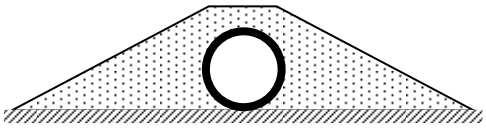
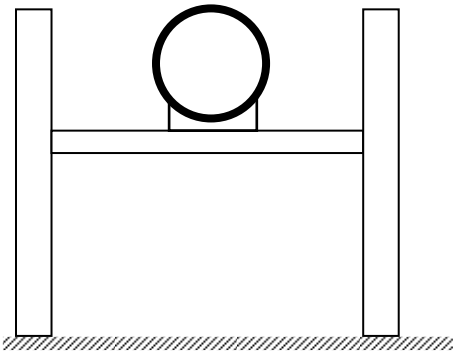


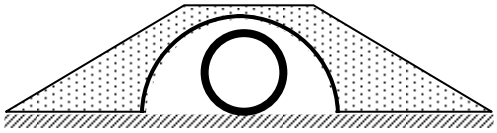
Figure 5.2 Theoretical Logarithmic Spiral Failure Surface











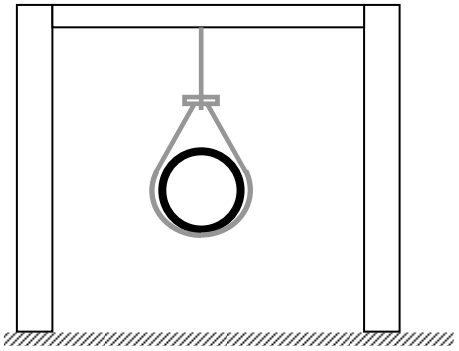
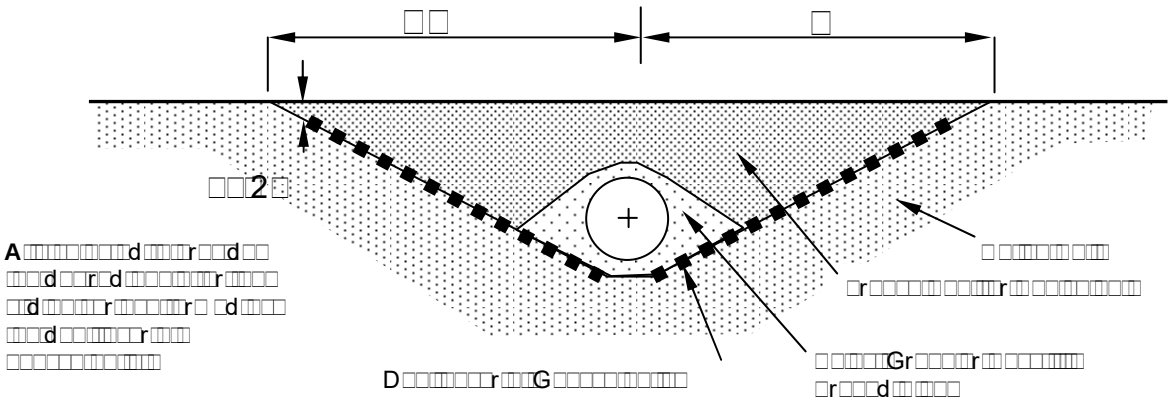


Figure 5.3 Aboveground Mitigation Concepts



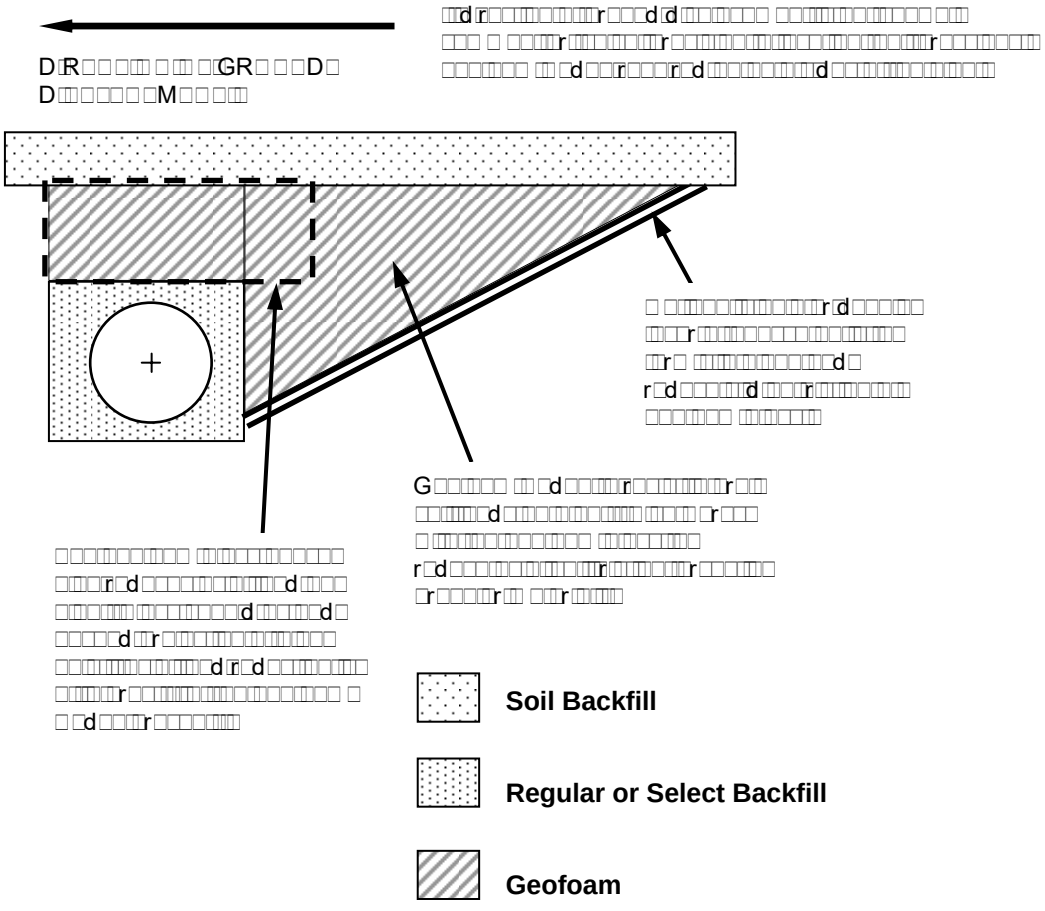


Figure 5.4 Application of Geosynthetic Geofoam Materials to Reduce Soil Loads

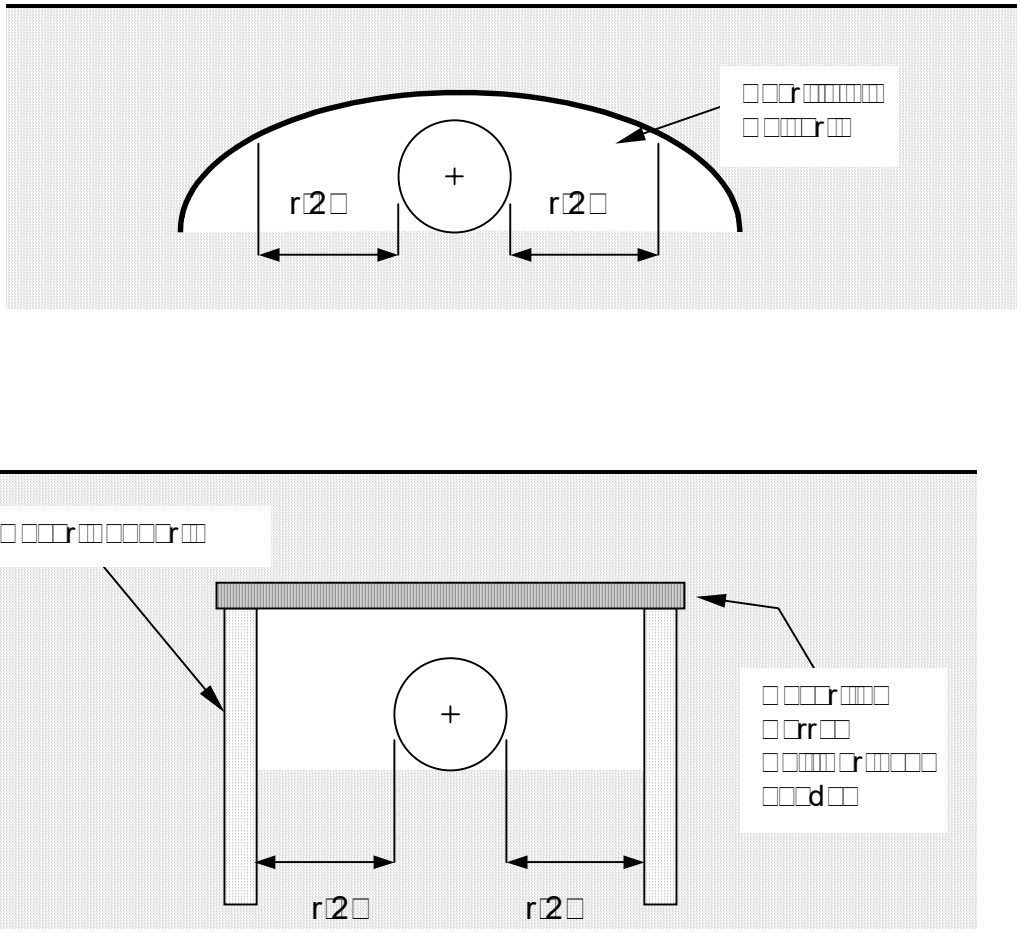


Figure 5.5 Culvert Concepts to Isolate Pipelines from Relative Ground Displacement (Ground displacement reduced by “rattlespace”, r)

GUIDELINES FOR THE SEISMIC DESIGN AND ASSESSMENT OF NATURAL GAS AND LIQUID HYDROCARBON PIPELINES

PART II

COMMENTARY

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C1.0 GENERAL PROVISIONS

The presentation of these guidelines utilizes a format in which a concise set of general procedures is provided separate from more detailed discussion. This Commentary is meant to provide the necessary background and discussion in order to properly implement the recommendations contained in Part I: Guidelines and Recommended Procedures. This format was selected to provide easy reference for users once they have familiarized themselves with the entire guidelines document.

C1.1 Application

These guidelines should not be interpreted as a set of minimum requirements for a particular application. Instead, the goal is to provide consistency among the definition of seismic hazard, analytical methods, and acceptance criteria. Modifications to the level of analysis or the definition of seismic hazard will necessarily lead to a change in the acceptance criteria.

The acceptance criteria in these procedures are based upon consideration of steel pipe with butt-welded pipe joints. This has been the typical configuration for natural gas and liquid hydrocarbon transmission pipelines for the past 40 to 50 years. These guidelines do not cover piping configurations that include appurtenances such as valves, meters, filters, branch line connections, flange connections and other configurations with deformation limits considerably different from butt-welded steel pipe.

C1.2 Process

The procedures in these guidelines are consistent with the philosophy that the earthquake hazards are defined in a conservative fashion, and the subsequent pipeline assessments are based upon more liberal strain acceptance criteria. With this philosophy in mind, the performance goal for a pipeline defines the expected occurrence rate of the earthquake hazard.

Defining the target performance goal for assessing pipeline response to seismic hazards is a fundamental and critical task. It is incumbent on the pipeline owner to determine an appropriate level of seismic risk considering public safety, service reliability to customers, regulatory agency approval, potential property and environmental damage, and protection of capital investment. The definition of performance goal should be in terms of an acceptable median annual probability for experiencing an unacceptable level of pipeline performance (e.g., continued function or pressure integrity).

Identification and quantification of seismic hazards requires expertise in the fields of geology and seismology. In addition, quantification of the soil properties necessary for the evaluation of pipeline response requires expertise in the field of geotechnical engineering. It is assumed that sufficient information on the seismic hazard and soil conditions is available for use with these procedures. In most cases, estimates of soil

strength parameters will require subsurface site investigations and laboratory tests of soil samples.

While the scope of these procedures is directly applicable to earthquake-generated hazards, the procedures can be extended to other non-seismic hazards that produce permanent ground movements along a pipeline alignment such as slope movement and ground settlement provided such hazards are defined in a similar fashion (i.e., the hazards are directly related to the target performance goal). These procedures may also be extended to other pipeline systems (e.g., chemical, water) provided adequate consideration is given to the operational characteristics that differ significantly from natural gas and liquid hydrocarbon pipelines. Such characteristics may include alternate pipe material and alternate pipe construction methods.

The approach in these guidelines differs from typical practices embodied in building codes that rely on partial safety factors to achieve a target level of reliability. The simplified approach in these guidelines is justified by the current inability to reasonably quantify the uncertainty in estimating various seismic hazards, soil loading parameters, and pipeline performance under specific strain levels. For most building codes, conservatism in design methods and specification of safety factors are specifically intended to result in a probability of not meeting a performance objective (e.g., building collapse) that is less than the probability of experiencing the design seismic ground motions. As an example, U.S. building codes are intended to achieve a mean annual probability of building collapse from earthquakes no greater than $4x10^{-4}$. The building design is based upon earthquake ground motions with a mean annual probability of exceedance of approximately $1x10^{-3}$ to $2x10^{-3}$. Thus, use of these guidelines with seismic hazard definitions based upon design values specified in building codes will not generally result in the same level of performance intended for buildings. Instead, to achieve a level of reliability that approximates that for buildings, these guidelines require that the annual probability of exceeding seismic hazards be the same as the probability of not meeting the building performance objective. Using the above example for the U.S. leads to defining the mean annual probability of exceedance for the seismic hazard as $4x10^{-4}$.

In actual practice, it is more typical for performance goals to be defined by mean annual probabilities of $1x10^{-3}$ to $2x10^{-3}$ for experiencing loss of pressure integrity from a seismic event. Adopting lower performance goals compared to what are intended for new buildings is justified considering the relatively low potential for significant safety consequences from damage to natural gas and liquid hydrocarbon pipelines compared to large occupied buildings.

In some cases, pipeline operators may wish to achieve a very high level of reliability for especially critical pipelines. The approach in these guidelines is to introduce additional conservatism by considering less frequent and more severe earthquake hazards. Users are cautioned that this approach may not be appropriate when performance goals dictate that earthquake hazards with mean annual probabilities of exceedance are considerably less than $4x10^{-4}$. Caution is required because of the fact that the majority of the available methods for estimating seismic ground displacements are empirical and based upon a limited set of historical observations. Because of this, extrapolation to extremely rare

seismic events can be highly imprecise. If it is necessary to achieve extraordinarily high levels of reliability, the necessary conservatism needs to be achieved through a combination of a low likelihood of experiencing a seismic hazard and a high likelihood (higher than considered in these guidelines) of achieving specific pipeline capacity without compromising pipe performance (e.g., maintaining operability or pressure integrity). Establishing appropriate levels of conservatism in hazard definition and pipeline capacity will typically require a more formal formulation incorporating state-of-the-art methods that are beyond the scope of these guidelines.

C1.3 Alternate Procedures

The relationships for soil loads and pipeline limit states are based upon information that can be obtained readily through available construction records or standard geotechnical investigations. Field and laboratory tests of actual pipelines and soil conditions are generally much better representations of actual behavior. However, specific tests are not typically performed because of the relatively high costs and difficulty in extrapolating data from a few locations to represent conditions present over long sections of the pipeline alignment. For these reasons, the procedures have been formulated based upon what is believed to be readily available information.

Nonlinear, large-displacement finite element analysis, with the pipeline represented by beam-like elements with nonlinear stress-strain properties, is the recommended approach. In some cases, bounding analyses using simplified calculation procedures may be sufficient to assess pipeline response. It is also possible to perform more complex finite element analyses with the pipeline represented by shell-elements. Such refined analyses are not prohibited by these guidelines and have been shown to provide good correlation with pipeline behavior in controlled tests. However, it should be recognized that the methods described in these guidelines for determining soil restraint boundary conditions do not apply to finite element models represented by shell elements. Furthermore, it is doubtful that shell element soil restraint properties could be developed without extensive, full-scale test programs. Consequently, the use of shell element models for the pipeline should be restricted to investigations of localized response of the pipeline where non-linear deformations (e.g., wrinkling, buckle formation) are expected.

C1.4 Required Information

The information requirements listed are based upon data necessary to implement the procedures in these guidelines. The sources of this information may include mill tests, laboratory tests, geotechnical investigation, and seismic hazard assessment.

C2.0 QUANTIFYING SEISMIC HAZARDS

Seismic hazards affecting buried pipelines are divided into two categories: permanent ground deformations (surface faulting, lateral spread movement, subsidence, landslide) and dynamic strains from wave propagation.

The response of buried pipelines to inertial shaking effects (i.e., the pipeline vibrating within the soil) are not considered in these guidelines, as past experience and prior studies show that these do not have a significant effect on pipeline stress or strain (Nelson and Baron, 1981; Parnes and Weidlinger, 1979).

C2.1 Surface Faulting

Faulting is the deformation associated with the relative displacement of adjacent parts of the earth's crust. Fault displacements can occur rapidly during an earthquake (duration on the order of one to several seconds). In addition, relatively minor displacements may accumulate gradually over many years as aseismic creep.

Faulting that results in surface rupture is an important consideration for buried onshore pipelines, because pipelines crossing fault zones must deform longitudinally and in flexure to accommodate ground surface offsets. For offshore pipelines that are simply laid on top of the seafloor, fault movements are generally of little, if any, consequence. Due to the unrestrained pipeline configuration, strains induced by fault movement will be only a small fraction of those that would be developed in a buried pipeline with similar dimensional characteristics and properties. It is possible that offshore faulting could produce a vertical offset that would cause a segment of the pipeline to be elevated above the seafloor for a short distance, and, hence, cause concern for vortex-induced oscillations from water currents. It is not practical to attempt to design for such a remote possibility in advance, particularly considering that fatigue damage to the pipeline would not occur for some time, probably years. For offshore pipelines that are intentionally buried (typical for pipelines in less than 100 feet of water) or are expected to become buried as a result of sea bottom sediment transport processes, the treatment of offshore pipelines mirrors that for onshore pipelines.

Faults are classified on the basis of their direction of movement with respect to the ground surface. The various types or classifications of fault movement are illustrated schematically in Figure C2.1. A strike-slip fault is one in which the predominant component of ground movement is horizontal displacement. If the movement of one side of the fault when viewed from the other side is to the right, the fault is called a right-lateral strike-slip fault. When the movement is to the left, the fault is called a left-lateral strike-slip fault. Normal-slip and reverse-slip faults are those in which the overlying side moves downward and upward, respectively, in relation to the underlying side of the fault. In many cases, faults exhibit a combination of strike-slip and normal or reverse-slip movements.

The effect of right-lateral strike-slip movement on a buried pipeline is illustrated in Figure C2.2. For some faults, the maximum credible surface movements can be as large as 10 meters for strike-slip faults and 5 meters for normal-slip faults. In some cases, ground movements for a particular fault may occur over a number of closely-spaced parallel fault traces or splays within a fault zone, and consideration must be given to the total as well as the individual movements within the zone.

The evaluation or design of a pipeline crossing a fault generally requires the following information:

1. Location of the pipeline-fault intersection and error bounds on location (e.g., ±50 meters).

2. Expected allocation of fault slip among multiple fault splays, if applicable.

3. Angle of intersection of the fault with the pipeline alignment at the point of crossing.

4. Type of slip expected (e.g., strike-slip, normal-slip or reverse-slip).

5. Width of the zone of disturbed ground. For strike-slip faults, the zone of ground distortion will be on the order of 2 to 5 meters. For normal or reverse faults, the principal zone of surface disturbance is typically on the order of 5 to 15 meters. For reverse faults, secondary surface cracking and heaving may occur over a distance of as much as 200 meters on the hanging wall block of the fault.

6. Fault dip angle.

7. Design fault displacement (defined as orthogonal components of displacement in three-dimensional space).

Generally, a fault is considered active if it can be demonstrated to have displaced the surface of the ground during the Holocene Epoch, i.e., within the past 11,000 years. This, of course, assumes that faults with evidence of such historic movement will be the ones that move again. This has not always been the case. The 1999 Hector Mine earthquake in southern California occurred on a fault that was shown on fault maps to be "inactive," albeit some geologists believe that the fault rupture was closely tied to an adjacent active fault system.

In some jurisdictions, fault activity may be defined by regulatory bodies. In California, the Alquist-Priolo Special Studies Zones Act of 1972 provides special regulations regarding land uses near faults that are "well defined" and "sufficiently active." In this context, well-defined implies that the fault can be detected by a trained geologist as a physical feature, at or just below the ground surface. "Sufficiently active" is defined as having evidence of Holocene surface displacement along one or more segments.

Unfortunately, there are no reliable means for predicting the probability of future fault displacements. The basic mechanisms that govern such phenomena are measured in terms of thousands of years, i.e., orders of magnitude greater than the design life of the

pipeline. Consequently, for the evaluation or design of pipeline crossings of active surface faults, it is necessary to utilize judgment based upon experience and consideration of the best available data.

The preferred method for estimating fault displacement is to rely on historical data on fault displacement or the findings from site-specific studies that may include examination of topographic features, observations of geomorphic features, or trenching across the fault to identify historical evidence of past fault displacement. For most pipelines, this preferred approach is only practical where site-specific studies have previously been performed for the purposes of refining regional seismic hazard estimates. In lieu of site-specific information, estimates of fault displacement often rely on empirical methods tempered by the judgments of individuals experienced in their development and limitations.

2 r M d r D

A number of investigators have compiled statistics regarding historic fault displacements as a function of earthquake magnitude, fault rupture length, and other related parameters. The most recent compilation was done by Wells and Coppersmith (1994) using a worldwide data base of source parameters for 421 historical earthquakes. In their study, Wells and Coppersmith developed a series of empirical relationships among moment magnitude, surface rupture length, subsurface rupture length, down-dip rupture width, rupture area, and maximum and average displacement per event.

The data sets for the two regression equations given in these guidelines include displacement data for all types of slip, i.e., strike-slip, normal-slip and reverse-slip faulting. Regression equations that are unique for particular slip types are also available in Wells and Coppersmith, but the correlation is unsatisfactory for reverse faults, probably due to the difficulty in making reliable field observation of reverse-slip movements. Wells and Coppersmith (1994) recommended using the regressions for an aggregate of “all” types of slip.

The surface rupture length is not necessarily the entire length of the fault trace visible on the surface but, rather, it is the maximum length of the fault segment crossing the pipeline that, by reasonable and qualified judgment, can be expected to rupture during an earthquake. Such judgments should be made by geologists with knowledge of regional seismotectonics and with reference to site-specific information and studies. As an upperbound estimate of fault displacement, it may be appropriate to assume that the fault can rupture along its entire length. However, this could lead to unnecessarily conservative design displacements.

In regions where probabilistic or deterministic ground shaking hazard maps have been developed, information on fault length may be readily available (e.g., consider the fault map data provided for use with the 2000 International Building Code in the U.S.) Other information sources include the U.S. Geological Survey (U.S.), Canadian Geological Survey, Pacific Geological Survey (British Columbia, Canada), and the California

Geologic Survey. In the absence of published information, it may be necessary to conduct geologic field studies in order to estimate fault length. Surface expression of fault movement can be considered unlikely for earthquakes with moment magnitudes less than 6.0.

The potential variability in the empirical expressions for fault displacement can be illustrated by a sample calculation. Using equations (2-1a) and (2-1b) for a surface rupture length of 75 km yields mean maximum and mean average fault displacements of 3.4 m and 1.7 m, respectively. Using equations (2-2a) and (2-2b) with a moment magnitude of 7.5, yields mean maximum and mean average fault displacements of 4.9 and 2.4 m, respectively. For the case of a fault with a 75 km surface rupture, the maximum and average fault displacements within one standard deviation of the mean are 1.3 m to 8.7 m and 1.8 m to 7.6 m, respectively. The range is somewhat larger for fault displacements estimated based upon earthquake magnitude. Thus the empirical formulae produce a range of fault displacements that vary by a factor of about 4 to 7 in order to capture the actual fault displacement slightly better than half of the time. For this reason, projects that pose an extreme threat to safety or the environment (e.g., large LNG facilities, nuclear power plants) typically require site-specific investigations to better define fault displacement. Site-specific investigations may include trenching, soil borings, and paleoseismic studies to establish the approximate dates of prior fault displacement and the amount of displacement that has occurred in past earthquakes. For most pipeline projects, however, this level of effort is not justified by the potential consequences of earthquake damage.

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For the design of a pipeline crossing a fault, the relative displacement of the soil block on one side of the fault must be known in a three-dimensional sense relative to the soil block on the other side. The user should be aware that it is not uncommon for geologists to define fault displacement in terms of the resultant two-dimensional displacement vector in a vertical plane parallel to the strike of the fault. In other words, the fault displacement is the *resultant* of the observed vertical offset of the ground surface and horizontal displacement parallel to the fault.

If the fault is known to be predominantly strike-slip, it usually is sufficient to assume that the resultant displacement will be parallel to the fault strike. However, in the case of reverse faults, the nature of the fault displacement may be highly variable due to an irregular (nonlinear) surface trace such that the displacement at the pipeline crossing may be a combination of horizontal, vertical and compressional-extensional displacement components relative to the strike of the fault.

Fault displacement estimated using the Wells and Coppersmith regression equations is the projection of a resultant fault displacement on a vertical plane that intersects the fault strike at the surface. The database for the regression equations does not include the vertical and horizontal components of displacement in the vertical plane that intersects

the strike, nor does it include the transverse component of reverse-slip or normal-slip components of displacement perpendicular to the fault strike.

Empirical approaches, other than those developed by Wells and Coppersmith, are available for estimating fault displacement. These guidelines do not prevent the use of these approaches but encourage the use of alternate relationships that may be more appropriate for specific regions or fault systems.

The recommended approach to determine three-dimensional fault displacement components from fault displacement defined in a manner similar to the Wells and Coppersmith regression equations requires some estimate of the fault geometry and regional seismic stress regime as defined by (1) the angle of intersection between regional stress azimuth and fault strike, β, and (2) the fault dip angle, δ.

The displacement of a hypothetical fault displacement is shown in Figure C2.3. The net displacement in a vertical plane parallel to the fault strike is the resultant of two of the three orthogonal components of fault displacement, i.e., the horizontal component of slip, H_F, parallel to and the vertical component, V_F, perpendicular to the strike of the fault. The individual horizontal and vertical displacement components, H_F and V_F, as well as the transverse component of fault displacement perpendicular to the fault strike, T_F, are unknown.

If it is assumed that the total fault displacement, D_{FS}, is in the direction of the regional stress azimuth, the total fault displacement and its constituent orthogonal displacement components can be determined from the geometry of right triangles. The resulting relations for the three orthogonal components are given in equations (2-3b), (2-3c) and (2-3d) in these guidelines.

The values for the fault dip angle provided with equation (2-3) are approximate values that are believed to be generally representative of the database used in the development of the Wells and Coppersmith empirical relationships. It is possible that empirical relationships developed for specific seismic regions are available. In this case, the generic fault dip angles provided with equation (2-3) may not be appropriate. In general, the determination of fault movement components is best left to an experienced geologist having knowledge of local plate tectonics and the regional stress regime in the earth's crust.

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Recommended design fault displacements are based upon the potential consequences associated with pipeline damage and defined in terms of the expected maximum or average fault displacement consistent with the probability of exceeding pipeline performance criteria established by the pipeline owner. The process for determining design fault displacement consists of three basic steps:

1. Determine the performance requirements for the pipeline in terms of an average annual probability of exceeding strains associated with maintaining normal operability or pressure integrity;

2. Determine the average and maximum fault displacement consistent with the probability established in Step 1; and

3. Determine design fault displacement values by modifying the fault displacements in Step 2 based upon the consequences associated with the pipeline not meeting its performance objectives, the average probability of the occurrence of fault displacement, and the acceptable annual probability for the pipeline exceeding its performance objectives.

Pipeline performance requirements are established by the pipeline owner and will typically vary depending upon the factors discussed in Section C1.2.

The maximum fault displacement that occurs during a seismic event typically occurs along a short length of the fault rupture, with lesser amounts of movement along most of the fault rupture length. For faults with no information from historical rupture patterns or detailed fault studies, estimating the distribution of maximum displacements along the fault rupture length is extremely uncertain. Since that maximum is generally considerably greater than the average displacement (about double), it is reasonable to use a value smaller than the maximum credible displacement when developing design values for engineering design at active fault crossings.

Determination of fault displacements consistent with the performance goals of the pipeline requires considerable judgment, particularly for faults where the episodic nature of earthquake activity has not been investigated. Reduction of fault displacement estimates for design are warranted when the average probability of surface rupture is less than the performance goals of the pipeline. The approach adopted in these guidelines is to simply factor the fault displacement estimates by the ratio of the acceptable probability for the pipeline not meeting its performance goal by twice the average probability associated with the fault displacement estimate. The factor of 2 on the average probability of fault displacement can be reduced if there is good information on fault occurrence based upon historical records or fault trenching investigations.

The approach for estimating design fault displacement in these guidelines implicitly accepts the risk associated with uncertainties in understanding fault behavior. Some of these uncertainties include the following:

1. Actual displacement on a fault may be considerably greater than that produced by earthquakes of similar magnitude.

2. The likely fault displacement, based upon estimates of fault slip rate and expected earthquake magnitude (the most common approach), is not a reliable means to assess the difference in the probability of fault displacement in the near future (i.e., 50-year to 100-year time frame).

C2.2 Peak Ground Acceleration

Estimates of peak ground acceleration (PGA) are necessary in order to estimate potential seismic hazards related to liquefaction, lateral spread movement, and slope stability. Peak ground accelerations are estimated using empirical attenuation equations that relate the dissipation of earthquake energy with distance from the source of the earthquake. Attenuation relationships utilize data recorded from strong motion accelerographs. The acceleration time history data are typically segregated according to the local site conditions on which the accelerograph is founded, such as hard rock, soft rock, firm soil, and soft soil. In addition, many recent attenuation relationships segregate the data by the type of faulting (e.g., strike-slip, normal-slip, reverse-slip). Attenuation relationships also have been developed to represent spectral accelerations at various frequencies. However, only PGA is of importance for use in these guidelines.

All attenuation relationships require as input the earthquake magnitude and a measure of distance from the earthquake source. The selection of a particular measure of magnitude (e.g., moment magnitude, surface wave magnitude, and local magnitude) and distance (e.g., epicentral, hypocentral, and shortest distance to fault plane) is largely a matter of personal preference on the part of the individual developing the relationship. Figure C2.4 provides a definition of earthquake source parameters often incorporated into attenuation relationships.

There is typically a great deal of scatter in the recorded ground motion data for a particular distance from the earthquake source. Directivity associated with the orientation of fault rupture is believed to be a significant factor in the observed scatter. Another factor in the amount of observed scatter is local interaction of seismic waves as they propagate to a single site from multiple locations along the fault rupture surface. This scatter introduces uncertainty in the attenuation relationships that is represented by the random-error term *E*. The random-error term is typically a function of earthquake magnitude.

Setting *E* to zero results in a best estimate of the fit of the attenuation equation to the data. The random-error term is used to estimate the probability that accelerations might be different than that estimated from the best-estimate equation. In application, the random-error term is multiplied by a factor representing the number of standard deviations from the mean producing the desired standard normal probability value. Thus, using 1(*E*) produces an estimate of PGA that envelops 84% of the data, 1.65(*E*) produces an estimate of PGA that envelopes 95% of the data, and 2(*E*) produces an estimate of PGA that envelops 98% of the data.

Some measure of the precision with which attenuation relationships estimate PGA can be gained by examining the factors representing ±25% variation from the mean. This corresponds to the factors on the mean that would provide a range of accelerations that have a 50% chance of occurring. A mean plus 25% estimate corresponds to an estimate that envelops 75% of the data or is 0.68 standard deviations from the mean. A mean minus 25% estimate corresponds to an estimate that envelops 25% of the data or is –0.68

standard deviations from the mean. For the two attenuation relationships provided, the random-error terms for a magnitude 7 earthquake are 0.41 for the near-source earthquake equation and 0.75 for the Cascadia earthquake. The corresponding factors on the mean estimate to give a 50% chance of experiencing the estimated PGA are computed as follows:

Near-Source: Factor = $e^{0.68(0.41)} = 1.32$

Cascadia: Factor = $e^{0.68(0.75)} = 1.67$

Assuming the PGA estimate was 0.5 *g*, the range of PGA values having a 50% chance of occurrence is 0.38 *g* to 0.66 *g* for the near-source earthquake and 0.30 *g* to 0.84 *g* for the Cascadia earthquake. This example illustrates the wide variability typically encountered in estimating seismic hazards. It is also clear that stating estimates of PGA within increments of 0.05 *g* or greater is generally sufficient.

Since attenuation relationships are developed from recorded ground motion data, users should attempt to identify attenuation relationships developed for the specific region of interest. If such relationships cannot be identified, the selected attenuation relationship should be based upon records from regions that are tectonically and geologically similar. Often, multiple attenuation relationships may be identified as appropriate for a particular location. Where possible, it is recommended that peak ground acceleration be estimated as the average of at least three representative attenuation relationships.

A good source of information for attenuation relationships applicable to the United States is Seismological Research Letters (SSA, 1997). This reference provides a collection of recently developed attenuation relationships and is a starting point for identifying attenuation relationships for locations other than the west coast of the United States. For other parts of the world, it is generally necessary to identify applicable attenuation relationships from past earthquake investigations, seismic hazard analyses, or accepted practice in past estimates of seismic ground motion hazards for the region.

C2.3 Liquefaction

Liquefaction is the transformation of a saturated cohesionless soil from a solid to a more liquid state as a result of increased pore-water pressure and concomitant loss of shear strength. Loss of shear strength gives rise to bearing failures and large deformations in surface structures founded on liquefied soil. Liquefaction often leads to the formation of sand boils, mud volcanoes, fissures and other channels through which water and sediments are ejected. These ejections cause volume loss resulting in differential settlement even though no significant lateral movement occurs.

Liquefaction is a phenomenon that is generally limited to saturated sandy soils that have been deposited in the Holocene (the past 11,000 years) and most commonly to fluvial sediments deposited in the past 1,500 years. These characteristics typically limit consideration of liquefaction to locations where the water table is less than 15 m below

the ground surface. Liquefaction is most likely to occur within a kilometer of bodies of water (e.g., shorelines, streams, drainage channels) and within deltaic deposits where the water table is typically shallow.

Existing maps and databases pertaining to surficial geology should be used to identify areas with soils of depositional characteristics and geologic age that are known to have liquefied in previous earthquakes. The procedures proposed by Youd and Perkins (1978) should be followed. Table C2.1 (Youd and Perkins, 1978) summarizes the liquefaction susceptibility of various deposits according to geologic age. For most pipeline projects, it is only necessary to consider sedimentary deposits with high or very high liquefaction susceptibility.

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Collecting information necessary to assess the potential hazards from liquefaction requires site-specific subsurface data. Unless adequate subsurface data are available from past projects at the site of interest, site investigations consisting of subsurface sampling, standard penetration tests, cone penetrometer tests, and laboratory tests are required.

Assessing liquefaction potential is based upon both peak ground acceleration and earthquake magnitude. Estimating peak ground acceleration at the site of interest can be performed using probabilistic or deterministic approaches. The deterministic approach is based upon selecting a magnitude for a particular fault and using attenuation relationships that relate peak ground acceleration to magnitude, distance, local soil conditions, and type of earthquake faulting. The probabilistic approach is similar to the deterministic approach only in the sense that attenuation relationships are used to relate peak ground acceleration to earthquake magnitude, distance, and type of earthquake faulting.

In a probabilistic approach, the effects of numerous earthquake sources, each with different rates of occurrence for earthquakes of various magnitudes, are included. Additional information on probabilistic seismic hazard estimation is provided in Appendix C. The results of a probabilistic approach for estimating PGA are typically represented in maps of PGA contours for different annual probabilities of exceedance (Figure C2.5) or site-specific curves representing the variation of PGA with annual probability of exceedance (Figure C2.6). For liquefaction assessment, it is necessary to examine the contribution of earthquake magnitudes and distances to the ground shaking hazard. This is termed deaggregation of the hazard. The deaggregation of the hazard is often represented by plots of magnitude and distance contributions such as those shown in Figure C2.7. There are no established rules for selecting an appropriate magnitude and distance from a deaggregation of the probabilistic hazard analysis. Three common approaches are to select either the mean contribution, estimates enveloping mean plus one standard deviation (84%) of the contributions, or a magnitude and distance combination that has the largest contribution to the probabilistic hazard. These approaches are illustrated in Figure C2.7.

Assessment of potential liquefaction hazards requires site-specific information on the density and grain-size distribution of subsurface soil layers. As a general consideration, site-specific investigations should be performed at the types of areas listed in Table C2.1 as having moderate to very high risk of liquefaction where the peak ground acceleration is expected to be greater than about 0.15 g.

The procedures presented for assessing liquefaction are based upon the findings of a 1997 workshop (Youd and Idriss, 1997). The proceedings of this workshop provide an excellent summary of the state-of-practice in assessing liquefaction hazards. Two changes in the manner in which liquefaction is assessed resulting from the workshop deserve mention. First, the workshop participants agreed to modify the hand drawn curve developed by Seed and Idriss (1982) to reflect a minimum *CRR* value of 0.05. The modified curve for which the equations in these guidelines are developed is shown in Figure C2.8. Second, the workshop participants agreed that the magnitude scaling factors originally developed by Seed (Seed and Idriss, 1982) were far too conservative for earthquakes with magnitudes less than 7. Although specific magnitude scaling factors were not recommended by the workshop participants, the recommended range of magnitude scaling factors represent an increase of 50% to 100% in the *CRR*.

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Vertical pipeline movement resulting from buoyancy forces has not been a significant hazard to buried onshore pipelines in past earthquakes. The combination of limited displacement potential and the length of pipeline typically exposed to liquefaction generally prevents the development of significant pipeline strains.

Onshore pipelines located above the water table are not subjected to relative buoyancy forces. Pipelines located beneath the water table in liquefaction-susceptible soils can experience vertically upward or downward displacements depending upon the weight of the pipeline with coating and contents, the weight of liquefied soil displaced by the pipeline, and the residual shear strength of the liquefied soil. The time over which the soils remain in a liquefied state is a key variable to determining the amount of vertical movement. No studies to quantify the duration of liquefaction and its effect on movements caused by differential buoyancy could be identified. As a first approximation, the duration of liquefaction can be assumed to be equal to the duration of ground motion sufficient to cause liquefaction, another poorly defined parameter. The procedure in these guidelines is limited to a means to identify the maximum potential movement of the pipeline.

Practically, relatively extreme conditions of buoyancy mismatch appear to be necessary to produce relative pipe movement. This is illustrated by the following example.

Consider an NPS 24 pipe with a wall thickness of 9.5 mm (0.375 inches). The weight of the pipe is 1.42 kN/m (97 lb/ft) and the effective density of the pipe is 4.9 kN/m^3 (31 lb/ft^3). If the total unit weight of liquefied soil is 17.4 kN/m^3 (110 lb/ft^3), the net buoyancy force on the pipe is 3.62 kN/m (248 lb/ft) in the upward direction. It is

assumed that the depth to the centerline of the pipe is 2 m (6.56 ft), the water table is at the ground surface, and the residual shear strength of the liquefied soil is 5% of the effective stress (typical range is 1% to 10%). These assumptions lead to a residual shear strength of only 0.976 kPa (20.4 psf) and a soil resistance to vertical movement of 12.9 kN/m (884 lb/ft) based upon the approaches in Section 4.3.3. Since the soil resistance is about 3.6 times the upward buoyancy force, no movement would be expected.

Given this example, it is expected that vertical movements from pipeline buoyancy will only be a significant hazard for large diameter pipelines within soils expected to exhibit unusually low residual shear strength in a liquefied state. Calculations, similar to those in the above example, can be used to gauge the potential for significant pipeline vertical movement from buoyancy forces.

Evaluating displacements from relative buoyant forces for underwater pipelines can be treated in the same fashion as onshore pipelines. However, buoyancy is typically not an issue for offshore pipelines or inland water crossings as they are required to be negatively buoyant to remain stable on the sea floor. Achieving negative buoyancy is typically done by coating the pipeline with concrete or using discrete weights attached to the pipeline. If buoyancy is an issue, additional conservatism may be warranted to account for the fact that upward movement sufficient to uncover the pipeline will expose it to potential hazards related to flow-induced oscillation and impact with debris carried by water currents (e.g., exposed river crossings).

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Although a methodology is presented for estimating the amount of settlement related to liquefaction, assessing pipeline performance also requires an estimate of the extent of liquefaction along the pipeline alignment. Estimating the extent of soil layers susceptible to liquefaction can best be determined from subsurface profiles produced from boring log data. Borings may be drilled at regular intervals along the pipeline alignment to identify the limits of liquefaction. In some locations, detailed maps may be available describing surficial soil deposits and their depositional environments. These may be used for preliminary screening to identify locations more prone to liquefaction.

It is possible that potentially liquefiable deposits extend for several hundred meters along the pipeline. As it is unlikely, based upon historical observations, that the pipeline will experience uniform liquefaction over large distances, some alternate approach is needed to define the extent of a pipeline subjected to relative settlement. This requires the judgment of individuals familiar with the local geology and performing liquefaction assessments.

The graphical methods presented are based upon both observational data (Figure 2.2 from Ishihara, 1985) and laboratory tests (Figure 2.3 from Ishihara, 1990). Both graphs are based upon sands with a fines content less than 5% (“clean” sands). For engineering purposes, this factor can often be ignored as the determination of what constitutes a liquefiable layer and the factor of safety against liquefaction incorporates the presence of

fines content. Applying the charts for other soil types generally overestimates settlement since the presence of fines would tend to fill some voids and reduce the amount of soil grain reorganization responsible for liquefaction-induced settlement.

C2.4 Lateral Spread Movement

Lateral spreads involve the horizontal movement of competent surficial soils due to liquefaction of an underlying deposit (see Figure C2.9). Lateral spreads can be especially destructive to buried pipelines, albeit the degree of damage depends on the magnitude and extent of ground movement and the configuration of the pipeline. Offshore, liquefaction requires special treatment as the amount and extent of ground movements associated with liquefaction can be much greater than for onshore installations.

Lateral spread movement is the most common and one of the most severe earthquake hazards for buried pipelines. Techniques for estimating the magnitude of lateral spread movement have only been developed in the past 15 years.

The simplified approach developed by Youd et al. (1999) based upon multiple linear regression of data from past earthquake observations represents the best available method for estimating lateral spread movement outside of explicit finite element techniques. This approach is a modification of a similar method developed by Bartlett and Youd (1992). The 1999 modifications included data from the 1995 Kobe, Japan earthquake and corrected some of the data records in the 1992 investigation. The expected variability in the simplified approach can be assessed by comparing the predicted lateral spread displacements with the observed displacements. This is provided in Figure C2.10 where it can be seen that nearly all data points are within a factor of two of the predicted displacement.

One weakness of the Youd et al. (1999) approach is its inability to provide information on the extent of lateral spread movement and the variation of ground movement with depth and within the body of the lateral spread. Because of the importance of the spatial variation in ground displacement along the pipeline, the recommended approach for estimating lateral spread movements is to employ an analysis program based upon a finite-element, finite-displacement, or discrete-element representation of the soil. Some examples of programs that have been used in past pipeline projects include DESRA-2 (Lee and Finn, 1978), TENSI-M (Larkin and Marsh, 1982), and SOILSTRESS. Many geotechnical engineering firms also maintain proprietary in-house analysis programs. A comparison between the results of the Bartlett and Youd appoach and the results from a SOILSTRESS analysis are shown in Figure C2.11 for a hypothetical river crossing. In the analyses represented in Figure C2.11, the Bartlett and Youd approach was used to benchmark the maximum surface displacements estimated by the SOILSTRESS analysis. With this benchmark established, the SOILSTRESS results are then used to determine the variation with respect to depth below the ground surface for relative ground movements normal to the river.

C2.5 Landslides

Landslide activity most commonly triggered by earthquake shaking includes rock falls, disrupted soil slides, rock slides, soil slumps, soil block slides, and soil avalanches (Varnes, 1978). Several common types of landslides are illustrated in Figure C2.12. Except for rock avalanches, locations susceptible to earthquake triggered landslides are most often associated with areas of past landslide activity. The most significant landslide hazards that can affect buried pipelines are slumps, shallow slides, and deep slides. Slides can occur onshore on relatively steep slopes or offshore in soft sediments on relatively shallow slopes. Landslides may develop into debris flows and impart large dynamic loads on the pipeline. For offshore pipelines, turbidity currents created by the slide may also lead to significant loads on the pipeline.

Slumps and shallow slides are caused primarily by inertial forces, but are often assisted by densification of loose soil or liquefaction of underlying sediments. These movements occur mostly along the margins of embankments, cut-and-fill slopes, and slopes with relatively shallow cover in hilly or mountainous terrain.

Deep slides involving significant components of translation and rotation of a soil mass often develop catastrophically and affect large areas. A landslide frequently causes underthrusting in soils near the base of its slope, so that substantial compression and bending may be transferred to pipelines located there.

Areas of past landslide activity can be identified through reconnaissance of the pipeline alignment and stereo aerial photographs or sidescan sonar for offshore pipelines. Earthquake-triggered landslides typically occur during the earthquake. If the earthquake forces are insufficient to completely develop a failure plane, earthquake-related landslides may occur several days following the earthquake due to reduced resistance to slide movement.

Reconnaissance of a pipeline alignment can be used to identify and estimate the relative activity of existing slides. The findings from the site reconnaissance can be used to modify new pipeline alignments to avoid many potential landslide hazards. Determining the amount of expected deformation requires a site-specific determination of the existing soil strength properties and an assessment of the factor of safety under seismic loading conditions.

In lieu of a detailed assessment of landslide potential, an approximate estimate of potential landslide movement can be made based upon the existing slope and a general description of the near-surface material. This approximate approach is implemented in these guidelines and is to be used as a screening tool to determine the potential for slide movement.

The approach to estimating the potential severity of landslides is based upon bounding relationships for sliding-block displacement developed by Newmark (1965) and estimated levels of acceleration associated with slope instability developed by Wilson and Keefer (1985). The approach to estimating landslide movement developed by

Wilson and Keefer utilizes two relationships based upon Arias intensity, one for the acceleration levels associated with 2 cm or 10 cm of landslide movement and the other for the variation of acceleration as a function of earthquake magnitude.

Wilson and Keefer adopted the use of Arias intensity as a means to avoid explicit calculation of movement using multiple time histories and the methodology developed by Newmark. The Wilson and Keefer approach is not considered generally applicable because of the lack of validation of the Arias intensity relationships for a large number of historical earthquakes.

To provide a general indication of the potential magnitude of landslide movements, a bounding empirical relationship developed by Newmark is used. The analytical model used by Newmark is quite simple. A block resting on a sloping surface is prevented from sliding by the friction force between the block and the surface. Motion of the block is produced when acceleration of the block in the downslope direction exceeds the frictional resistance reduced by the component of block weight in the downslope direction. The factor of safety against block sliding is equal to the resistance to sliding divided by the acceleration acting on the block. The sliding resistance in the downslope direction is the frictional resistance minus the component of block weight in the downslope direction. The upslope movement of the block can occur if the acceleration in the upslope direction exceeds the sum of the friction resistance and the component of block weight in the downslope direction. For the simplified approach used in these guidelines, the Newmark model is identical to the model assumed by Wilson and Keefer. In fact, Wilson and Keefer used explicit analyses using Newmark's approach to develop their approach.

The duration of motion is limited to the time period over which the acceleration exceeds the friction force. Newmark analyzed the movement of a hypothetical block using 5 earthquake time histories normalized to a peak ground acceleration of 0.5 *g*. These analyses did not consider vertical motions and assumed the horizontal earthquake acceleration acted in a direction parallel to the sliding surface. He then examined the fit of several possible analytical expressions to the data, as illustrated in Figure C2.13, and developed several bounding relationships based upon ground velocity, peak ground acceleration and the factor of safety. The equations for estimating landslide displacement in equation (2-18) is based upon an assumption of peak ground velocity equal to 36 and 48 inches per second per *g* (91 and 122 cm per second per *g*) for rock and soil sites, respectively. The bounding displacement equation used to derive equation (2-18) is given by equation (C2-1).

$$D = \frac{V^2}{2gN}\left(1 - \frac{N}{PGA}\right)\frac{PGA}{N} \qquad \text{(C2-1)}$$

where:

D = computed displacement

V = peak ground velocity

PGA = peak ground acceleration

N = resistance coefficient = A_c

g = acceleration of gravity

Rearranging the terms and substituting A_c for N and V as $x(PGA)$ gives:

$$D = \frac{x^2 PGA^2}{2gA_c}\left(\frac{PGA}{A_c} - 1\right) \quad \text{(C2-2)}$$

Equation C2-2 depends on having a velocity ratio, x, the ratio of the peak ground velocity to *PGA*. Several investigators have proposed such relationships and representative values are provided in Table C2.2. Equations (2-15) and (2-16) result from substituting values of 36 inches per second per g (0.91 meters per second per g) for rock and 48 inches per second per g (1.22 meters per second per g) for the velocity ratio, x.

The displacements necessary to initiate coherent and disruptive slides (10 cm and 2 cm, respectively) are adopted from Wilson and Keefer. If the displacements computed using the relationships in these guidelines exceed these threshold values, the potential for landslides exist, and additional geotechnical investigation is warranted. Such investigations typically involve borings to identify different soil deposits, sample retrieval for ascertaining soil strength properties, and slope stability calculations to estimate the amount of landslide movement.

A pseudostatic analysis of slope stability is often used in the assessment of slope movements. The pseudostatic analysis should account for the strength properties of the slope material expected during the earthquake. Pseudostatic analyses represent the effects of an earthquake by applying static horizontal and/or vertical accelerations to a potentially unstable mass of soil. The inertial forces induced by these pseudostatic accelerations increase the driving forces and may decrease the resisting forces acting on the soil. Pseudostatic analyses are not appropriate for soils that build up large pore pressures or show more than about 15% degradation of strength due to earthquake shaking. Stability is expressed in terms of a pseudostatic factor of safety calculated by limit equilibrium procedures. Selection of an appropriate pseudostatic acceleration requires great care; values considerably smaller than the peak acceleration of the sliding mass are usually used.

If conditions exist where such strength loss may occur, it is generally necessary to perform a local site response analysis in order to obtain an estimate of the shear strains produced and the appropriate soil strength for slope stability analysis. Inertial instabilities are most commonly analyzed by pseudostatic, sliding block (Newmark, 1965), or stress-deformation analyses. The Makdisi-Seed approach, based upon the results of sliding-block analyses, is also used frequently.

The pseudostatic acceleration required to bring a slope to the point of incipient failure is known as the yield acceleration. If earthquake-induced accelerations in a slope momentarily exceed the yield acceleration, the unstable soil will momentarily accelerate relative to the material beneath it. Sliding-block analyses can be used to calculate the amount of displacement that occurs. The total displacement depends on the amount by

which the yield acceleration is exceeded (a function of the ground motion amplitude), the time over which the yield acceleration is exceeded (a function of the frequency content of the ground motion), and the number of times the yield acceleration is exceeded (a function of ground motion duration). Given the highly variable nature of ground motion characteristics, computed displacements can be quite variable. The Makdisi-Seed procedure is based upon sliding-block analyses of earth dams and embankments. Knowing the fundamental period of vibration of the dam/embankment and the yield acceleration of the slope, simple charts can be used to estimate earthquake-induced permanent displacements.

It is important to note that the factor of safety based upon equivalent static slope stability assessment can be substantially less than 1.0 before significant sliding displacement occurs. Thus, concluding that large slope movements are highly probable because static slope analyses indicate that the slope cannot withstand the PGA often greatly overestimates the likelihood that a significant landslide hazard exists.

Several commercial software packages are available that greatly simplify the application of sliding-block analysis. Stress-deformation analyses have been used to estimate permanent deformations caused by inertial instabilities. Strain potential and stiffness reduction approaches allow estimation of permanent deformations from relatively simple analyses; their estimates are highly approximate. Although the computational effort is dramatically increased, permanent deformations can be analyzed more rigorously using nonlinear finite-element techniques. As the accuracy of constitutive models for soils improve, the use of nonlinear finite-element analyses is likely to increase. Quantification of slope stability under static and dynamic conditions with analytic techniques for estimating potential slope movements requires special expertise and should be carried out by individuals experienced with the local geologic conditions.

A slope stability analysis is only one part of a comprehensive evaluation of slope stability. Prior to the analysis, detailed information on geologic, hydrologic, topographic, geometric, and material characteristics must be obtained. The accuracy of the analysis will be only as good as the accuracy of this information.

C2.6 Seismic Wave Propagation

Wave propagation strains are related to the incoherency between seismic ground motions at two locations along a linear structure. Well-constructed buried natural gas and liquid hydrocarbon pipelines in good condition generally have not been affected by seismic wave propagation. This is borne out by the lack of a single reported case of failure of ductile, full penetration welded natural gas or liquid hydrocarbon pipeline attributable to wave propagation alone. Recent earthquake experience (Honegger, 1999a) has indicated that wave propagation is a credible earthquake hazard for pipelines only in cases of extremely poor quality girth welds or corrosion defects subjected to very high levels of seismic ground motion. In both instances, these guidelines recommend a case-specific assessment of the longitudinal strain to failure. Such an assessment may require removal of sufficient girth weld samples to develop a statistical description of strain capacity

based upon laboratory tests. Other approaches may involve detailed non-destructive examination, fracture mechanics models, and laboratory tests of a limited number of pipeline specimens. In either case, the details of such case-specific investigations are currently under development in the industry and are beyond the scope of these guidelines.

The only instance where seismic wave propagation has been linked to pipeline is a case study of the 1985 Michoacan (Mexico City) earthquake. The welded pipeline was constructed of 42-inch x 0.313-inch wall API 5L X42 pipe. The reported damage was compressive wrinkling at intervals of approximately 500 feet and occurred in soft clay deposits. The pipeline was influenced by unusual seismic and geologic conditions. Because of the long distance separating Mexico City and the earthquake epicenter (nearly 250 miles), the predominant ground shaking was the result of Rayleigh waves with a relatively high period of incoming waves (2 to 3 seconds). Site amplification contributed to a high peak particle velocity, measured at 35 cm/sec, and the soft lake sediments were characterized by a wave propagation velocity as low as 40 to 100 m/sec. The combination of high particle and low wave propagation velocities would have promoted high ground strains, and the long period would have promoted a relatively large development length for mobilizing shear resistance between the pipe and surrounding soil. O'Rourke (1988) concluded that calculated pipe strains were sufficient to conclude that traveling ground waves were responsible for the damage.

For these reasons, the conclusions of O'Rourke (1988) can, at best, only be considered applicable to geologic settings similar to those from the case study, i.e., very soft deep sediment deposits prone to harmonic excitation by Rayleigh waves. The soil deposits near Mexico City and the tectonic regime surrounding Mexico are unique in this respect. Furthermore, estimating wave propagation strains for any region of similar geology for which strong motion earthquake records do not exist requires an attenuation relationship to estimate ground motions associated with Rayleigh waves, which do not exist.

Although the potential for damage to welded steel pipelines due to seismic wave propagation is generally low, it is occasionally necessary to compute the stress or strain in a pipeline caused by seismic waves. A procedure for estimating apparent wave propagation velocity was first proposed by Newmark (1965). The basis for estimating wave propagation strains is illustrated in Figure C2.14. Earthquake body waves (compression and shear waves) emanate from the earthquake source region as a continuous wave front. Ground shaking at the surface results from the propagation of this wave front up through the near-surface soils. At two locations, A and B, the apparent propagation of body waves is related to the difference in arrival times of the wave front at these locations. The arrival time is a function of the source-to-site distance for A and B and the propagation velocity along the path between A and B. The straight propagation paths shown in Figure C2.14 are a simplification, as the actual propagation paths are likely to be curved as a result of passage through strata of varying density. On the surface, the seismic wave front appears to propagate along the surface at a velocity that is closely related to the propagation of the seismic waves at depth (e.g., 3 km to 30 km). The approach proposed by Newmark (1965) leads to an estimate of maximum ground strain between any two locations on the surface that is proportional to the ground velocity generated by the response of surface soils to the input motion divided by the apparent

velocity of the seismic wave front relative to the surface. In this model, locations directly above the earthquake source zone experience virtually no strain as they experience near-simultaneous arrival of the seismic wave front which translates to a near infinite apparent velocity.

There are some cases that are outside the scope of these guidelines that occasionally merit special consideration. These include transitions between very stiff and very soft soils, penetration into buried valve enclosures, branch connections, pipe fittings, and valves. In addition, pipelines with significant weld flaws, corrosion defects or not connected with full-penetration butt welds (e.g., compression couplings, bell and spigot joints) may also be vulnerable to damage from seismic wave propagation. In such cases, an assessment of the strain capacity of the pipe and comparison with the magnitude of wave propagation strains can be used to judge the expected performance of the pipeline.

C2.7 Transient Ground Deformation

Another potential seismic hazard not related to permanent ground deformation is transient ground deformation (TGD). Transient ground deformations are produced when local site conditions allow weaker surface soils to respond differently from adjacent near-surface soils that are considerably stronger and can possibly damage buried pipelines. This type of behavior has been observed repeatedly in past earthquakes where pipeline damage appears to be more prevalent near the boundaries between strong and weak soils.

Transient ground deformation has been identified as a possible mode of local soil response that can lead to pipeline damage. One of the first investigations to identify transient ground deformation as a cause of pipeline damage was undertaken by O'Rourke (O'Rourke, 1991, Pease and O'Rourke, 1997) in a study of water and sewer pipeline damage in the Marina District of San Francisco following the 1989 Loma Prieta earthquake. O'Rourke postulated that liquefaction in the Marina District caused the hydraulic fill soils to be decoupled from the response of the underlying stiff soils and respond more like a sliding mass.

Following the 1994 Northridge earthquake, investigations into the causes of pipeline damage in Potrero Canyon identified a similar decoupling mechanism as a probable cause of the ground cracking patterns and locations of pipeline damage (Honegger, 2000). The underlying mechanism in Potrero Canyon was postulated to be shear failure within the weak canyon soils that were subjected to a velocity pulse of more than 1 m/s and a period of 5 to 6 seconds. The magnitude and long period of the velocity pulse is attributed to the proximity of Potrero Canyon to the projection of the caU.S.tive fault plane. This type of near-field motion has been recorded in past earthquakes and is commonly referred to as earthquake "fling."

There are no widely accepted procedures for identifying sites susceptible to TGD or estimating potential TGD displacements. A large part of the difficulty lies in the inability to characterize near-field ground motions and the characterization of the strength properties of soils undergoing variable states of liquefaction. The following guidance for

identifying sites potentially susceptible to TGD are provided based upon the sparse amount of field data:

1. Presence of a relatively uniform layer of soil with low shear strength (or high potential for liquefaction).
2. Presence of firm soil or rock adjacent to, or confining, deposits of weak or liquefiable soils.
3. Soft soil sites located in the near-field of a potential earthquake with a likelihood for experiencing ground motions characteristic of earthquake "fling".

Techniques for modeling TGD include two-dimensional finite element analysis and simplified sliding-block analysis. Representative models are illustrated in Figure C2.15. Finite element methods are complicated by the uncertainty associated with modeling slip along the soil failure plane and, in some cases, the need to account for separation at the boundary between stiff and soft soils. Sliding-block analogies face similar impediments with respect to defining a limiting value of shear strength for the soft soil and the sliding friction associated with the decoupled soil mass. Both methods require an explicit input ground motion time history that adds an additional layer of uncertainty in the modeling process.

At this time (2001), assessment of TGD remains a research topic. Unless there is compelling evidence to suspect that TGD displacements exceed a few centimeters, consideration of TGD is believed to be unnecessary for new pipelines or pipelines constructed in a manner consistent with modern construction. This position is supported by the fact that there is no evidence that TGD has been a factor in damage to such pipelines.

Older pipelines with potential weld or corrosion defects or not constructed with butt-welded pipe joints are at greater risk of damage from TGD. Given the lack of an accepted method for estimating TGD displacements, it does not seem prudent to devote large resources to estimating TGD for potentially susceptible pipelines. Instead, TGD damage occurring at unknown locations should be recognized as a possible consequence of the earthquake, and the need to potentially respond to TGD damage should be incorporated into earthquake response plans.

Type of Deposit	General Distribution of Cohesionless Sediments in Deposits	Likelihood that Cohesionless Sediments (saturated) would be Susceptible to Liquefaction (by age of deposit)			
		Less than 500 years	Holocene	Pleistocene	Pre-Pleistocene
Continental Deposits					
River channel	Locally variable	Very high	High	Low	Very low
Flood plain	Locally variable	High	Moderate	Low	Very low
Alluvial fan and plain	Widespread	Moderate	Low	Low	Very low
Marine terraces and plains	Widespread	N/A	Low	Very low	Very low
Delta and fan-delta	Widespread	High	Moderate	Low	Very low
Lacustrine and playa	Variable	High	Moderate	Low	Very low
Colluvium	Variable	High	Moderate	Low	Very low
Talus	Widespread	Low	Low	Very low	Very low
Dunes	Widespread	High	Moderate	Low	Very low
Loess	Variable	High	High	High	Unknown
Glacial til	Variable	Low	Low	Very low	Very low
Tuff	Rare	Low	Low	Very low	Very low
Tephra	Widespread	High	High	Unknown	Unknown
Residual soils	Rare	Low	Low	Very low	Very low
Selka	Locally variable	High	Moderate	Low	Very low
Coastal Zone					
Delta	Widespread	Very high	High	Low	Very low
Estuarine	Locally variable	High	Moderate	Low	Very low
Beach: high wave energy	Widespread	Moderate	Low	Very low	Very low
Beach: low wave energy	Widespread	High	Moderate	Low	Very low
Lagoonal	Locally variable	High	Moderate	Low	Very low
Fore-shore	Locally variable	High	Moderate	Low	Very low
Artificial					
Uncompacted fill	Variable	Very high	N/A	N/A	N/A
Compacted fill	Variable	Low	N/A	N/A	N/A

Table C2.1 Liquefaction Susceptibility Screening Table
(from Youd and Perkins, 1978)

Material	V/PGA (inches/s-g)	V/PGA (cm/s-g)
Rock	26	66
Stiff Soil	57	144
Cohesionless Soil	55	140
Alluvium	48	122

Table C2.2 Velocity Ratios for Various Types of Surface Soils (from O'Rourke and El Hamdi, 1988)

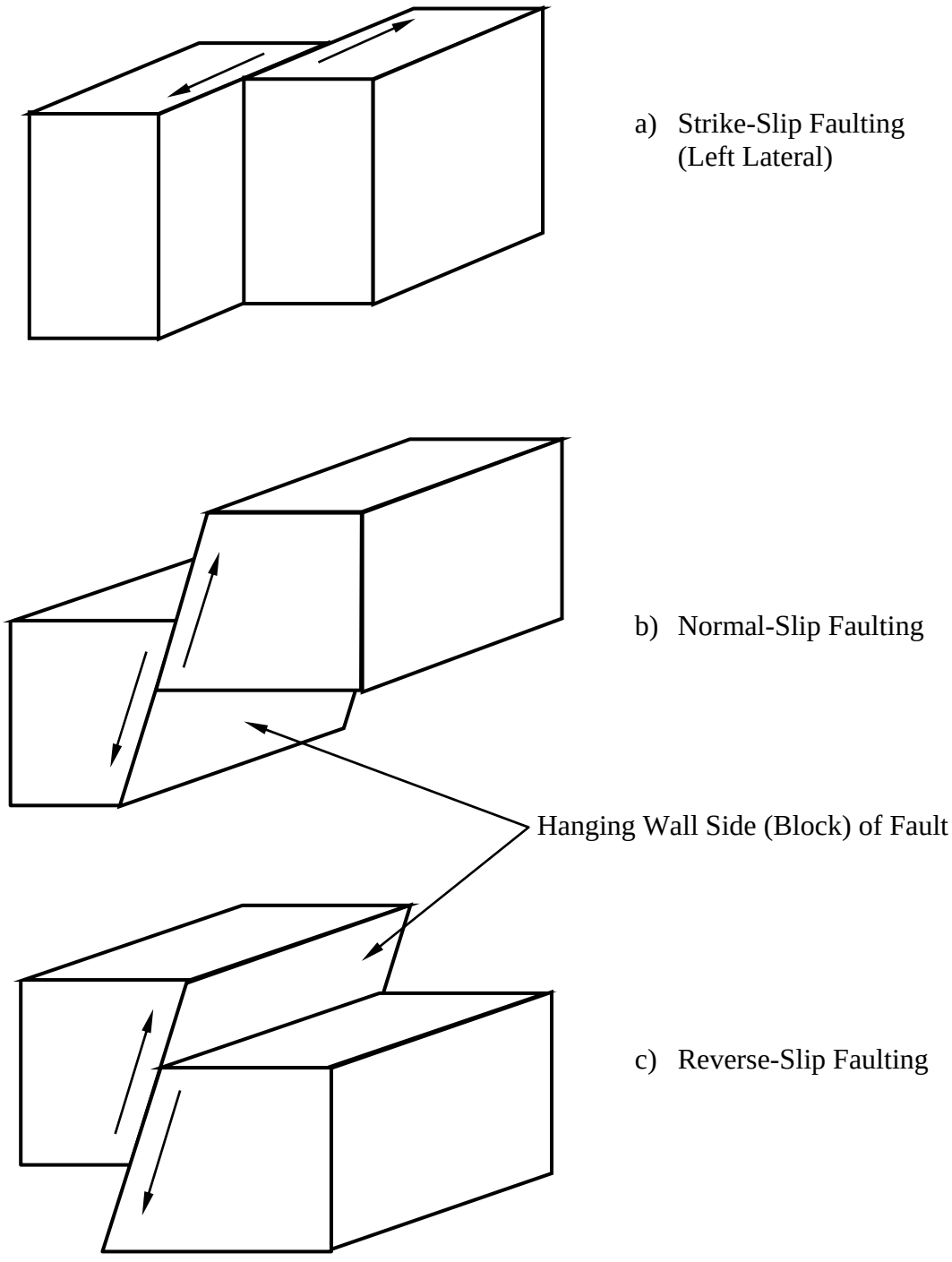
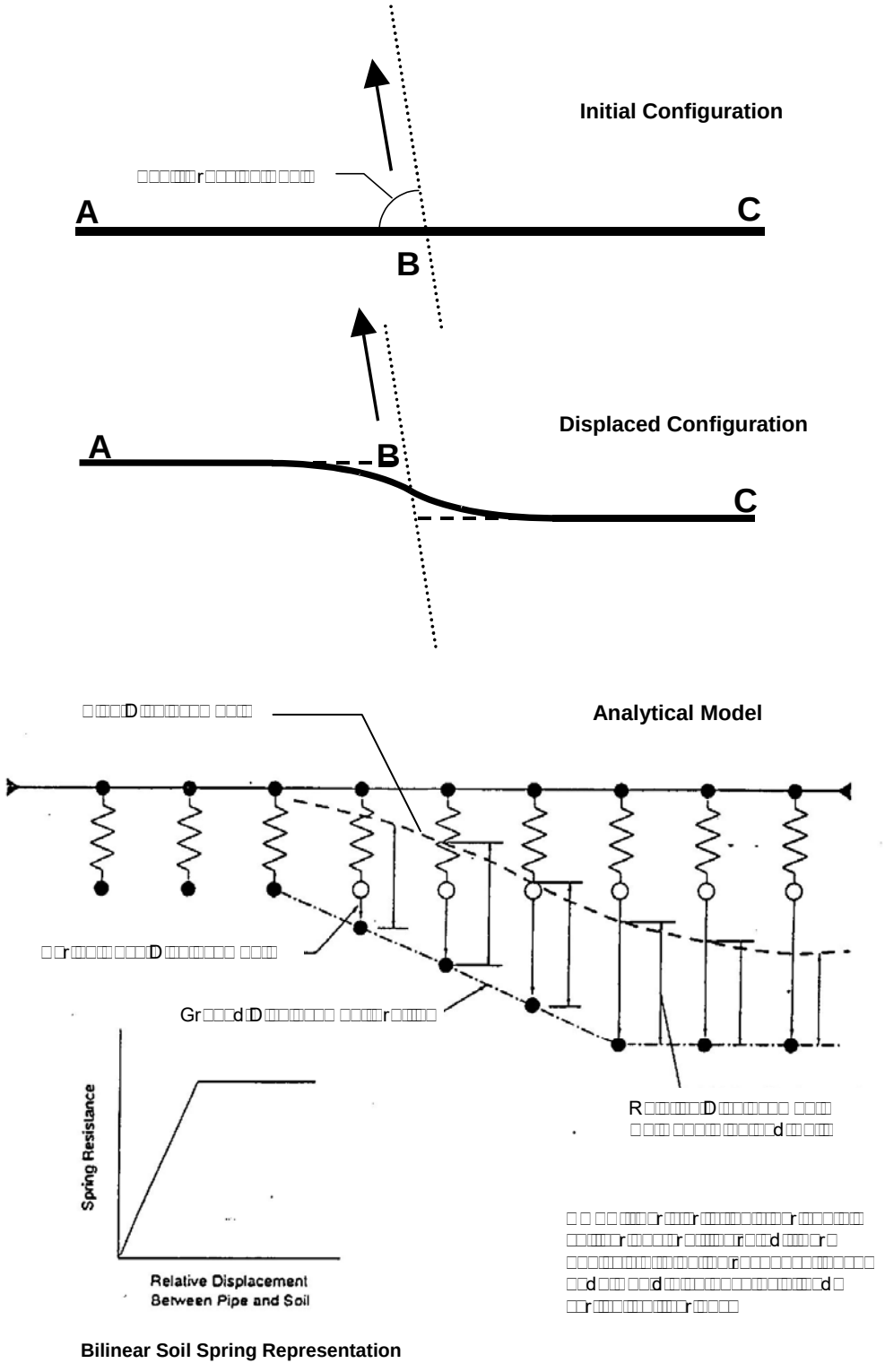


Figure C2.1 Fault Movement Classification



Bilinear Soil Spring Representation

Figure C2.2 Effect of Right Lateral Strike-Slip Fault Movement on a Buried Pipeline

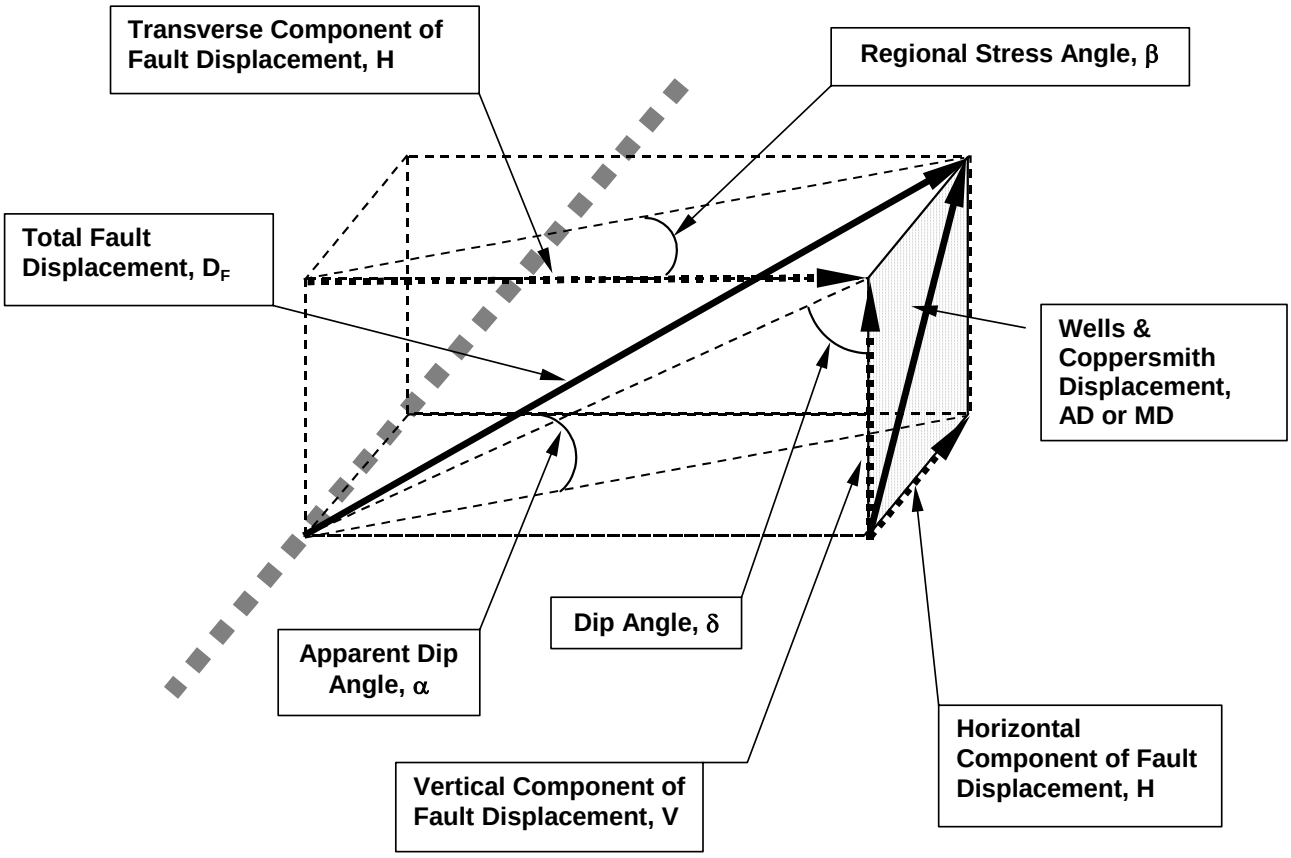


Figure C2.3 Orthogonal Components of Fault Displacement Based Upon Estimates Using Wells & Coppersmith (1994) Empirical Equations

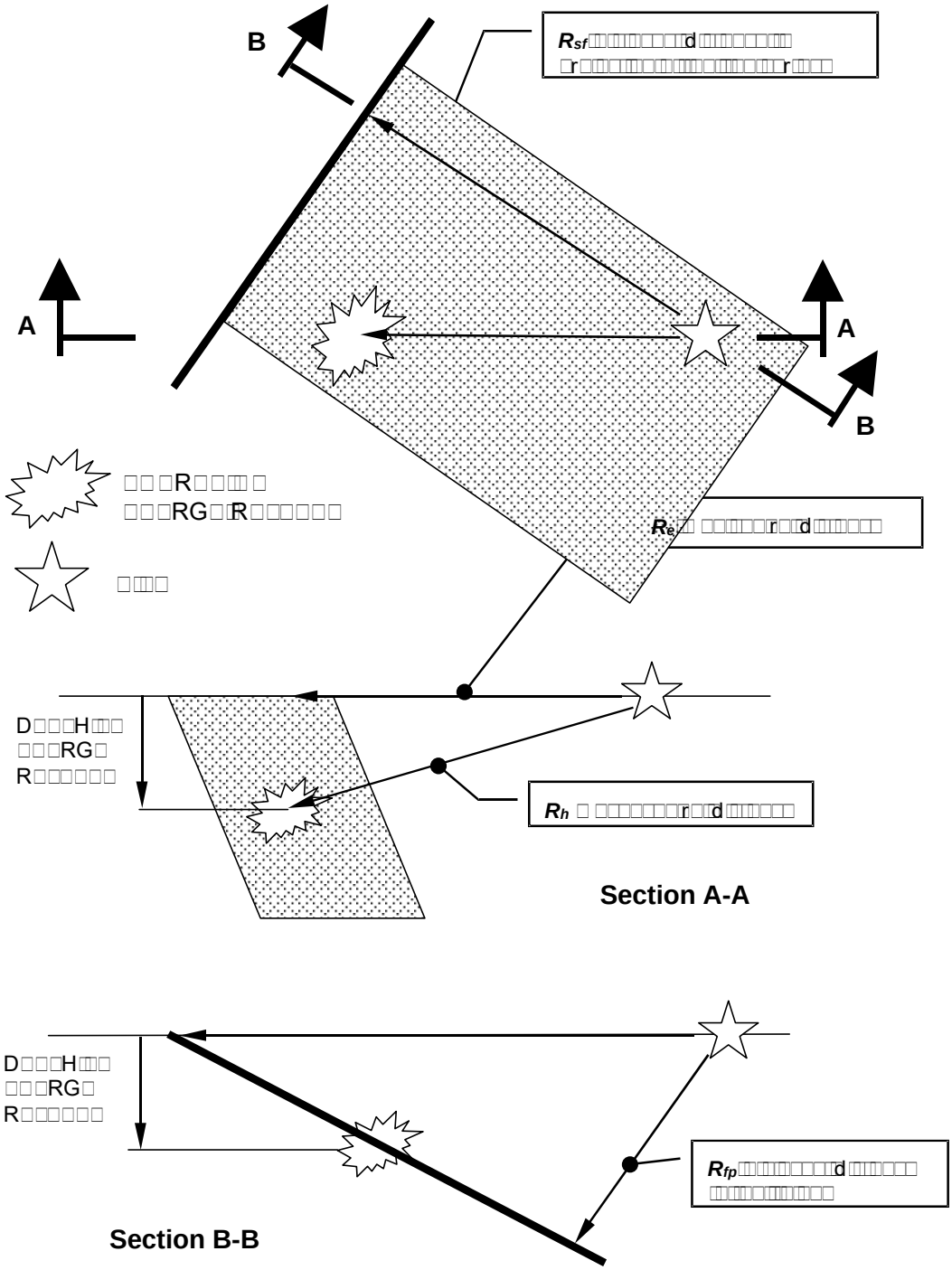
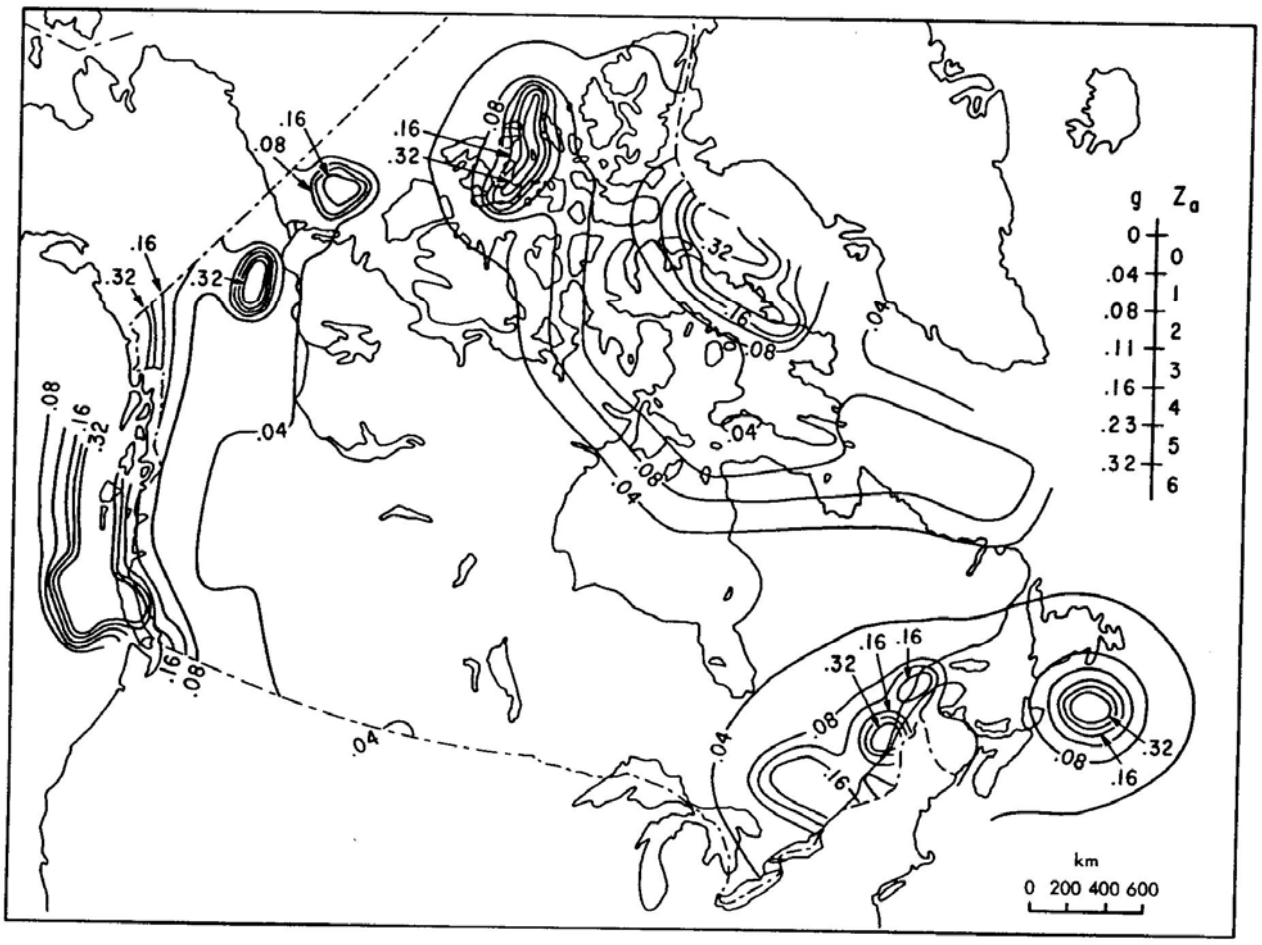


Figure C2.4 Various Definitions of Earthquake Parameters Adopted in Attenuation Relationships



(from the Supplement to the National Building Code of Canada (1990) for
PGA with a 10% probability of exceedance in 50 years)

Figure C2.5 Example of Mapped Representation of Probabilistic Ground Motion

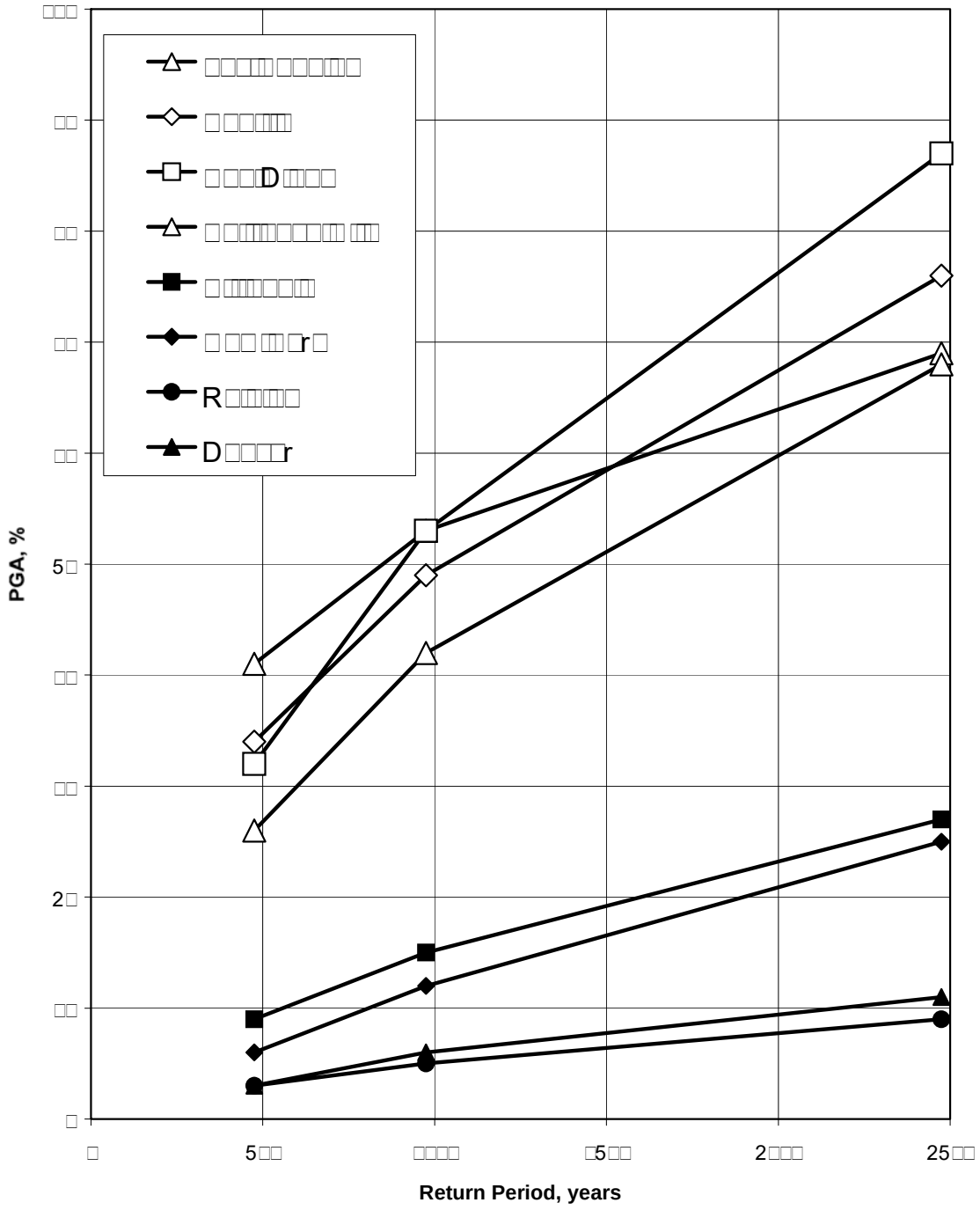
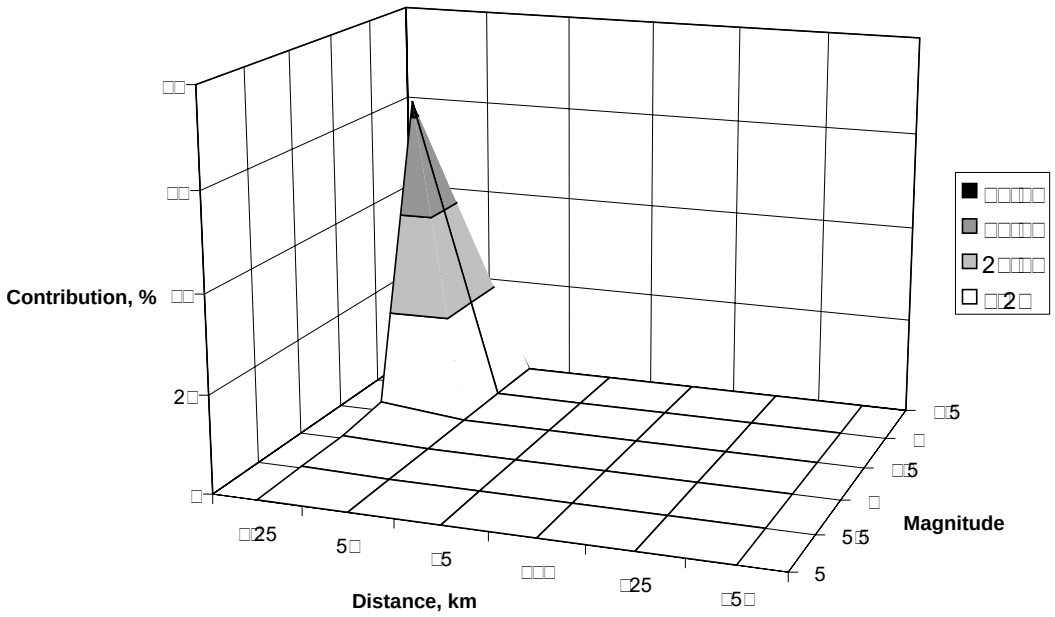


Figure C2.6 Example Hazard Curve Representation of Probabilistic Ground Motion



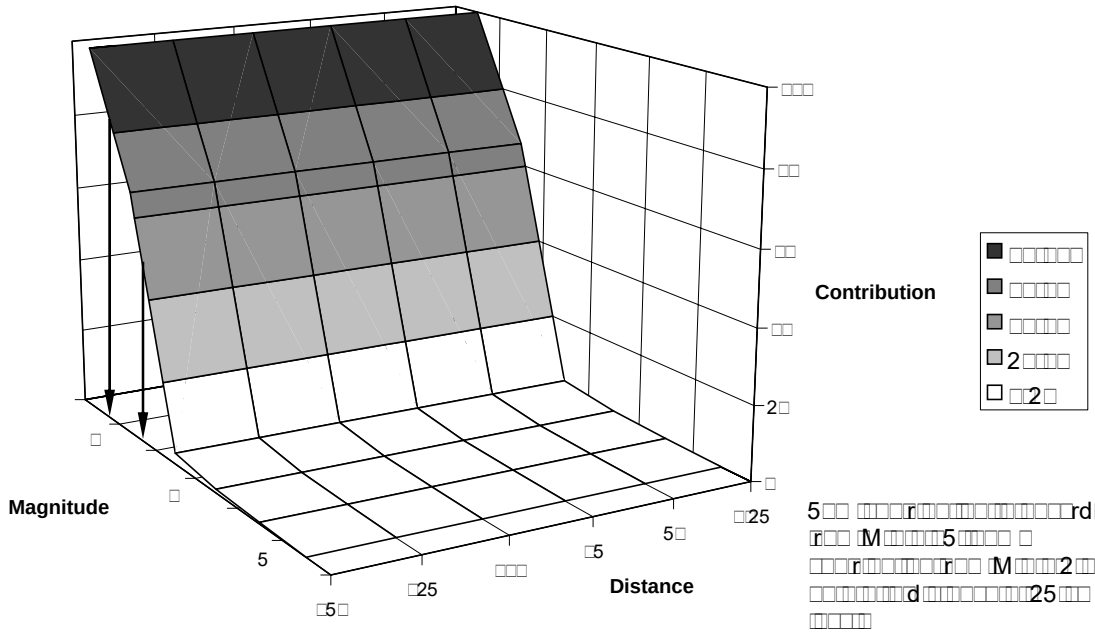


Figure C2.7 Example of Extraction of Deaggregated Hazard Information from the 2,500-year Firm Rock PGA Hazard at Salt Lake City

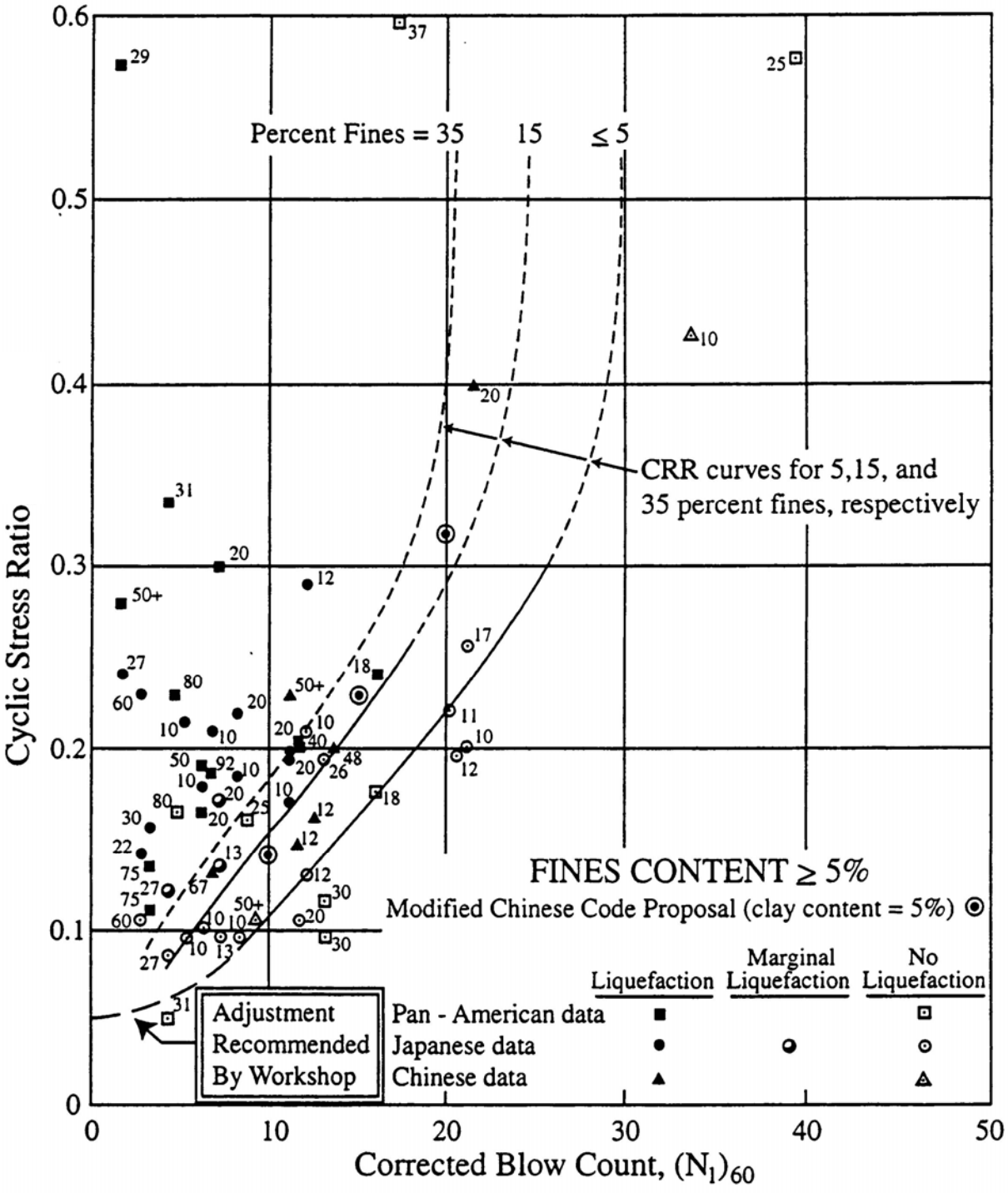
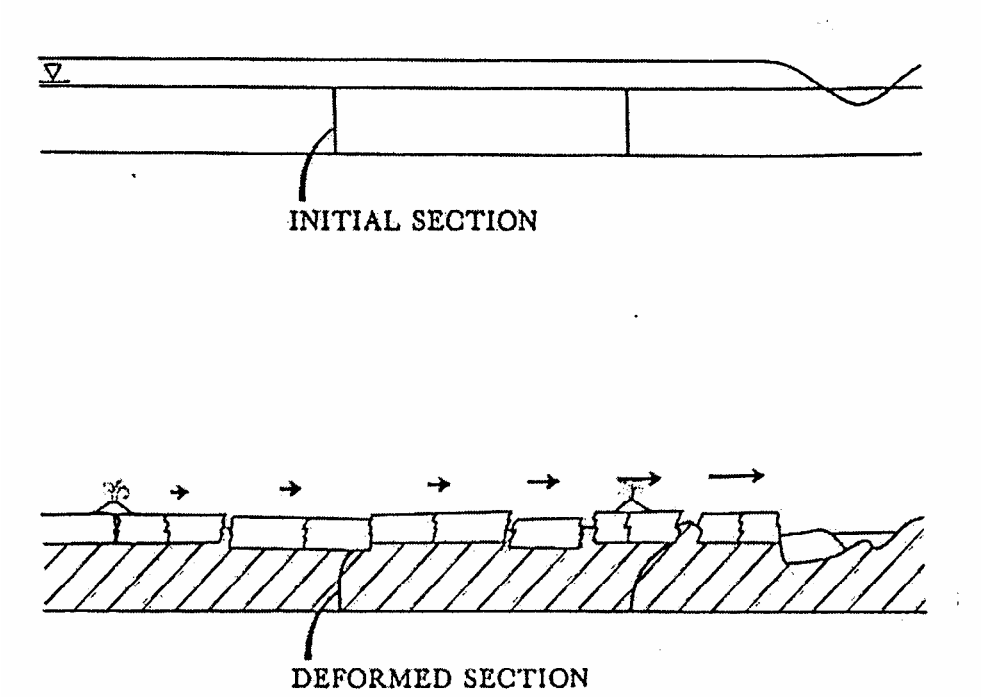
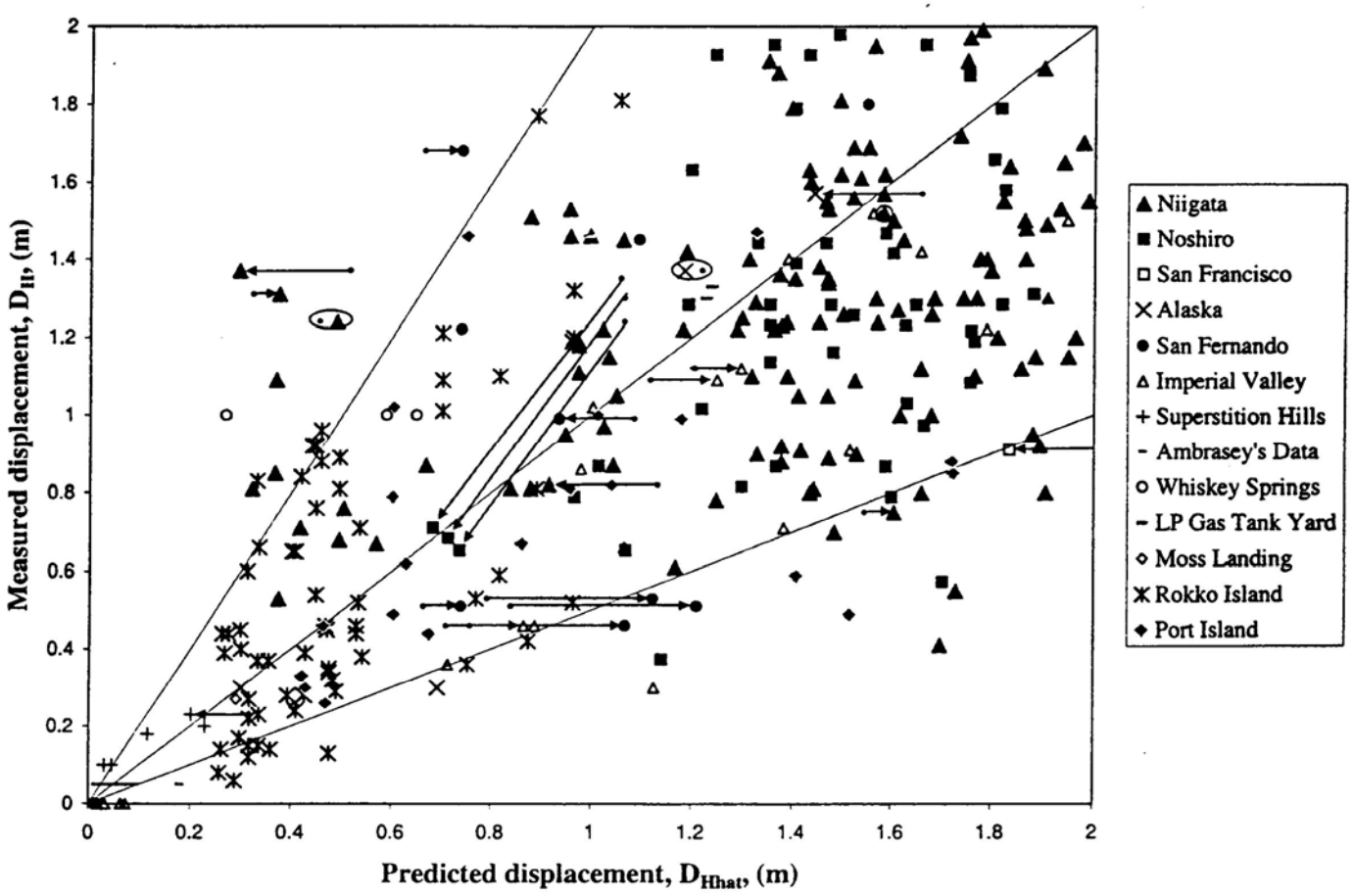


Figure C2.8 Liquefaction CSR Curve (from Youd and Idriss, 1997)



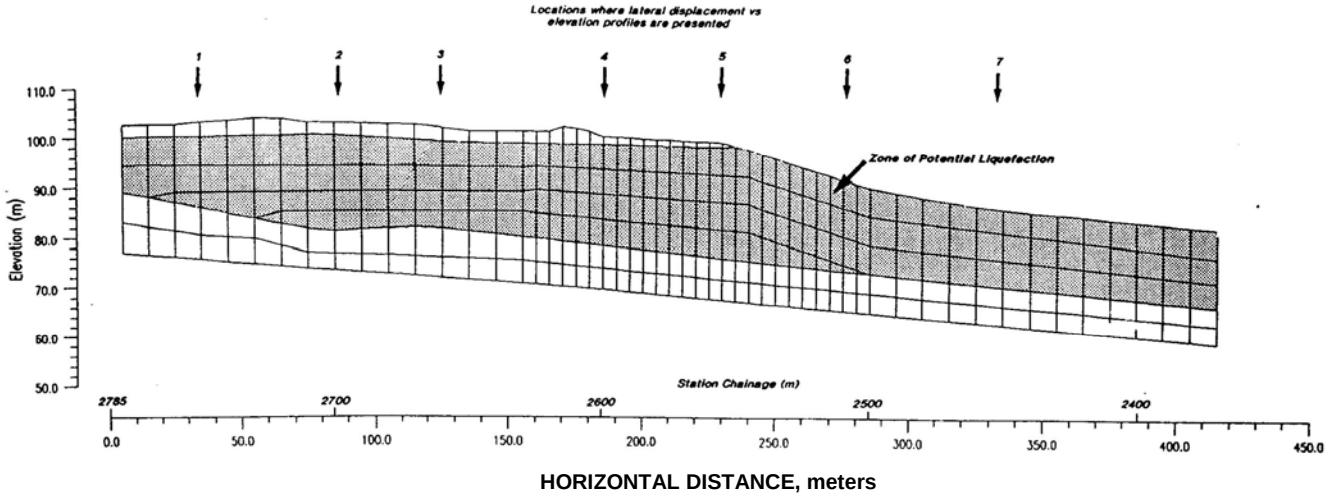
Liquefaction occurs in the cross-hatched zone. The surface layer moves laterally down the mild slope or toward a free breaking up into blocks which may jostle back and forth and settle unevenly during the spreading process.

Figure C2.9 Schematic Representation of a Lateral Spread (from Youd, 1984)



(arrows reflect changes from approach of Bartlett and Youd (1992) for selected data points)

Figure C2.10 Comparison of Actual Lateral Spread Displacements with Estimates Using Youd et al., 1999 (from Youd et al., 1999)



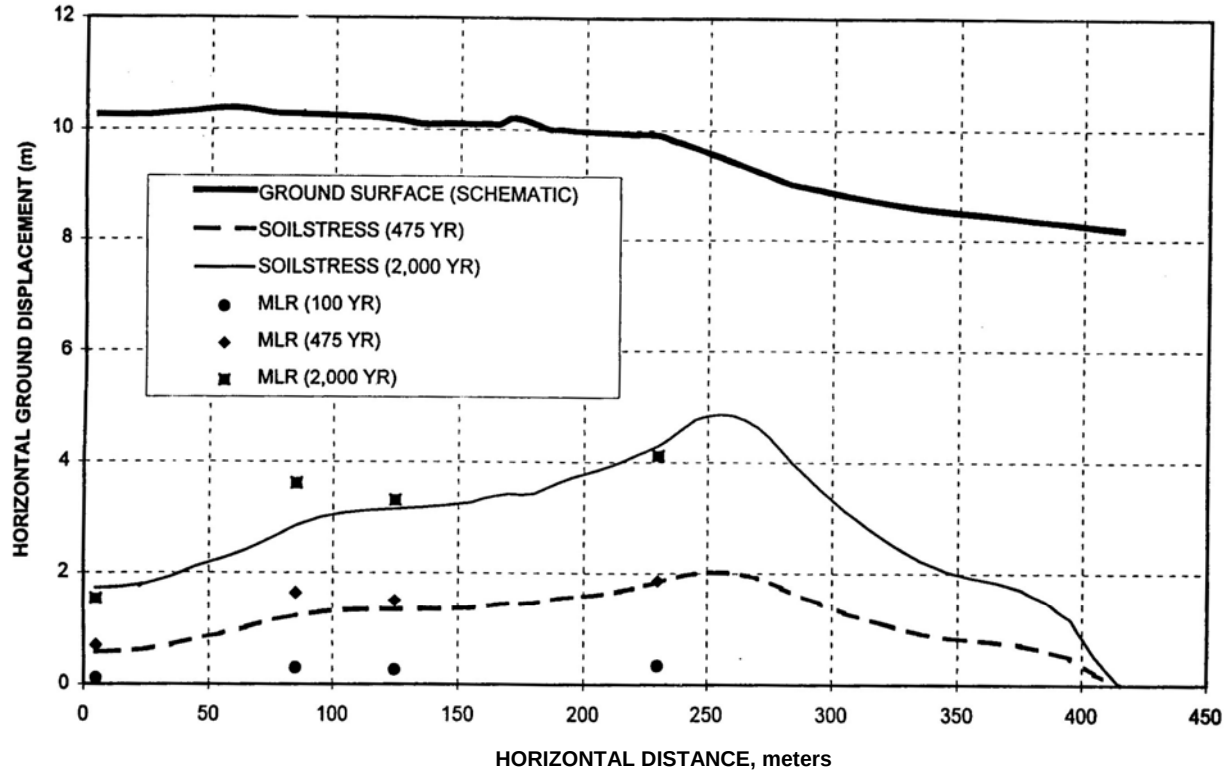


Figure C2.11 Sample Comparison of Bartlett and Youd Method with SOILSTRESS (Bartlett and Youd (1992) results denoted by "MLR")

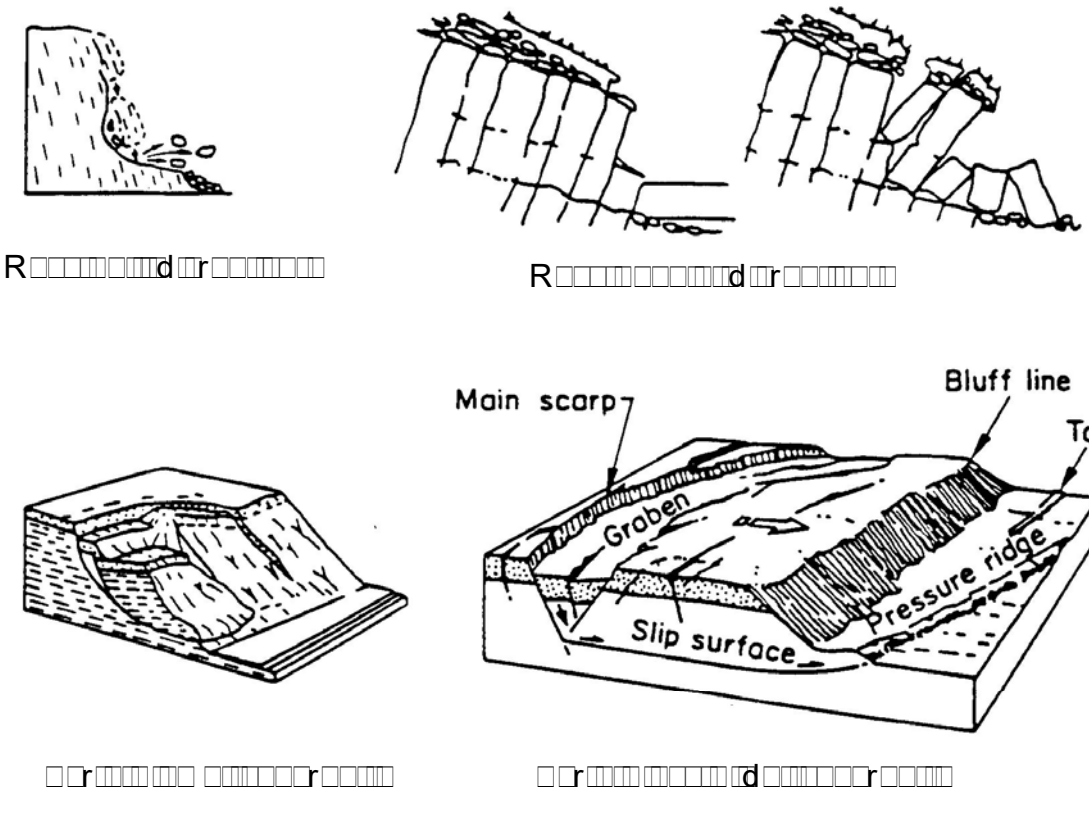
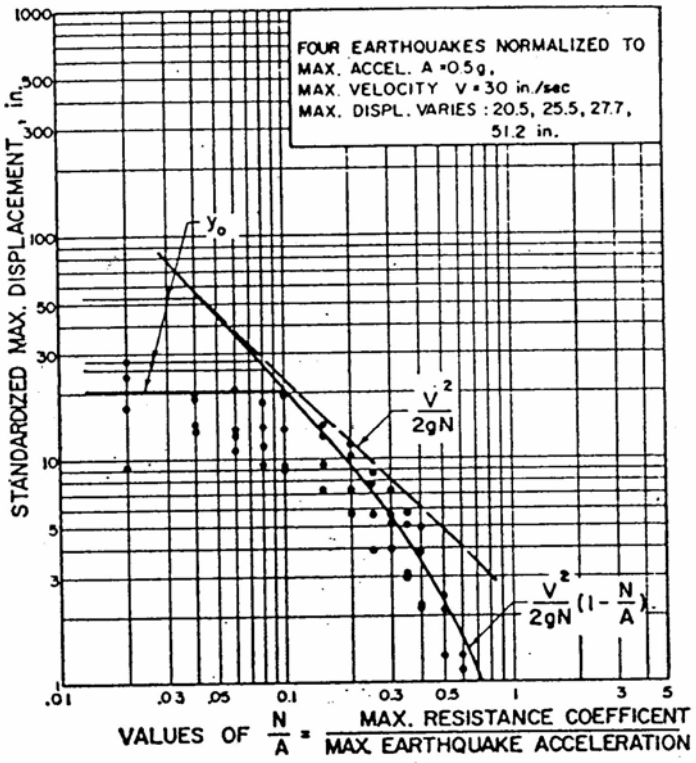
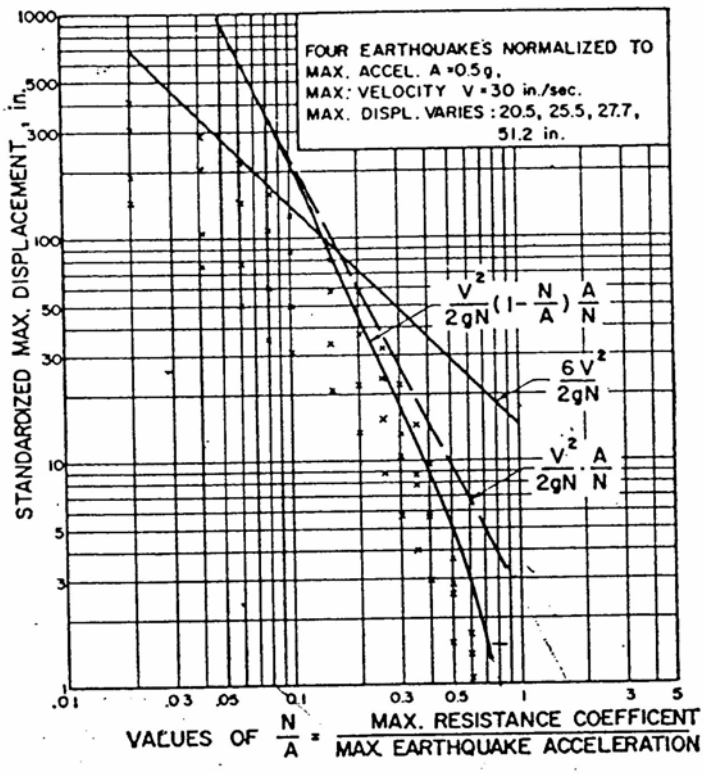


Figure C2.12 Various Types of Landslides (after Varnes, 1978)

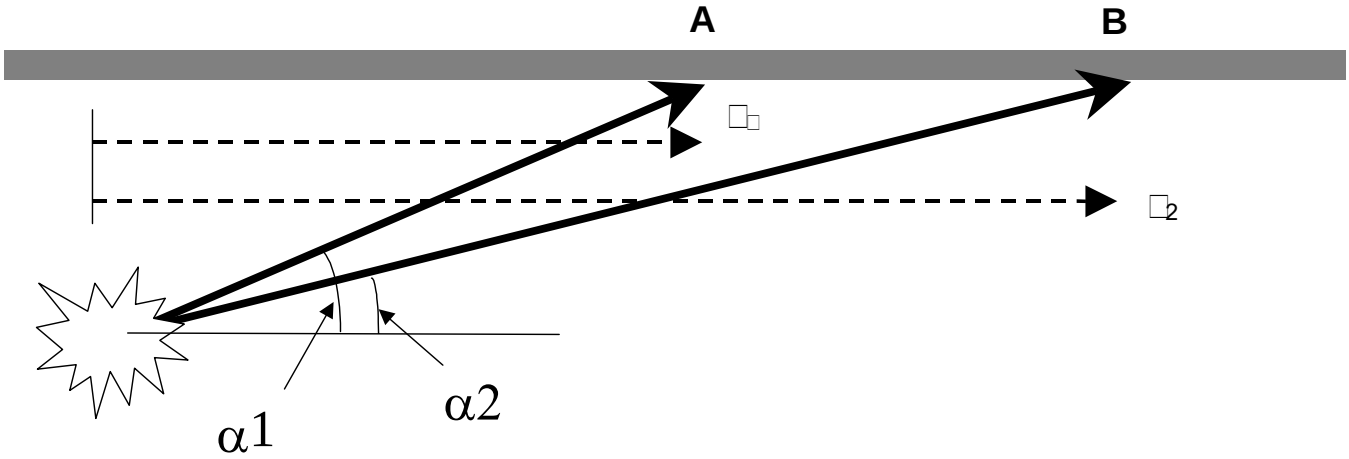


Displacement from normalized earthquakes for a sliding block with symmetrical resistance (horizontal sliding plane)



Displacement from normalized earthquakes for a sliding block with unsymmetrical resistance (inclined sliding plane)

Figure C2.13 Generic Sliding-block Relationships Using Actual Earthquake Records Scaled to a PGA of 0.5 *g* (from Newmark, 1965)

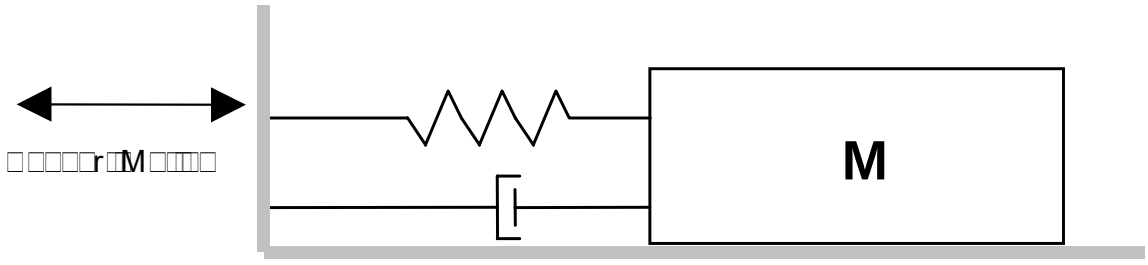


$$t_1 = \frac{L_1}{c \cdot \cos(\alpha 1)}$$

$$t_2 = \frac{L_2}{c \cdot \cos(\alpha 2)}$$

$$c_{apparent} = \frac{c\left(L_2 - L_1\right)}{\left[\frac{L_2}{\cos(\alpha 2)} - \frac{L_1}{\cos(\alpha 1)}\right]}$$

Figure C2.14 Wave Propagation Paths Leading to Incoherent Seismic Ground Strains



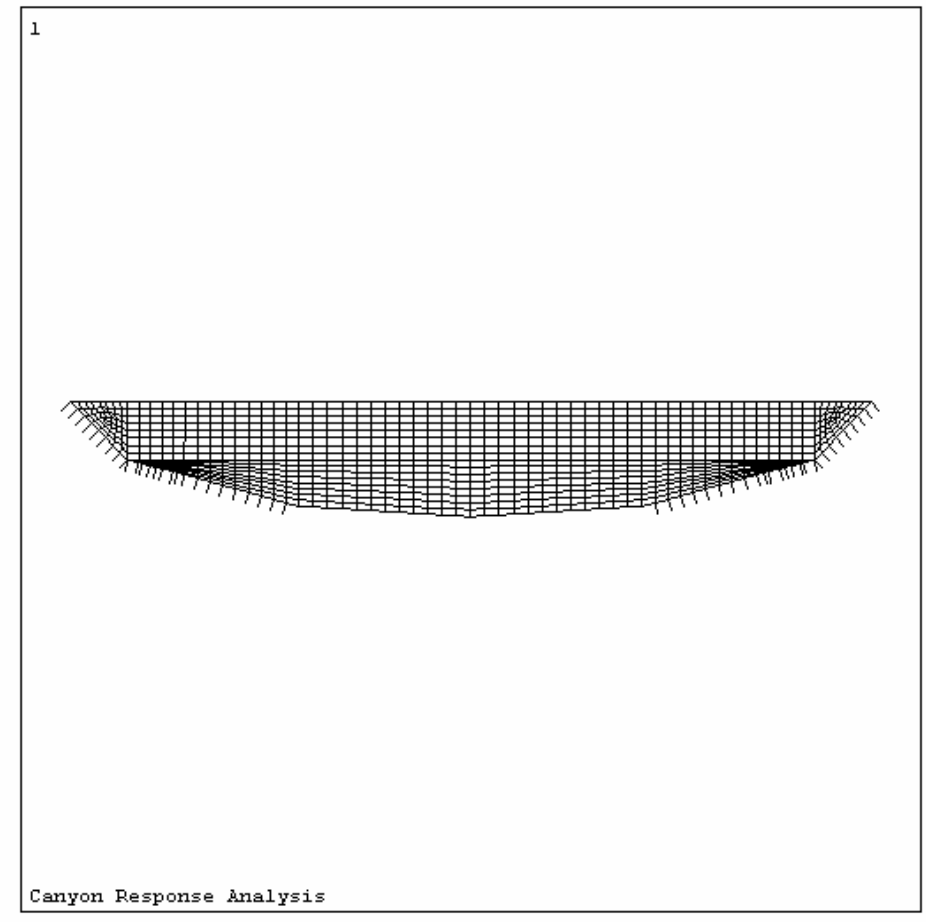


Figure C2.15 Modeling Techniques with Potential Application to Estimating TGD

C3.0 PIPELINE PERFORMANCE CRITERIA

Determining limiting pipeline strains associated with varying levels of performance is an ongoing area of investigation within the pipeline industry. While there have been several notable projects using full-scale tests and detailed finite element analyses, the differences in load conditions, measurement techniques, and project goals make direct comparison difficult. As a result, defining appropriate relationships for seismic assessment of pipeline response is largely based upon available test data reported in the open literature and the collective judgment of the authors and reviewers contributing to these guidelines.

C3.1 New Pipelines and Pipelines Compatible with Current Construction Practice

There is experience in the pipeline industry of strain based design. Most of this is generally related to offshore applications such as pipe reeling for installation, high temperature, high pressure pipelines that can buckle due to high axial loading, and deepwater pipelines. Much of this experience relates to "load-controlled" situations on small diameter, low *D/t* (diameter to wall thickness), thick-walled pipes. In these situations, there is a high likelihood that the pipe will experience the design strain (in the range of 2% nominal strain[1]), thus validating the methodologies used. However, the strains in these applications may not be as large as those expected for seismic design. There are situations where pipelines have survived much larger strains, as well as instances where pipelines have failed at much lower strains.

The selection and specification of both pipe and welding for a strain-based design pipeline system includes consideration of a number of factors that may not be adequately addressed in a conventional stress-based design, which is thoroughly addressed in various codes and standards such as ASME B31.4, B31.8 and API 1104. Considerable research efforts in the pipeline industry have been directed at understanding the behavior of pipe at high strains, with this effort increasing over the last few years with more focus on strain-based design. Although the industry now has a vastly improved understanding of high strain behavior, significant advancements continue to be made.

The overall strain capacity of a pipe is dependent upon a number of factors:

1. ***Compressive Strain***:
    a. The properties of the pipe material including the shape of the stress-strain curve, the ratio of yield strength to tensile strength (Y/T), and uniform elongation strain (ε_{UL});

[1] Nominal strain is the strain that the pipe "globally" experiences over a certain gauge length (anywhere between 0.5 to 2 diameters). However, locally the strains can be much higher due to small geometric imperfections, and once a pipe starts to wrinkle and locally buckle, the strains that can be experienced in the vicinity of the buckle can be many times that of the nominal strain.

b. The *D/t* ratio, with a greater wall thickness having a higher strain capacity for the same pipe diameter (lower *D/t* ratio); and

c. Geometric anomalies associated with out of roundness (ovality) and wall thickness variations need to be considered for single pipe joints and at girth welds, where they can introduce wall thickness step changes when joints are butted together. The effect of geometric anomalies is to reduce the strain to initiate pipe wall buckling.

2. ***Tensile Strain:*** The tensile strain capacity depends upon the pipe material properties mentioned above, as well as the following factors related to the resistance of girth welds to the presence of welding defects:

a. Increased wall thickness reduce the effects of a loss of cross-section from weld defects and increases the amount of material available to resist crack growth;

b. Weld properties (yield strength, ultimate strength, and toughness) that meet or exceed the pipe metal reduce the potential for flaw growth; and

c. Weld quality specifications and inspection requirements increase the likelihood that girth welds will achieve the required properties and defect tolerances.

Key aspects of the above issues are briefly discussed below:

Pipe Steel Properties: The pipe properties of interest for both compressive and tensile strain capacities are the longitudinal properties. Circumferential properties are typically only of interest for assuring that the material is not anisotropic.

1. The stress-strain curve should be monotonically increasing, and should contain no plateau regions in the post yield portion of the curve. A high yield strength for the grade is not necessarily a benefit in strain-based assessments. It is good practice to obtain several stress-strain curves from the mill from full thickness, longitudinal specimens for the pipe.

2. The Y/T and ε_{UL} influence strain capacity with increases in strain capacity generally obtained by lower Y/T and higher ε_{UL}. Both of these values vary with pipe grade and the pipe toughness with increases in the grade and toughness generally resulting in higher Y/T ratios and lower ε_{UL} and lower strain capacities (i.e., X65 will generally have a higher strain capacity than X80). The required value of Y/T and ε_{UL} depends upon each application and the required strain capacity. Values of Y/T and ε_{UL} quoted in pipe material specifications need to be considered carefully, as "standard" values used in conventional specifications may not be sufficient. Specifying unusually low values of Y/T and high values of ε_{UL} may significantly increase costs for manufacturing the

limited amount of pipe that might be needed for seismic design and result in additional costs for testing to show that the pipe meets specifications. Some pipeline projects have taken steps to segregate pipe by heat and, therefore, Y/T properties. They then use the high Y/T pipe at high strain areas.

3. Weld heat affected zone (HAZ) properties are an important consideration as there is a tendency of certain low alloy materials to soften in the HAZ. This softening reduces the original pipe yield strength near the weld, leaving stronger material on either side of the zone. Once yielding occurs in the HAZ, all of the plastic strain will accumulate in this narrow zone, rapidly exhausting the available ductility and leading to plastic instability. Careful specification of the carbon level and the presence of secondary hardening alloys in the pipe steel is necessary to minimize the potential for softening in the HAZ.

Pipe Geometric Properties:

1. Wall thickness considerations include both the absolute thickness and variability. A thicker pipe wall increases both tension and compression strain capacities. This results in an additional benefit from using lower grade pipe as a lower grade pipe will require a thicker pipe wall. For example, if X65 is used for seismic design instead of X80, the strain capacity is increased because of both the lower grade (lower Y/T and higher ε_{UL}) and thicker wall (lower D/t). Careful consideration needs to be given to the allowable wall thickness tolerances in the pipe specifications as geometric misalignment decreases the compression strain for initiation of wrinkling (a concern for strain levels associated with continued operation). There is a trade-off between minimizing the geometric misalignment across the girth weld and the extra cost associated with having tighter tolerances.

2. Control of tolerances on pipe ovality, like control of pipe wall thickness, is important because ovality can reduce the compression strain for initiation of pipe wrinkling in a pipe joint. Furthermore, ovality of the ends of the pipe can result in geometric misalignment of the pipe ends at the girth weld that reduces the compression strain for initiation of pipe wrinkling in the same way as wall thickness variation. There is also a trade-off between minimizing pipe ovality and the extra cost associated with having tighter tolerances.

Welding Materials and Procedures: The presence of small imperfections or flaws in the weld deposit, and particularly those having a planar geometry and located near the root or cap of the weld, severely degrade the ability of the material to uniformly distribute plastic strain. Flaw extension in either a brittle or ductile mode from continuing strain at the extremities of these flaws leads rapidly to rupture. Because the imperfections cannot be entirely eliminated, a weld metal having slightly overmatching yield strength should be selected to minimize the opportunity for over-strain of the surrounding material. The degree to which the weld metal will overmatch the pipe metal must account for the possibility that the actual pipe strength may be significantly greater than the specified

minimum values. The need to achieve overmatching weld strength is another reason to consider the use of lower grade pipe steels in designing the pipeline to resist ground movement. A welding process should be chosen to minimize both the number and size of the imperfections. In the absence of highly skilled manual pipeline welders, the welding procedure should consider the use of mechanized GMAW or TIG processes.

Quality Control Over the Welding Process: The experienced-based workmanship requirements (flaw acceptance criteria) contained in the stress-based welding codes such as API 1104 or ISO 13847 may not be adequate for strain-based designs. New acceptance limits (generally smaller and fewer allowable flaw sizes) may need to be calculated based upon fracture mechanics technology. The fracture mechanics calculations used to determine weld acceptance are semi-empirical and require estimates of several parameters, particularly those related to flaw geometry, flaw location, material strength, and material toughness. Unlike approaches aimed at fitness-for-purpose assessments, the approach in these guidelines will not generally require the same high level of reliability that the pipeline will be capable of withstanding a particular tension strain for the reasons noted in Section C3.1.2. The level of required reliability needs to be considered when making decisions on the appropriate level of conservatism associated with the many assumptions necessary to establishing strain limits using fracture-mechanics approaches.

The new and smaller allowable flaw size presupposes that there will be an inspection system in place capable of detecting and sizing any flaws remaining in the weld. It is well established that flaw height and the distance to the pipe surface are the critical parameters. Conventional radiographic techniques are not suitable for either of these measurements and the use of a mechanized ultrasonic procedure such as that commonly used for offshore lay barges is recommended. Accuracies of about 0.040 inches are achievable for flaw height measurement in pipe with wall thickness less than about one inch. The net effect of the special welding procedure and the extensive post-weld inspection may lead to a high weld rejection rate, thereby reducing productivity and increasing cost per weld. However, this should be economically practicable considering the relatively few segments of the pipeline where seismically induced permanent ground displacements may occur.

Achieving strain limits as high as 2% to 4% may not be possible under certain circumstances, particularly for the assessment of existing pipelines with flaws or defects or where the use of high-grade pipe steel reduces the likelihood that girth welds will have strength and toughness characteristics superior to the pipe steel such that welds develop the full strength and strain capacity of the pipe steel. Specific criteria for assessing the strain capacity of girth welds is beyond the scope of these guidelines but techniques for performing such assessments are well-established. Two of the more common approaches to qualify pipe material and welding specifications for a specific project application depend upon either curved wide plate testing of weld specimens that conform to project specifications or theoretical fracture mechanics models.

It is noted that there may be additional proprietary data that would lead to an alternate basis for establishing pipeline strain acceptance criteria. Users of these guidelines may elect to review such additional data prior to establishing strain criteria for specific projects. As noted in Section C1.2, users that need to demonstrate levels of seismic reliability significantly higher than has been accepted in typical practice will likely need to adopt more conservative strain acceptance criteria than provided in these guidelines.

□□□□□□ □□r□r□ □□□□G□□□□M□□□□□□□r□□□□r□□□□□□r□□□

Failure in a strain-based design is normally taken to mean loss of the pressure boundary integrity. The failure can result from axial tensile overload or excessive bending. Bending involves both tension and compression strains with failure frequently occurring on the compression side of the bend as a result of a buckle in the pipe wall followed by a wrinkle. This leads to gross tension strain in local areas of the wrinkle. Most failures involve first the initiation of a partial thickness crack followed by brittle or ductile crack propagation through the wall. The latter may also involve out-of-plane ductile tearing.

Longitudinal Compression Strain Limit

In compression, local instabilities such as wrinkling can develop at strains much less than the allowable tension strain limits. Wrinkling of the pipeline wall does not, in itself, constitute a failure condition. While wrinkling may also lead to a significant reduction in pipeline moment capacity, this is not a concern for displacement-controlled conditions, as the pipeline deformation is not related to an applied load.

Under sustained loading conditions, further compressive shortening would be expected to concentrate at points of initial wrinkling. Typically, the initiation of compressive wrinkling occurs in the range of 0.3% to 0.6% strain for most large diameter pipes, or about one-tenth the strain level noted above for tension. Loss of pressure boundary integrity is associated with strains far greater than that associated with the initiation of compressive wrinkling for moderate *D/t* ranges.

In recommending longitudinal compression strain limits, the clear evidence of substantial compression strain capacity prior to rupture was tempered by the concerns regarding establishing recommendations on the maximum compression strain capacity that are much greater than past practice for seismic load applications within the pipeline industry (e.g., ASCE, 1984). The following discussion describes some of the test data used in assessing the suitability of equation (3-1).

Pipe tests performed by Mohareb et al. (1994) focused on conditions where the axial load was constant (five of the seven analysis cases utilized constant axial load). The axial force applied in the pipe tests by Mohareb et al. corresponded to a 45°C temperature differential, a tension force equivalent to the force necessary to counteract axial shortening from the Poisson effect of internal pressure, and a compressive force to counteract the tension produced by the closed-end conditions of the test specimens.

Ghodsi et al. (1994) repeated the tests of Mohareb et al., but include a girth weld in the center of the test specimen to assess the impact of a girth weld on initiation of wrinkling. The testing performed by Ghodsi et al. demonstrated that the presence of a girth weld significantly reduces the strain associated with a visual indication of pipe wrinkling. However, the reduction in the strain that could be reached in the tests was not as significant as the reduction in strain at initiation of wrinkling.

Pipe tests at the Center for Engineering Research (C-FER) in Edmonton, Alberta, Canada, have also been performed to examine post-wrinkling behavior. The details of the tests are proprietary but some results, including a relationships for compression strain limits for X70 steel, have been published by Zimmerman et al. (1995). The Zimmerman et al. relationship is reportedly based upon limiting maximum computed tension strain in the crest of the buckle formed after wrinkling to 10%.

Another testing program at the University of Alberta was carried out to investigate strains associated with the initiation of wrinkling (Dorey et al., 2001). These tests were performed on X70 pipe with a *D/t* ratio of 92 and internal pressures producing hoop stresses ranging from 0% to 80% of the specified minimum yield stress. These tests are relevant for comparing with equation (3-1) since they were taken past the point of wrinkle formation and development of maximum pipe moment capacity. Dorey et al. recommend several relationships for estimating the longitudinal strain in the pipe at the point of maximum moment. These relationships account for imperfections in the pipe wall and at the girth weld and also consider two typical shapes for the stress-strain curve of the pipe material.

Data from the available papers and test reports for the above tests are plotted in Figure C3.1 with strains associated with the end of testing plotted in Figure C3.1(a) and strains associated with initial wrinkling or maximum moment plotted in Figure C3.1(b). Several data points are plotted for the same *D/t* ratios. These data points correspond to different levels of internal pressure and net axial load applied during the testing. Internal pressure in the tests varies from zero to an internal pressure that produces hoop tensile stresses equal to 72% (Mohareb et al., 1994 and Ghodsi et al., 1994) or 80% (Zimmerman et al., 1995 and Dorey et al., 2001) of the pipe yield stress. Higher strains for the same *D/t* ratios are from tests with higher internal pressure.

The potential conservatism in equation (3-1) is clearly evident in Figure C3.1(a) by the fact that the maximum local compression strains imposed by laboratory tests with moderate to high internal pressure are typically at least two times greater than those given by equation (3-1). The only exceptions to this are the C-FER data. The smaller strains for the C-FER data may be a result of the presentation of limited data in the public-domain paper, the lack of interest in testing well beyond maximum moment, or the physical limitations of the testing configuration. It should be noted that all of the tests used to generate the data in Figure C3.1 were carried out without the pipe losing pressure integrity; hence, the actual safety margin against loss of pressure integrity is indeterminate.

Longitudinal Tension Strain Limit

Determining an appropriate tension strain limit will vary with welding specifications and inspection criteria and needs to be done on a project-by-project basis. The likelihood of achieving a particular strain capacity need not be unnecessarily restrictive. It is the intent of these guidelines that any acceptable strain criteria used on a particular project should be based upon the concepts of achieving a balanced seismic design as discussed in Appendix A. Estimates of the probability of pipeline failure at the specified strain limits in the range of 10% to 30% are judged acceptable for achieving a balanced seismic design in these guidelines. This level of weld failure, which may seem high compared to other applications such as fitness for purpose assessments, is justified in these guidelines where the likelihood of seismic hazard is the same as the acceptable likelihood experiencing seismic damage. Other factors supporting a higher acceptable probability of a weld not meeting a particular strain level are related to the low probability of a severe undetected flaw at a location of high strain.

It is expected that the allowable longitudinal tension strains will range from 2% to 4% for pressure integrity when evaluating pipeline response to permanent ground deformation. Longitudinal tensile strains of 3% to 5% have been adopted for assessing the ability of pipelines to maintain pressure integrity when subjected to earthquake-generated ground displacement for more than 20 years and are recommended in ASCE (1984). Advancements have been made in the use of fracture-mechanics approaches to estimate failure strains and the comparatively low strain capacities that often resul from fracture-mechanics approaches have raised questions regarding the suitability of historically adopted strain limits.

The magnitude of permissible computed tension or compression strain is limited to no greater than 4% based upon what is believed to be the practical limits of the ability of the analytical approach recommended in these guidelines to adequately represent pipeline behavior. Strain limits supported by additional test data, more refined analysis methods, or corroboration of the analysis approach with test or case history data are generally preferred.

Resolving differences between historic practice, test data, and fracture-mechanics approaches is complicated by several factors. Typical fracture-mechanics approaches were originally developed for applications that require a very low likelihood of failure. This low failure probability is achieved, in part, by adopting conservative assumptions with respect to the type of flaw, the location of the flaw, material toughness, and degree of weld overmatching. Thus, the strain estimates obtained by existing fracture mechanics methods are likely to be associated with a probability of failure much lower than required by the approach adopted for defining seismic hazards in these guidelines. Revising fracture-mechanics approaches to adequately match test data for strain capacities much greater than 1% and provide a statistical estimate of strain capacity is an area of active research within the pipeline industry.

The need to justify high strain capacities will vary among projects and the nature of the seismic hazards faced. In some cases, the required strain capacity necessary to withstand earthquake-generated ground movement is much less than 2% to 4% range recommended in these guidelines as generally achievable. There are also cases, particularly for high-cost projects, when a substantial increase in pipeline wall thickness required by adopting conservative fracture-mechanics based estimates of tension strain capacity may not have an economically significant impact, considering the increased wall thickness is only required at locations where earthquake ground movement is expected. Finally, ground displacements that are much more likely to occur compared to earthquake-related ground movement (e.g., frost heave, thaw settlement, active landslides, mining subsidence), generally require more conservative estimates of strain capacity to meet desired performance goals. For such cases, guidance on longitudinal strain limits is provided in Tables C3.1 through C3.3 based upon a fracture mechanics study by EMC^2 (Wang, 2003). The three tables provide three levels of longitudinal tension strain limits based upon material toughness and Y/T ratio. Comparison with test results described in the EMC^2 report indicate the tension strain limits in Tables C3.1 through C3.3 may have a mean factor of safety as high as 1.8 on strain. Users should carefully review the EMC^2 report to fully understand the basis for the recommendations in Tables C3.1 through C3.3 before adopting them for a particular project.

□□□□2□ □□r□r□ □□□□□G□□□□M□□□□□□□□□r□ □□□□ □□r□□□□□□

The compression strain limits to maintain normal operability for displacement-controlled conditions are largely based upon judgment. The magnitude of longitudinal tension and compression strains are limited to 2%. The reasons for the 2% limit are related to concerns about the overall distortion of the pipe cross-section that might be associated with coating damage or impair the passage of internal pigs.

Longitudinal Compression Strain Limits

Longitudinal compression strains associated with buckling instability of the pipe wall are limited to the value estimated using the maximum moment expression developed by Dorey et al. (2001). Although there is evidence that strains greater than those corresponding to the maximum moment onset of wrinkling can be sustained without appreciable deformation of the pipe cross-section, a conservative approach is adopted to reduce the likelihood of conditions that might impair the long-term integrity of the pipeline. Equations (3-3a) and (3-3b) are the equations developed by Dorey et al. (2001) for offsets at the girth weld. The compression strain limit from equation (3-3a) is plotted in Figure C3.1(b) for the case of X70 pipe with a p/p_y ratio of 0.72 and a Δ/t ratio of 0.10. Also plotted in Figure C3.1(b) are the pressurized test data points corresponding to initiation of wrinkling and maximum moment from tests performed at the University of Alberta. For comparison, data assembled by Stephens et al. (1991) from a wide variety of unpressurized pipe tests are also shown to illustrate similarity with the University of Alberta results. As shown by Figure C3.1(b), the 2% limit on strains for continued

operation governs for the conditions selected at *D/t* ratios less than about 57. The reasons for the 2% limit are related to concerns about the overall distortion of the pipe cross-section that might be associated with maintaining corrosion coating integrity or impair the passage of internal pigs.

Longitudinal Tension Strain Limits

Similar to the selection of tension strain limits for pressure integrity, the longitudinal tension strain limit associated with continued operation are associated with strains that can be accommodated without degrading corrosion coating or internal pig passage. The literature review for these guidelines did not identify information in the open literature relating the impact of longitudinal tension strain on the long-term integrity of the pipeline. Longitudinal tension strains of approximately 1% to 2% seem to be reasonable considering that these strains are generally less than what might be generated during field cold bending operations. Lacking additional information or project-specific test data, it is suggested that longitudinal tension strains for continued operation be taken as half of the tension strain limits for pressure integrity.

[illegible]

The loading conditions considered in these guidelines are typically governed by imposed displacement of the surrounding soil (displacement-controlled). There are some situations where the pipeline loads may not be related to displacement (load-controlled). In the ASME codes, load-controlled conditions are considered primary loads and displacement-controlled conditions are considered secondary loads. Seismic inertial loads are an example of primary loads for aboveground piping.

Examples of load-controlled conditions include flow-type ground failures and situations where ground failure removes soil restraint around a section of pipeline. Figure C3.2 illustrates pipeline configurations corresponding to these two ground displacement conditions. Other examples of load-controlled pipeline conditions not related to earthquake hazards can be found in the offshore industry where pipe laying operations can impose strains in the pipe that must be accommodated without degradation in pipeline strength. For load-controlled situations, local buckling of the pipeline can lead to progressive deformation and pipeline rupture.

In developing load-controlled strain criteria, consideration was given to establishing a uniform strain limit of 0.005, the strain at which the specified minimum yield strength is determined. For most pipeline steels historically used for gas transmission pipelines, stresses below the specified minimum yield stress (corresponding to a strain of 0.5%) do not pose a significant risk for progressive deformation. However, for compression strains, this limitation underestimates strain capacities for pipes with low *D/t* ratios and may underestimate strain capacity for pipes with very high *D/t* ratios. It is also desirable to account for the beneficial effects of internal pressure in reducing the loss of bending strength of the pipe once the maximum moment is reached. The approach adopted is to

base the compression strain limits on the maximum moment relationships developed by Dorey et al. (2001) that are recommended for continued operation. For load-controlled conditions, the relationships developed by Dorey et al. (2001) are factored by 0.75 to provide a reasonable margin against exceeding the maximum moment. The Stephens et al. (1991) relationship is used as a lower limit for compression strains under load-controlled conditions as this relationship represents a 95% lower bound fit to a large database of tests on unpressurized pipes assembled by Battelle.

C3.2 Considerations for Offshore Pipelines

The strain criteria for offshore pipelines undergoing bending and external pressure is adopted from the approach of Murphey and Langner (1985). This approach was adopted because of the relatively simple forms of the governing equations. Alternate approaches such as BS 8010 or API Bulletin 5C3 were also considered. Alternate approaches can be used but the degree of variation in the resulting allowable bending strains are well within the expected variation in hazard quantification.

Tension in offshore pipelines reduces the estimated collapse pressure by reducing the hoop stress at which yielding occurs. The approach adopted in these guidelines is consistent with past recommendations (AGA, 1990) as well as recent investigations (Foeken and Gresnigt, 1998). The approach limits the effective von Mises stress to the material yield stress. For a particular value of axial stress, the hoop stress corresponding to a von Mises yield condition is estimated as follows:

$$\sigma_{yh-red} = \sigma_{yh}\left[\sqrt{1-\frac{3\sigma_a^2}{4\sigma_{yh}^2}}-\frac{\sigma_a}{2\sigma_{ya}}\right] \qquad \text{(C3-3)}$$

where:

$\sigma_{yh\text{-}red}$ = reduced hoop yield stress

σ_{yh} = hoop yield stress

σ_{ah} = axial yield stress

σ_a = applied axial stress

With the simplifying assumption that the axial and hoop yield stresses are equal to the nominal yield stress, σ_y, equation (C3.3) limits the tension strain limit to less than the yield strain.

C3.3 Pipelines Not Compatible with Current Construction Practices

Pipelines not covered by the strain limits in these guidelines include pipelines with one or more of the following characteristics:

1. Alternate girth weld details
2. Welds with detectable crack defects or not acceptable by current welding criteria
3. Corrosion defects
4. Undermatched welds

Pipelines with Alternate Connections Details

Older pipelines may have been constructed with welded slip joints, bell-bell-chill-rings, or other non-butt-welded pipe joints. In addition, pipelines may have been fabricated with mechanical connections such as Dresser® or Victaulic® couplings. The specific details of the configuration of these joints can significantly reduce their strain capacity. For example, depending upon the shape of the bell for welded slip joints, local buckling under longitudinal compression may occur at strains well below the yield strain of the pipe (Tawfik and O'Rourke, 1985). The vulnerability of older pipelines with non-butt-welded pipe joints is often compounded by the fact that the quality of the welds is typically much worse than obtained by more recent construction practices.

It is not possible to define generic recommendations for establishing strain limits for non-butt-welded pipe joints. Detailed finite element analyses utilizing shell elements capable of capturing the effects of material yielding and local wall buckling is perhaps the most cost-effective approach to assess strain capacity for non-standard girth welds. If the welds are suspected of having defects, the finite element analyses will need to be combined with fracture mechanics-based assessment of strain capacity for the defective weld.

Pipelines with Corrosion or Weld Defects

Evaluating the effects of corrosion or weld defects is a potential issue for the assessment of existing pipelines. Explicit consideration of the effect of defects is limited to cases where evidence from past pipeline repairs or findings from internal inspections permit quantification of defect size and distribution. Assessing pipelines for weld and corrosion defects requires expertise in fracture mechanics and experience in characterizing defect geometry and material toughness parameters. Test data on pipe or weld toughness properties are normally not available for existing pipelines. The lack of data generally leads to removing samples of material for testing, fabrication of simulated test specimens, or estimating parameters based upon correlations with similar pipe material, chemical composition, or Charpy test data.

Procedures for estimating the strain capacity of pipelines with weld or corrosion defects is an area of ongoing research. Much of the work is related to estimating to what extent defects, in combination with relatively small amounts of induced bending, reduce the safe pipeline operating pressure. For seismic assessment purposes, the more common situation is longitudinal strains exceeding yield from axial or bending response with the pipeline operated well below its maximum permissible pressure.

There are many references that can be consulted regarding the assessment of weld and corrosion defects and non-standard joint details. Examples include ASME B31G (ASME, 1991), Roberts and Pick (1998), Rosenfeld (1996), Wang et al. (1996, 1998), Wang (2003), Warke and Amend (1997), and Warke et al. (1997).

For the majority of older pipelines, available information is often limited to pipe size, wall thickness, and material specification. In some cases, there may be coupon tensile test data but this is typically from a statistically insignificant number of pipe samples. This lack of data can severely limit the analytic tools available to estimate strain capacity. In many cases, a decision will need to be made as to whether or not it is necessary to take a pipeline out of service to remove test samples for determining mechanical properties. Information gathered from the operational history of the pipeline, limited excavation to examine the pipeline, information from field personnel on site during construction of the pipeline, and historical experience with the performance of pipe suppliers and pipeline contractors can provide sufficient information to form a judgment on the strain capacity of a pipeline suspected of having weld or corrosion defects. Extraction of specimens for testing is typically limited to cases where potential pipeline damage from a seismic hazard is judged to be extremely serious.

It is not necessary to establish a very conservative acceptable strain limit for the purposes of the seismic assessment. The typical approach to determining an acceptable strain limit for pipelines with weld or corrosion defects is to assume that the defect is located on the circumference coincident with the occurrence of maximum pipe strain. This approach can be very conservative. The combination of maximum pipe strain with a defect is dependent upon the variation in location of of ground displacement, the direction of ground displacement with respect to the pipeline alignment, and the variation in the distribution of weld defects around the circumference or the distribution of corrosion defects around the circumference and along the pipeline. It should be remembered that the approach described in these guidelines is assumed to contain sufficient conservatism in the definition of the seismic hazard. If highly conservative approaches to assess the impact of defects are applied, it is reasonable to consider reducing the conservatism in defining the seismic hazard.

Pipelines with Undermatched Girth Welds

For the purposes of these guidelines, girth welds are considered to undermatch the pipeline material if the actual weld metal yield strength and toughness do not exceed the actual values of yield strength and toughness of the pipe material. There is considerable

evidence (e.g., Denys, 1992, 1993, 1994; Horsely et al., 1997) that undermatching girth welds prevent the development of gross-section yielding generally assumed to occur in the analysis of pipeline response to permanent ground displacement. If weld undermatching is suspected, tension strains for pipeline assessment should be based upon limiting pipe stresses to the yield stress of the weld unless data are available to support higher values.

Studies investigating the effect of weld undermatching on compression strains have not been identified. It seems reasonable to assume that the effect of undermatched girth welds is much less under compressive loading. Unless there is reason to believe that local yielding of the weld metal substantially reduces the occurrence of local buckling of the pipe wall, it is recommended that no adjustment is necessary to the longitudinal compression strain limits for undermatched girth welds.

It must be pointed out that undermatched welds are rare for most existing pipelines and the majority of new pipelines. Weld undermatching has only become a significant concern with the recent introduction of high-strength pipelines steels consistent with API 5L Grade X70 and above. However, without careful weld specifications, it is possible to have undermatched welds for lower strength pipe. The difficulty in achieving weld overmatching may limit the ability of higher grade pipe steels from being used when it is necessary to resist significant seismic ground movements.

Assessing the Risk of Not Meeting Performance Goals

The ability of the pipeline to achieve the desired level of performance, expressed as an annual probability estimate, should be taken as the product of the annual probability that the pipeline will experience ground displacements greater than the capacity assuming factored strain limits and the probability that the pipe defects more severe than those accounted for exist in portions of the pipeline experiencing high strain levels. This can be expressed analytically in the following manner:

$$P_G = P_{GD}\left[1-\left(1-P_D\right)^n\right] \qquad \text{(C3-2)}$$

where:

P_G = computed performance expressed as an annual probability of exceedance

P_{GD} = annual probability of exceedance for the earthquake producing the ground displacement hazard representing the pipeline capacity with reduced strain limits

P_D = probability that the reduced strain limit for any individual weld is less than expected accounting for the variability in defect distribution and methods for relating defect size to strain capacity

n = number of welds exposed to strains above the reduced strain limits

As an example, consider the following conditions:

> Analysis of a portion of a pipeline assuming nominal properties indicates that a pipeline subjected to permanent ground movement is adequate to meet the desired performance goal, defined as an annual probability of loss of pressure integrity no greater than 0.2%. The ground displacement corresponding to a 0.2% annual probability of exceedance is 2 m (6.6 ft) and is governed by longitudinal tension strain. Inspections of another portion of the pipeline built at the same time and by the same contractor indicate a potential for girth weld or corrosion defects. A reduced longitudinal tension strain capacity is determined based upon the most severe flaws identified by the prior inspection and fracture mechanics analyses. It is estimated that there is a 5% chance that the actual reduced strain capacity will be less than the determined reduced strain limit for any one weld. The reduced longitudinal tension strain capacity is exceeded for ground displacements greater than 1.25 m (4.1 ft). The analysis of pipeline response indicates that the length of pipeline exceeding the reduced strain limits is approximately 120 m at the full ground displacement of 2 m. The annual probability of exceeding 1.25 m of ground displacement is estimated to be 0.5%. The pipeline was constructed with 12-m (40-ft) joints of pipe.

The annual probability of loss of pressure integrity accounting for the potential for defects is estimated as follows:

$P_{GD} = 0.005$

$P_D = 0.05$

n = 120 m ÷ 12 m/joint = 10 girth welds

$$P_G = 0.005\left[1-(1-0.05)^{10}\right] = 0.002$$

The pipeline with defects can be considered as meeting the performance goal since the estimated probability of exceeding the reduced strain limit is equal to the 0.2% defined by the performance goal. While the annual probabilities of exceeding acceptable longitudinal tension strain limits are the same, the probabilities associated with a particular time interval can be different.

For a 50-year time frame, T, the probability of ground movement exceeding 2 m (i.e., not meeting the desired performance goal) is computed as follows:

$$P_{eT} = \left[1-(1-P_e)^T\right] = \left[1-(1-.002)^{50}\right] = 0.0952$$

where:

P_{eT} = probability of exceeding nominal strain limit in time T

P_e = annual probability of earthquake more severe than defined by the performance goal

T = time frame for computing P_{eT}

The above calculation may greatly overestimate the likelihood of failure in 50 years because it assumes that the pipeline has a 100% probability of failure at the strains produced by a 2-m ground displacement.

The probability that the reduced longitudinal tension strain will be exceeded in the same 50-year time frame is computed as follows:

$$P_{erT} = \left[1-\left(1-P_{GD}\right)^{T}\right]\left[1-\left(1-P_{D}\right)^{n}\right]$$
$$= \left[1-\left(1-.005\right)^{50}\right]\left[1-\left(1-.05\right)^{10}\right]$$
$$= \left[0.2217\right]\left[0.4013\right] = 0.0890$$

where:

P_{erT} = probability of exceeding reduced strain limit in time T

T = time frame for computing P_{erT}

The differences in the above example probability calculations are not significant considering the level of uncertainty in estimating earthquake hazards. This is generally the case when the pipe meets the desired performance goal considering the effects of potential defects in a probabilistic manner. When it is useful to express the probability in terms of a reference time frame, basing calculations on only the annual probability of exceeding acceptable longitudinal strain capacity is generally sufficient.

Table C3.1 Level 1 Longitudinal Tension Strain Limits for Special Applications

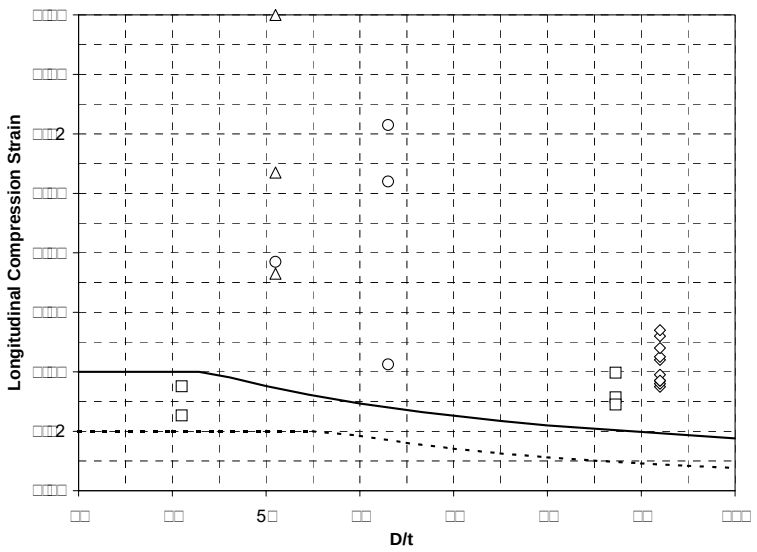
Grade	Wall Thickness		*Y/T*	Strain Limit (%)	
[illegible]	[illegible]	[illegible]		D [illegible] 2 5 [illegible]	D [illegible] 25 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table C3.2 Level 2 Longitudinal Tension Strain Limits for Special Applications

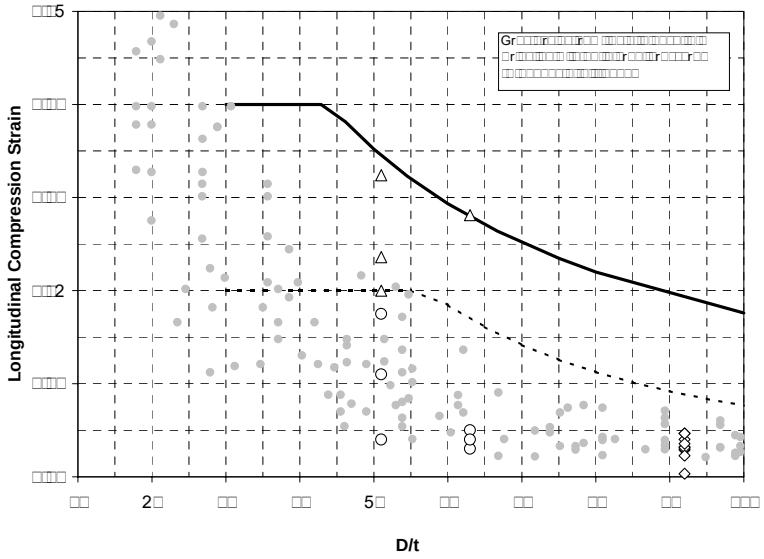
Grade	Wall Thickness		*Y/T*	Strain Limit (%)	
□□□□□	□□□□□□	□□ □ □		D□□□□□

Table C3.3 Level 3 Longitudinal Tension Strain Limits for Special Applications

Grade	Wall Thickness		*Y/T*	Strain Limit (%)	
□□□□□	□□□□□□□	□□ □ □		D□□□□□□



(a) Comparison of Test Data on Maximum Tested Strain Over Gauge Length



(b) Comparison of Test Data on Wrinkling and Maximum Moment

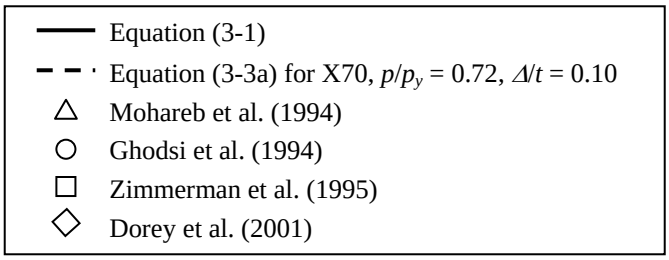
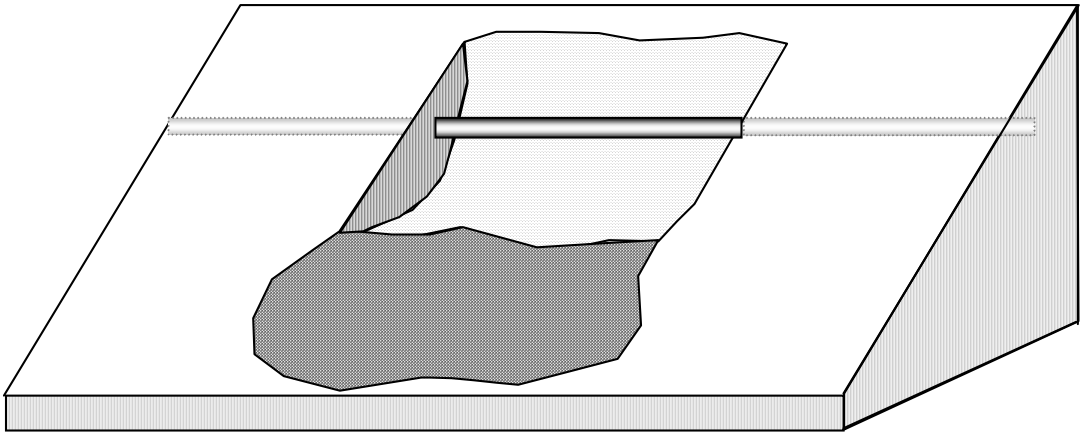
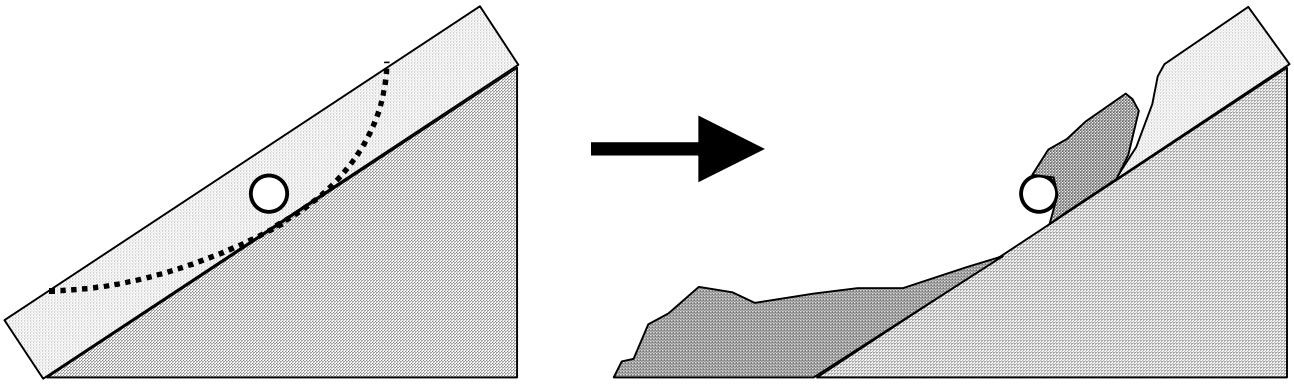


Figure C3.1 Comparison of Recommended Compression Strain Limits with Test Data



(a) Pipe Span Created by Landslide or Lateral Spread



(b) Soil Load Created by Shallow Soil Slide

Figure C3.2 Examples of Load-Controlled Configurations for Buried Pipelines

C4.0 PIPELINE ANALYSIS PROCEDURES

Experience in the oil and gas industry with respect to the analytical evaluation of buried pipeline response to large permanent ground deformation dates back to the mid-1970s. This experience includes simple evaluation methodologies as well as more sophisticated finite element approaches. A brief summary of this history and the experience of pipelines undergoing large ground deformations is presented as a means to introduce the discussion of analytical methods and results in these guidelines.

Differences in the relative stiffness between the pipe and the soil lead to relative pipe-soil movements. Large relative movement is an indication that the pipeline has considerably more strength than the surrounding soil at that particular location. Therefore, high-strength pipeline material is generally more beneficial in resisting highly localized soil deformation.

The geometry of the pipeline may allow for concentration of loading and relative displacement, leading to the development of locally large strains in the pipeline. Because these load conditions are produced by an imposed displacement, relatively large strains can be accepted provided the pipeline is in good condition and the girth welds are capable of developing gross-section yielding of the pipe. To accommodate the large strains, it is beneficial to have a ductile material (such as the steels considered in this evaluation) that hardens gradually between its yield and ultimate strength capacity. This allows for a more uniform distribution of strain and lessens the likelihood of local tearing of the pipe wall.

The first approach for estimating the response of buried pipelines to large ground deformations is generally credited to Newmark and Hall (1975). Their approach provided a means to quantify the amount of strain that could be accumulated in a buried pipeline crossing a fault. The basic components of the analysis are the stress-strain properties of the pipeline steel, the ground deformation geometry, and an estimate of the variation of the axial loading placed on the pipeline by the soil. The analysis assumed a straight pipeline configuration across a fault-like discontinuity.

A modification of the Newmark and Hall approach, developed by Kennedy et al. (1977), allowed the incorporation of bending effects into the analysis. The Kennedy et al. method accounted for bending by relating the lateral soil forces on the pipeline to an assumed amount of imposed pipeline curvature. The modified approach of Kennedy et al. is best suited for instances of large ground movement for which the bending strength of the pipeline, while significant, is not a dominant feature of the pipeline response. For small amounts of deformation where bending effects are significant, Kennedy et al. outlined the process for including a local bending analysis into their methodology. However, this process is cumbersome and is rarely considered practical compared to finite element methods.

Both the Newmark and Hall and Kennedy et al. approaches are practically limited to consideration of initially straight pipelines, single components of lateral offset (either vertical or horizontal), constant soil-pipeline interaction parameters and negligible pipe

bending stiffness. By the late 1970s, use of nonlinear finite element techniques were accepted as the preferred means to analyze all but the most simple of problems. Finite element approaches provide a means to rapidly investigate the effects of changes in backfill characteristics, pipeline material, wall thickness, and pipeline alignment. In addition, the assumptions used to formulate closed-form approaches like those of Newmark and Hall and Kennedy et al. have not been substantiated in comparison with finite element analyses as recommended in these guidelines.

The mechanics of implementing a finite element analysis have changed little in the last 15 to 20 years. The primary advancement in performing analyses has been in the availability of powerful desktop personal computers and compatible nonlinear analysis software that accounts for material yielding and large deformations.

The recommended analysis approach models the pipeline with beam-like elements capable of capturing nonlinear material behavior and the effect of large deformations. It is preferred that the analysis software include a pipe element in its element library with the capability to model internal pressure and provide output at various circumferential locations. These characteristics limit the amount of effort necessary to define pipe properties and the effort related to interpretation of the output from the analysis.

The recommended analysis approach can not account for localized straining that occurs once pipe wall buckling initiates. The recommended approach will underestimate local and global post-buckling strains in the region of the buckle. However, because of the displacement-controlled loading, and the fact that research into pipeline behavior has not, to date, been able to develop monotonically increasing strains of sufficient magnitude to produce rupture in a buckle (i.e., no rupture except by burst testing), this is considered acceptable. Also, refined calculations into the post-buckling region, based upon the use of nonlinear shell elements, have not yet been established to the point where they can be considered to be design tools.

C4.1 Pipe Element Definition

The one-half diameter limitation on the length of pipe elements in areas of high strain is related to the gauge length typical of full-scale pipeline tests. Shorter pipe elements promote the localization of plastic strains that have been observed in the tests.

Stress intensification and flexibility factors are based upon elastic pipeline response and are not applicable to analysis of nonlinear pipe behavior. The use of multiple straight pipe elements to represent bends and elbows introduces localization of strains that may be overly conservative considering the greater flexibility typical of elbows. However, the beneficial effect of elbow flexibility decreases with increasing *D/t* and internal pressure. Conservatism in the treatment of elbows is warranted because of the lack of sufficient tests to determine applicable strain limits for elbows. However, tests on Grade B elbows have demonstrated that they have the ability to withstand severe deformation while maintaining internal pressure integrity (Yoshizaki et al., 1998).

The use of sections of elbows cut to provide angle changes other than standard 90° or 45°. The wall thickness of elbow fittings is typically not uniform around the circumference will vary depending among different manufacturers. Because of these factors, sections of elbow fittings require special attention because of the potential for a significant mismatch in wall thickness between the pipe and the elbow section. This mismatch in wall thickness can lead to stress risers and reduce the strain capacity of the welded connection.

The length of the pipeline model should be sufficient to adequately capture the anchoring effects of the soil outside the zone of ground movement. Extending the pipeline model a considerable distance outside the zone of ground movement typically does not significantly lengthen the solution time for the analysis as the pipeline response is mostly elastic. In cases where a particular analysis program is impacted by an extended pipeline model, a shorter length can be used if analyses are performed to confirm that longer models do not appreciably change the maximum computed strains.

It is assumed that the pipeline analyses are performed using a multi-linear uniaxial stress-strain curve to represent the pipeline material. The procedure for defining the compressive stress-strain curve is an attempt to capture trends exhibited in full-scale pipe tests. Pipeline test results demonstrate an abrupt softening in the moment versus curvature behavior of unpressurized pipelines strained beyond the point of maximum moment capacity (Yoosef-Ghodsi et al., 1994, Mohareb et al. 1994, Zimmerman et al., 1995).

Not capturing the reduction in moment capacity that accompanies formation of a local buckle in the pipe wall is not a significant shortcoming. As discussed in Section C4.2, the representation of the soil loading does not account for the reduction in maximum soil load at large relative pipe-soil displacement. The use of a constant maximum soil load forces continued deformation of the pipeline once yielding is reached. Localization of bending strains is not a concern because the pipeline is limited to the displacement experienced by the surrounding soil.

C4.2 Pipe Stress-Strain Definition

(No additional commentary provided)

C4.3 Soil Spring Definition

Relative movement of the surrounding soil with respect to a buried structural element imparts loads on that element. The magnitude of these loads was initially investigated to understand the performance of footings, piles and soil anchors. In the early to late 1970s, several research programs developed soil loading relationships specifically for buried pipelines. A key characteristic of soil loading is that it increases only to the point at which gross failure of the soil occurs. For example, the maximum lateral load that can be imparted to a buried pipe is related to the load necessary to develop a failure plane in the

soil. Once this load has been reached, further relative displacement serves primarily to move soil along the failure plane.

The limited nature of soil loading on the pipeline is commonly represented in analytical approaches by modeling the soil with bilinear springs. This approach is conservative because forces necessary to carry soil along the established failure planes are typically less than those needed to initially generate the failure plane in the soil. An approximate analogy in mechanics is the relationship between static and sliding friction.

It is possible to estimate the reduction in soil loads for large relative displacements based upon soil mechanics analyses or test data. The analysis approach using beam-like pipe elements in the analysis of pipe response is not compatible with such soil loading representations because of the inability to capture the reduction in moment capacity at large pipe strains. If a more refined estimate of soil loading is used, the modeling of the pipe should be modified to capture the localized straining that occurs in the vicinity of a buckle in the pipe wall.

There is considerable uncertainty regarding the relationships used to compute soil spring properties. Most of this uncertainty is related to estimates of the soil strength parameters. The uncertainty in estimating soil strength parameters for pipeline analyses in cohesive soils is further complicated by the fact that pipelines are typically located above the water table and within the desiccation zone of the soil. The strength of partially saturated desiccated soils is not well defined in soil mechanics practice.

The equations provided for the parameters N_{qh}, N_{ch}, N_{qv} N_{cv}, and N_{γ} are developed from empirical curves found in the literature. The equations are particularly useful when implementing calculations in a spread sheet or computer program. The curves from which the equations were developed are provided in Figures C4.1 to C4.4.

Most of the soil loading relationships in these guidelines are nearly the same as those recommended by the Gas and Liquid Fuel Lifelines Committee of the ASCE Technical Council on Lifeline Earthquake Engineering (ASCE, 1984). One exception is the relationship for estimating axial soil loads in cohesive soils. These guidelines utilize the adhesion curve developed by Honegger (1999b).

There is considerable recent research supporting the use of the approach in these guidelines for estimating soil loads. Examples include centrifuge modeling tests (Paulin et al., 1995, 1996), field tests (Cappelletto et al., 1998, Honegger, 1999b, Rizkalla et al., 1996), and finite element analysis (Altaee et al., 1996). There is some evidence from laboratory tests that the lateral soil loads determined by the equations in these guidelines may overestimate the maximum soil loads (Paulin et al., 1998). However, this evidence is from an ongoing proprietary research program, and there are a number of technical issues relating to modeling similitude and load rate that require resolution. Until the findings from this proprietary research become available for review or other data are published from tests at seismic loading rates, the expressions contained in these guidelines represent the best approaches available. As an alternative, it is always permissible to utilize test data for a particular soil condition.

C4.4 Extent of Pipeline Model

(No additional commentary provided)

C4.5 Representation of Applied Ground Movement

The use of abrupt transition in the applied ground movement at faults and boundaries of lateral spreads and landslides is required in these guidelines unless site-specific information is available to justify other patterns. This is not an unrealistic assumption based upon the observation of abrupt transition patterns in past earthquakes. The assumption of an abrupt transition is conservative in that the computed strains are likely to be substantially greater than those computed assuming a more gradual transition. This approach is consistent with the representation of soil loading and analysis methods used in these guidelines. That is, the definition of ground deformation hazard, as represented by the soil loads and deformation pattern, is conservative while the assessment of pipeline response, represented by the strain criteria and pipeline modeling approaches, is believed to be more median-centered.

An alternate approach for expressing ground displacement based upon observations from Japanese earthquakes is to assume a pattern defined by a cosine function raised to the power of *n* as given in equations (C4-1) and (C4-2).

For slide-type displacements:

$$\begin{aligned} y(x) &= 1-\delta\left(\cos\frac{\pi x}{W_s}\right)^n && \text{for } \frac{x}{W_s}\le 0.5 \\ &= 1- \quad \delta\cdot\left(\cos\left[\pi\left(1-\frac{x}{W_s}\right)\right]\right)^n && \text{for } \frac{x}{W_s}> 0.5 \end{aligned} \tag{C4-1}$$

For fault-type displacements:

$$y(x) = 1-\delta\left(\cos\frac{\pi x}{2W_f}\right)^n \tag{C4-2}$$

where:

$y(x)$ = displacement as a function of location, x, within the zone of deformation

x = distance across the zone of deformation

H = rupture depth, km

δ = amount of displacement

W_s = width of slide zone

W_f = width of fault zone

The cosine functions given by equations (C4-1) and (C4-2) are graphed in Figure C4.5 for various powers of *n*.

A displacement pattern corresponding to an *n* of 10 is representative of slide and fault displacements. A more abrupt transition, approximated by an *n* value greater than 100 has also been observed in some earthquakes. Other displacement patterns established based upon historical observation or rational analysis may be used for characterizing ground movements.

Practically, current empirical or analytical methods for quantifying seismic ground movement hazards are also not capable of quantifying the behavior at boundaries. The most appropriate basis for estimating more gradual transitions in ground movement is historical evidence. This type of information is typically limited to areas of high seismic activity where a historical record of observed ground deformations exits. If the basis for a more gradual transition is judgment, the sensitivity analyses should include an abrupt transition in ground deformation pattern.

C4.6 Sensitivity Analyses

Sensitivity analyses are recommended to provide some indication of the sensitivity of computed pipeline strains to various input parameters. The primary reason for performing sensitivity analyses is to assess the impact of uncertainty regarding definition of the earthquake hazard and soil loading parameters.

The recommended variations in these guidelines are based upon the premise that the soil spring definitions in these guidelines tend to overestimate soil loads. Some determination of the expected variability in modeling parameters should be included in the scope of any assessment. While higher soil loads generally produce more severe pipeline distortion, there are certain exceptions. A simple example illustrates this point.

Consider a pipeline alignment shown in Figure C4.6 subjected to right-lateral strike-slip faulting. The pipeline has an induction bend west of the fault and a 90° 3R elbow on the east side of the fault approximately 350 m from the induction bend. Given the shallow crossing angle, the response of the pipeline is governed by axial loads between the two bend locations. With this configuration, the two bends have the potential to behave as anchors. Overestimating the axial soil loads on the pipeline will tend to focus high strains at the induction bend. As the pipeline strains axially, the soil loads gradually reduce and may be insignificant at the 3R elbow if the total axial strain is sufficient to allow no relative displacement at the elbow. If the soil loads are underestimated, the soil will tend to slide along a much greater length of pipeline because the strains induced by the low soil loads are not sufficient to match the ground displacement. In this case, the strains at the induction bend may be reduced but one leg of the 3R elbow will be forced by high lateral soil loads to match the difference between the ground displacement and

the axial pipe elongation. In effect, soil reaction forces developed at the 3R elbow will be pulling the pipe between the bends to accommodate the displacement mismatch. This condition can shift the most critical location of pipeline straining from the induction bend to the 3R elbow.

This example demonstrates that possible variations in soil spring definition can not only define the variability in computed strains but may also indicate a potential for alternate critically loaded portions of the pipeline alignment. When selecting variations of soil springs for sensitivity analyses, the potential for such behavior should be considered. This may involve a more extreme variation in soil spring definition and a separate assessment to determine the likelihood of experiencing such an extreme variation.

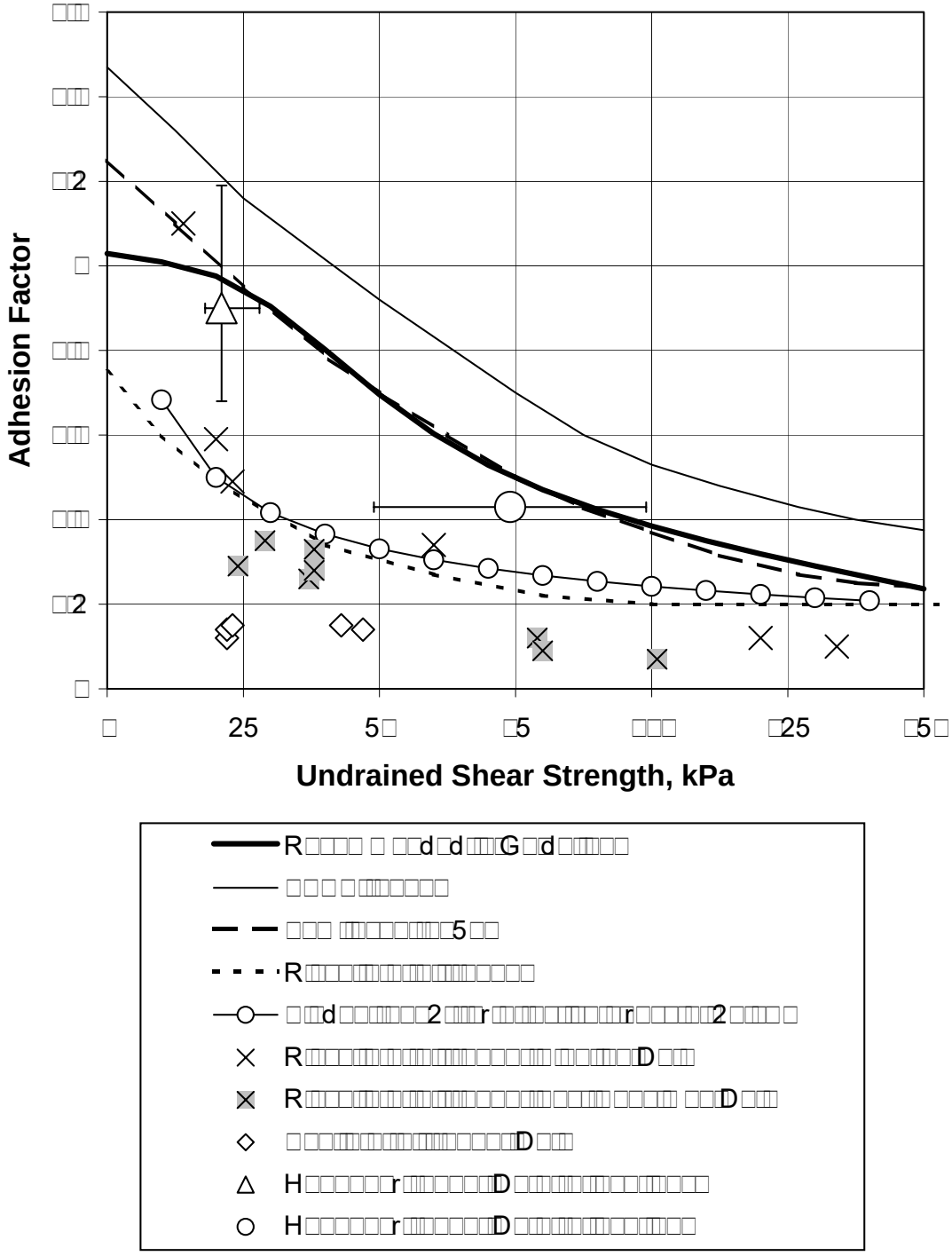


Figure C4.1 Plotted Values for the Adhesion Factor, α

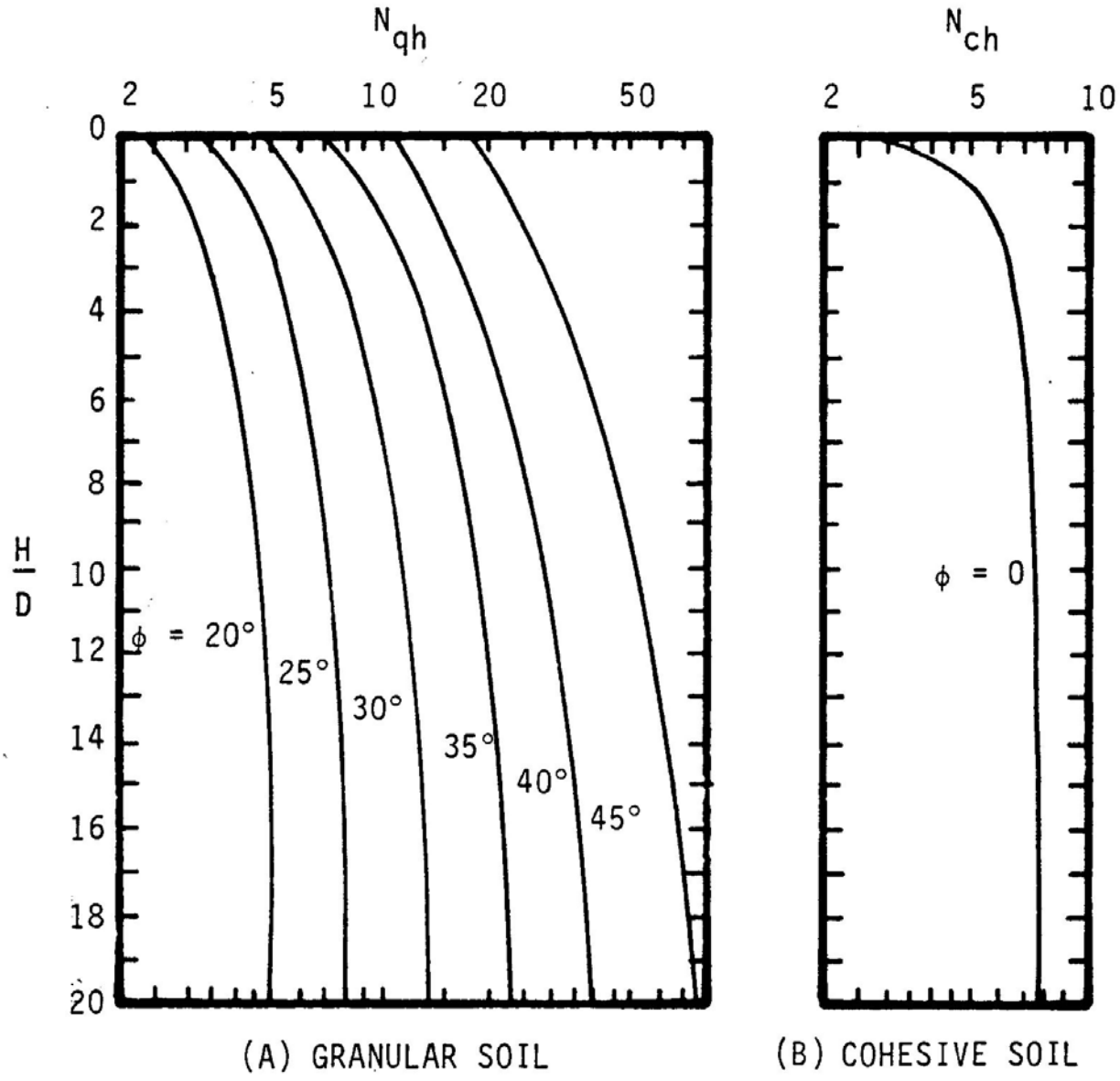
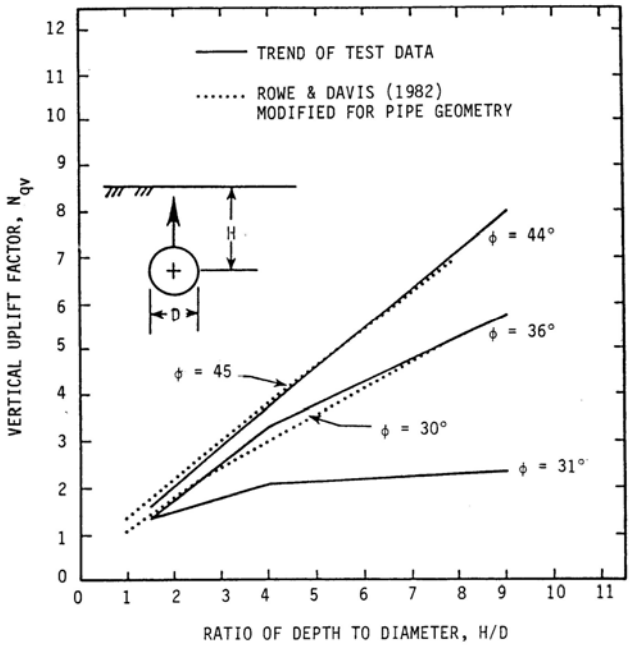


Figure C4.2 Values of N_{qh} and N_{ch} (from Hansen, 1961)



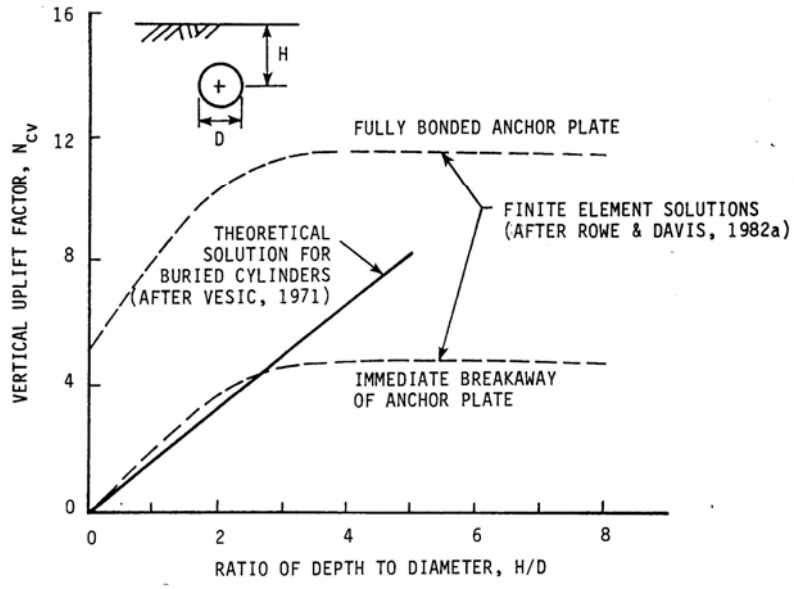


Figure C4.3 Ranges for Values of N_{qv} and N_{cv} (from Trautman and O'Rourke, 1983)

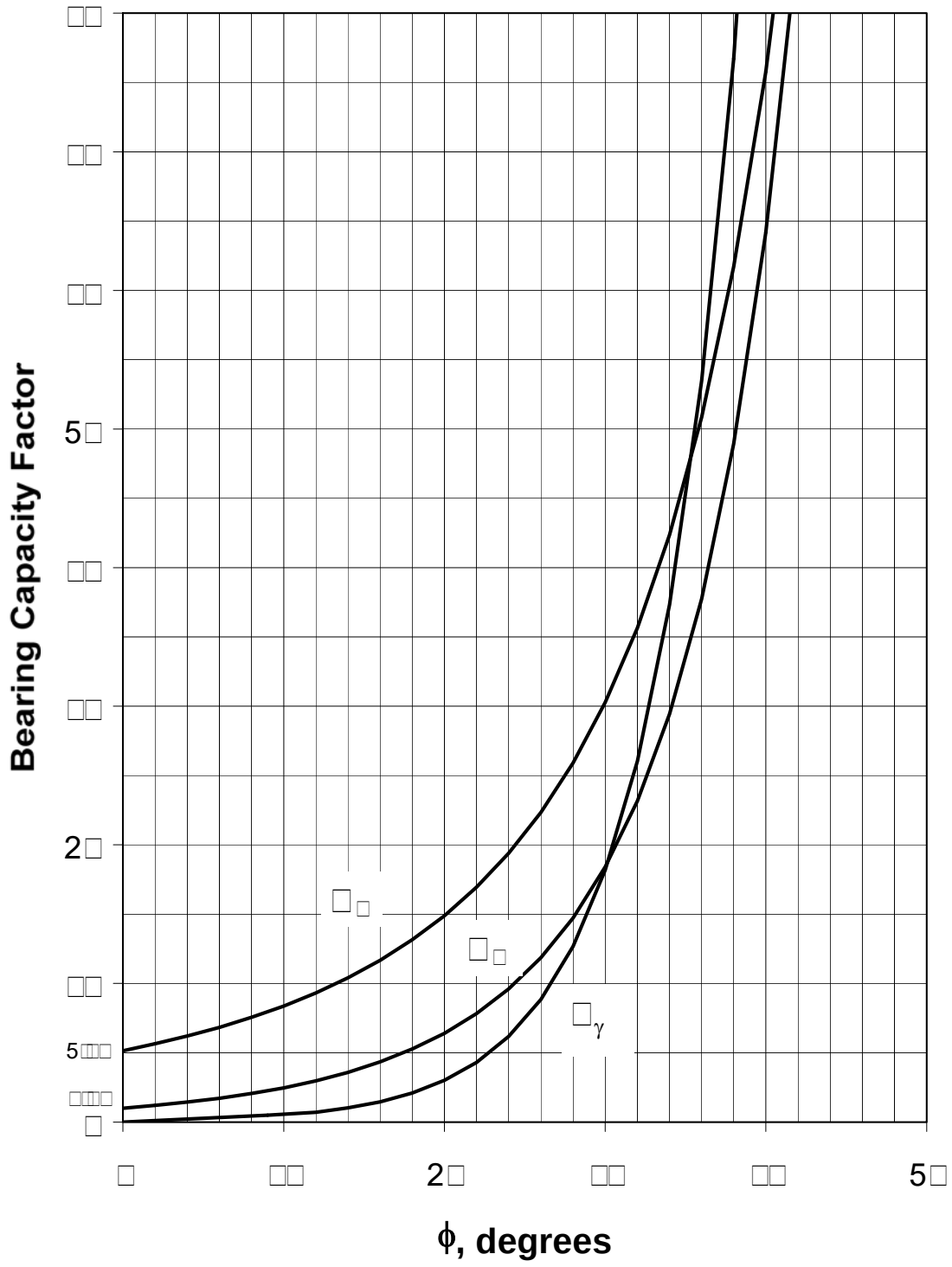
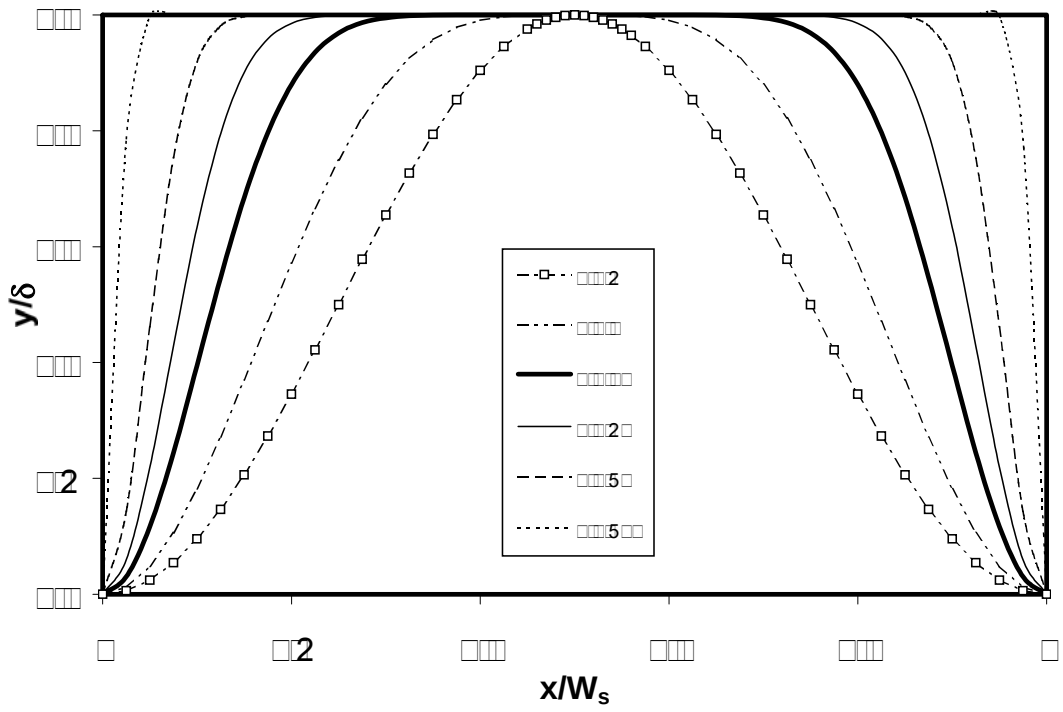
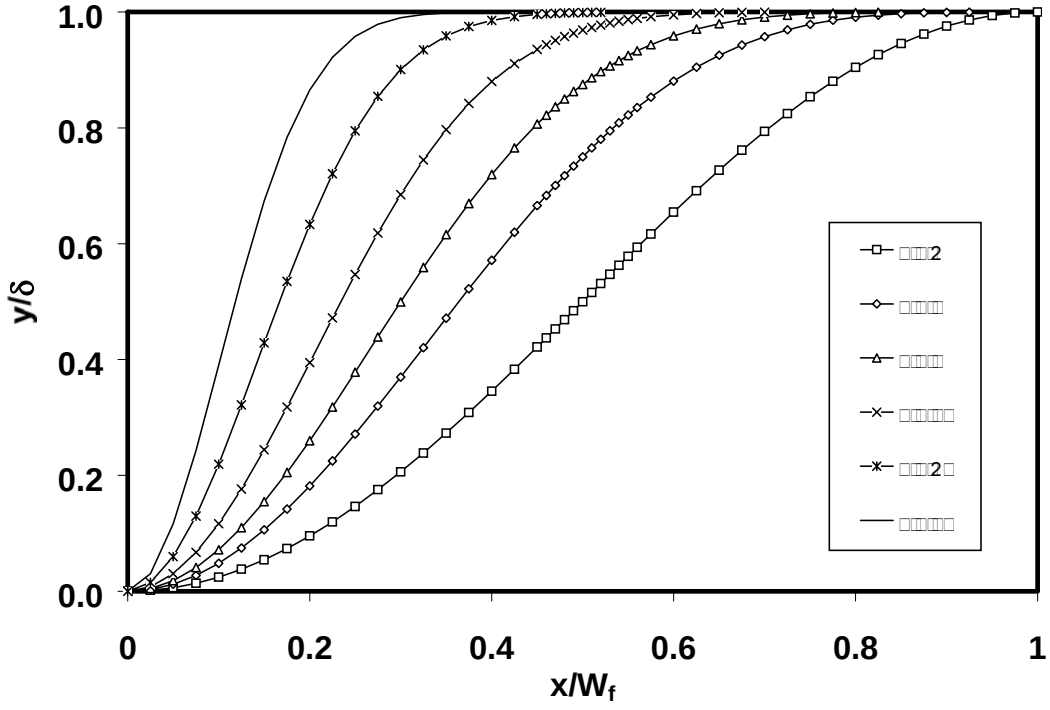


Figure C4.4 Plotted Values of Bearing Capacity Factors (N_q, N_c, and N_γ)



a) Cosine Function Representation of Slide Displacement



b) Cosine Function Representation of Fault Displacement

Figure C4.5 Cosine Function for Representing Variation in Ground Displacement Patterns

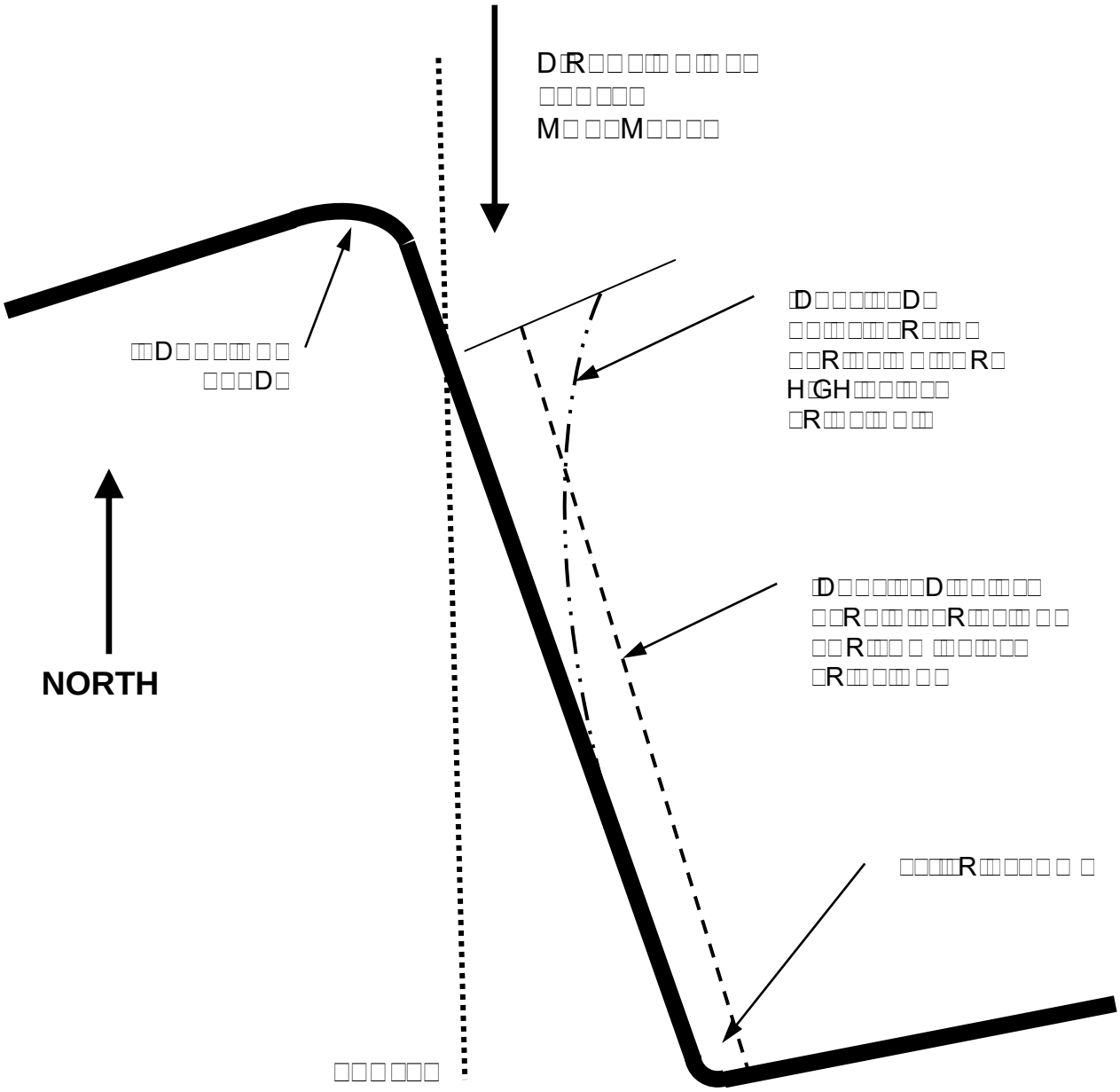


Figure C4.6 Example of Pipeline Configuration Illustrating Consequences of Variability in Soil Spring Forces

C5.0 MITIGATION OPTIONS

As with pipeline design and assessment guidelines, the benefits of implementing mitigation measures have generally not been demonstrated by experience in actual earthquakes or in controlled tests. A notable exception being the limited field testing performed to validate the concept of dual layers of geotextile wrapping. The presentation of mitigation options is limited to a general discussion of various techniques that have been implemented or considered in the past. For this reason, no additional discussion of potential mitigation options is provided in this commentary.

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CONSIDERATIONS FOR ESTABLISHING PERFORMANCE GOALS

Existing pipeline standards emphasize minimum requirements for normal design, construction, and operation. Many pipeline companies exceed the requirements stipulated by the standards for safety and reliability. With regard to seismic hazard mitigation, the appropriate level of seismic design is typically determined on a project-by-project basis using site-specific information to define the seismic hazard exposure and the current state-of-practice. In practice, this often results in the definition of seismic performance goals for the pipeline being based largely upon criteria adopted from other non-pipeline projects, with similar consequences to the public.

A fundamental question to be answered in performing a seismic assessment for a new or existing pipeline is what level of performance is necessary. These guidelines assume a definition in terms of an annual probability of exceeding an unacceptable condition such as excessive pipe deformation or loss of pressure boundary integrity. This probability is then equated to the probability of occurrence of the earthquake.

A.1 Objectives

The main objective of seismic design for natural gas transmission and liquid hydrocarbon pipelines is to provide life/safety protection from the effects of stipulated design earthquakes distributed along the pipeline route. A secondary, but important, objective is to minimize capital loss and disruptions to operations.

The goal for seismic design of natural gas transmission and liquid hydrocarbon pipelines is to achieve a balanced design to withstand the effects of earthquakes and other loads which is both safe and economically feasible. The design should take into account the nature and importance of the project, cost implications, and risk assessment centering around such items as public safety, loss of product or service, and damage to property and the environment. The treatment of the seismic hazards should be consistent with the treatment of other natural and manmade hazards.

The concept of a balanced design may be difficult to achieve because many of the parameters necessary for making rational decisions are either unknown or not well defined. The goal of a balanced design is for all major components of a pipeline system to have failure risks and consequences that are consistent with system performance objectives. Pipelines and support facilities should be designed to withstand the effects of earthquake ground shaking and permanent ground movements that have a reasonable probability of occurrence along the route during their operational life.

A.2 Dual-Level versus Single-Level Earthquake Hazard Definition

The use of dual-level earthquake design criteria is an outgrowth of practices developed for the nuclear power industry and other projects (e.g., offshore structures) where seismic

damage has the potential for severe safety or environmental consequences. The origin of the two-level design earthquake was primarily intended for the design of buildings and surface structures, with their contained electrical and mechanical systems and aboveground piping systems. The first major pipeline project to adopt dual-level earthquake criteria was the Trans-Alaska pipeline, but design implementation was restricted primarily to aboveground pipeline segments.

Current practice for the seismic design of major pipeline facilities (new construction) often follows the precedent set for offshore oil production platforms, Department of Energy critical facilities, and nuclear power plants in that two levels of earthquake hazard are selected for design. In this approach, the low level event generally has a return period on the order of 200 to 500 years. The higher level event is generally one that has a return period on the order of 1,000 years or more, depending upon the nature of the facility.

The lower level event is often viewed as a threshold for continued operation of the pipeline within accepted safety margins and little if any permanent deformation of the pipeline is permitted. The pipeline response to higher level event is typically required to prevent a threat to safety, although significant structural damage could occur. Specific criteria for the response of the pipeline to these events, including the amount of permissible damage, varies according to the type of structure or component and its function. The selection of earthquake return periods and performance objectives should be established through a project-specific risk assessment.

There is no standard nomenclature for referring to the two earthquake levels. The lower level event is often referred to as the "probable design earthquake" (PDE), the “design basis earthquake” (DBE), or the “strength level earthquake” (SLE). The higher level event is commonly referred to as the "contingency design earthquake" (CDE), “maximum credible earthquake” (MCE), “safe shutdown earthquake” (SSE), or “ductility level earthquake” (DLE).

For the design or assessment of buried pipelines it is not clear whether a two-level design is necessary or practical in many cases. The fundamental difference in the condition expected of buried pipelines and typical structures and equipment following the low-level earthquake should be considered if a dual-level earthquake design is specified. Establishing a lower level earthquake for structures and equipment generally assures that the post-earthquake condition is essentially the same as the pre-earthquake condition for the less severe earthquake. This is expected because their primary earthquake loading condition is a transitory inertial excitation. However, the primary earthquake load on buried pipelines is permanent ground displacement. The pipeline’s total strain capacity to resist ground displacement in the future is reduced because of the strains produced by the low-level earthquake displacements. Also, it is possible that landslide and lateral spread hazards are not direct functions of the level of ground shaking necessary to trigger large displacements. These factors should be considered with respect to the purpose of specifying a dual-level earthquake to provide an increased likelihood of normal operation for moderate events and prevent loss of pressure integrity for major events.

The decision on whether or not to specify a dual-level earthquake design for a buried pipeline may also be influenced by considering measures that may be required following an earthquake that produces permanent ground displacement. Following the earthquake, a decision will be necessary regarding the suitability of the pipeline for continued short-term and long-term service. Considerations impacting this decision include the consequences if the pipeline performance is compromised by future ground displacement, the likelihood for future earthquake generated ground displacement during the life of the pipeline, the remaining capacity of the pipeline to withstand future ground displacement, and the consequences to customers if pipeline operations are interrupted.

Given that this decision process generally occurs regardless of the level of ground displacement experienced by the pipeline, it is not clear what benefits are to be gained by specifying two levels of earthquake hazard. This is especially true for cases where analysis provides information on pipe strains as a function of ground displacement such that the pipeline response for lower level events is understood.

Another consideration relates to the assessment of permanent ground displacement patterns after an earthquake when the ground displacement was insufficient to lead to loss of pipe contents. With the exception of well-defined abrupt surface expressions of displacement, it is often necessary to compare the positions of surface features following the earthquake that were known before the earthquake in order to evaluate the extent of ground deformation. Examples of such surface features include roads, sidewalks, fence lines, and survey monuments. In the case of pipelines within a liquefiable soil experiencing lateral spread movement, the problem is compounded by the fact that the ground movements within the liquefiable layer may not be well represented by surface ground displacement. In most earthquakes, detailed surveys are necessary to determine the amount of ground displacement. In remote locations, it is not unusual to have no pre-existing features from which to ascertain ground displacement. In such cases, assessment of pipeline condition is often qualitative and relies on limited excavation of the pipeline to observe any signs indicative of large strains (e.g., wrinkles, damaged coating, gaps between the soil and the pipe, ovaling of the pipe). It may also be decided to use an instrumented pigging device to identify any abnormalities in the pipe wall or alignment. In any case, assessing pipeline response to ground displacement following an earthquake may take several days or weeks.

These problems can be reduced somewhat by performing surveys to locate surface features or to install survey monuments prior to the earthquake in the vicinity of areas expected to experience ground displacement. Post-earthquake surveys using GPS equipment can then provide a relatively rapid assessment of the amount of ground displacement that has occurred in the vicinity of the pipeline. This entails some long-term costs for verifying the survey and maintaining survey monuments.

Whether a pipeline is to be constructed onshore or offshore may dictate the need to account for differences in the consequences of seismic damage when establishing performance goals. Seismic damage to an offshore pipeline would result in a more difficult repair situation than for an onshore pipeline, particularly in an extreme climate or deep water, or in cases where the pipeline is deeply buried to protect against anchor

dragging, ice gouging, etc. The increased difficulty is due mainly to mobilizing offshore equipment and gaining access to the pipeline. Considering the differences in damage consequences for offshore and onshore pipelines and production platforms, less frequent seismic hazards (larger earthquake hazards) should be considered for offshore pipelines than for onshore pipelines. This can be achieved by selecting annual probabilities of earthquake hazards for offshore pipelines that are less than what would be selected for onshore pipelines (i.e., longer average return periods for seismic events).

If life safety is the primary criteria, the annual probability for experiencing a design earthquake hazard for an offshore pipeline may not need to be as low as for an offshore production platform, because pipeline damage does not generally lead to direct life-safety consequences. Pipeline failures tend to be localized (at one or more locations) and repairs might be implemented in a relatively short time frame if the water depth is not great. Such disruptions would have limited adverse consequences with respect to life safety. A very important exception is offshore oil pipelines and pipelines located in very deep water for which the environmental consequences and costs associated with pipeline repairs may be very severe. In these cases, the design criteria may be more stringent that what is necessary to meet established life-safety performance objectives.

A.3 Perspective on Seismic Risk

The principal consequence of the rupture of a natural gas transmission pipeline is the potential for release and subsequent ignition of gas in areas where there is a potential for injury or significant property damage. Other consequences include service interruption and the cost of repair and cleanup. Rupture of liquid hydrocarbon pipelines may have severe environmental consequences that are of equal or greater concern to the pipeline owner and govern the conservatism in defining the earthquake hazard. One of the most important and difficult issues associated with earthquake risk mitigation for natural gas and liquid hydrocarbon pipelines is the determination of the appropriate level of investment in seismic hazard mitigation versus the benefit that would be derived. Costs and benefits are difficult to assess due to the limited knowledge of earthquake recurrence, the uncertainty involved in projecting pipeline damage, and the quantification of the impact of pipeline service interruptions.

Pipelines are subject to risk of damage due to a number of causes totally unrelated to earthquakes. Among these are corrosion, outside force, material failure, and construction defects. An analysis of reportable incidents for natural gas transmission and gathering lines in the U.S. (Jones et al., 1986) indicates that approximately 685 failures, classified as propagating ruptures, punctures, blowouts or tears, occurred over a 14.5-year period. The total length of natural gas transmission pipelines during this period was about 500,000 km. This leads to an average of approximately 1×10^{-4} failures per kilometer of pipeline per year. For a postulated 50-year service life, this failure rate equates to approximately 5×10^{-3} failures per kilometer or one failure per 200 km (Nyman and Hall, 1991).

If one considers the hypothetical case of an earthquake with an estimated recurrence interval of 500 years causing damage over a 100-km segment of the pipeline route, five such pipeline failures would be comparable to the statistics for normal operation. This failure rate probably represents an upper bound for most welded steel pipelines. Admittedly, this analogy is rough and approximate, but it does illustrate the order of magnitude of the relative threat posed by strong earthquakes compared to normal operation.

In light of the foregoing example, it seems appropriate that improvement of seismic resistance through capital expenditures should be tempered by recognition of the hazards associated with day-to-day operations. While mitigation of the seismic threat through design is usually the preferred alternative, it may be more reasonable in certain cases to focus attention on minimizing the consequences of destructive earthquakes. In particular, the safety impact of extensive pipeline damage can be reduced through improved line break isolation, earthquake contingency plans, repair plans, and seismic hardening of control systems and communications.

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SEISMIC DESIGN PROVISIONS IN EXISTING STANDARDS

Requirements for liquid hydrocarbon pipelines in the United States are set forth in Title 49 of the Code of Federal Regulations (CFR), Parts 192 and 195 (U.S. Department of Transportation, 1998a, 1998b), which regulate the design, construction, operation, and maintenance of natural gas and crude oil pipelines, respectively. ASME B31.4 and ASME B31.8 are consensus standards developed in accordance with the requirements of the American National Standards Institute (ANSI) which have been developed and maintained by technical committees of the American Society of Mechanical Engineers (ASME) (1998, 2000). The ANSI standards are supplemented by industry standards such as API Recommended Practice 1111 for the design construction, operation, and maintenance of offshore hydrocarbon pipelines (American Petroleum Institute, 1993).

In Canada, liquid hydrocarbon and natural gas pipelines are designed in accordance with Canadian Standards Association (CSA) Z662, Design of Oil and Gas Pipeline Systems. CSA Z662 covers both onshore and offshore pipelines.

In Europe, two standards are commonly used to control the design and operation of offshore pipelines: British Standard BS 8010, Code of Practice for Pipelines, Part 3 (British Standards Institute, 1993), and Rules for Submarine Pipeline Systems published by Det Norske Veritas (DNV) (2000).

None of the aforementioned standards provide specific requirements for seismic design of crude oil and natural gas pipeline systems. Typically, these standards acknowledge that consideration should be given to the various types of seismic hazards, but they do not prescribe specific criteria or methodology. Reference is often made to "giving consideration to," "providing reasonable protection," or "taking reasonable precautions," but the level of design treatment is undefined. The responsibility for assuring that adequate provisions have been made to address seismic hazards is delegated to the pipeline designer and the appropriate regulatory body.

The references made by the above-listed standards to seismic design is summarized below.

B.1 ANSI B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids

ANSI B31.4 is the U.S. standard for the design, construction, operation, and maintenance of liquid hydrocarbons pipelines, both onshore and offshore. ANSI B31.4 makes only limited reference to seismic design by acknowledging the need to consider certain situations involving earthquake-induced loads. No specific criteria, requirements or guidelines are offered. The major objective is to create a general awareness of the need to evaluate seismic hazards.

1. Paragraph 401.5.3, *Earthquake* (relating to dynamic effects). "Consideration in the design shall be given to piping systems located in regions where earthquakes are

known to occur." This paragraph acknowledges the need for seismic design, but offers no guidance or specific requirements.

2. Paragraph 402.1, *General* (relating to design criteria). "… the design engineer shall provide reasonable protection to prevent damage to the pipeline from unusual external conditions which may be encountered in river crossings, offshore and inland coastal water areas, bridges, areas of heavy traffic, long self-supported spans, unstable ground, vibration, weight of special attachments, or forces resulting from abnormal thermal conditions." This provision goes on to state that protective measures, such as increasing the wall thickness, may be used. This provision simply acknowledges the possibility of extreme events for which some special protection is warranted. No specific requirements are set forth for any of these load conditions, nor is there any delineation of what constitutes "reasonable protection."

3. Paragraphs 402.3.3, *Limits of Calculated Stresses Due to Occasional Loads*, and 419.6.4, *Stress Values.* "The sum of the longitudinal stresses produced by pressure, live and dead loads, and those produced by occasional loads, such as wind or earthquake, shall not exceed 80% of the specified minimum yield strength of the pipe…" This limit is intended for aboveground piping or elevated pipeline spans and is not applicable to extreme situations involving large ground movements due to faulting or liquefaction.

B.2 ANSI B31.8, Gas Transmission and Distribution Piping Systems

ANSI B31.8 is the U.S. standard for the design, construction, and operation of onshore and offshore gas transmission and distribution systems. In a manner similar to the ANSI standard for liquids lines (B31.4), the ANSI B31.8 standard for gas transmission and distribution lines makes very limited reference to seismic design of onshore pipelines, but has more extensive treatment of seismic hazards (without specifics) for offshore pipelines (B31.8, Chapter 8).

The B31.8 provisions that mention seismic design are as follows:

1. Paragraph 833.4(c), relating to the calculation of longitudinal stress. External loads such as weight and wind that contribute to longitudinal bending stress for aboveground piping are mentioned. This section applies to primary seismic inertial loads but not to secondary loads on buried piping.

2. Paragraph 841.13, *Protection of Pipelines and Mains from Hazards*, Item (a). "When pipelines and mains must be installed where they will be subject to natural hazards, such as washouts, floods, unstable soil, landslides, earthquake related events (such as surface faulting, soil liquefaction, soil and slope instability characteristics), or other conditions which may cause serious movement of, or abnormal loads on, the pipeline, reasonable precautions shall be taken to protect the pipeline, such as increasing the wall thickness, constructing revetments, preventing erosion, and installing anchors." This paragraph effectively identifies the potential for seismic hazards but does not

prescribe any specific criteria or requirements for design or operational precautions or what constitutes "reasonable precautions."

3. Paragraph A835, *Anchorage for Buried Piping.* "When a submerged pipeline is to be laid across a known fault zone, or in an earthquake-prone area where new faults are a possibility, consideration shall be given to the need for flexibility in the pipeline system and its components to minimize the possibility of damage due to seismic activity."

4. Paragraph A841.1, *Design Conditions*, Item (f). Seismic activity is identified as a prospective offshore design condition.

5. Paragraph A841.33, *Design Environmental Conditions,* Item (d). Seismic events are identified as a prospective offshore environmental load condition.

6. Paragraph A842.23, *Alternate Design for Strain.* This paragraph permits design to strain criteria in excess of yield strain for situations where the pipeline experiences a predictable, noncyclic displacement of its support and provided the consequences of yielding are not detrimental to the integrity of the pipeline. The paragraph goes on to say that permissible strain criteria should be determined on the basis of available ductility and buckling behavior. This provision of B31.8 is quite important in that it offers confirmation of the appropriateness of using strain limits as the design criteria for pipelines subjected to seismic ground movements, albeit such limits are undefined.

7. Paragraph A843, *On-Bottom Stability.* "Pipeline design for lateral and vertical stability is governed by seafloor bathymetry, soil characteristics, and by hydrodynamic, seismic, and soil behavior events having a significant probability of occurrence during the life of the system. … The pipeline system shall be designed to prevent horizontal and vertical movements, or shall be designed so that any movements will be limited to values not causing design strength to be exceeded. …Typical factors to be considered in the stability design include: …(c) liquefaction, (d) slope failure." This paragraph states that offshore pipelines should be designed to withstand seismic effects without exceeding design strength, but there is no link back to the provision in Paragraph A842.23 for design on the basis of strain limits.

8. Paragraph A843.5, *Soil Liquefaction.* "Design for the effects of liquefaction shall be performed for areas of known or expected occurrence. …. Seismic design conditions used to predict the occurrence of bottom liquefaction or slope failure shall have the same recurrence interval as used for the operating design strength calculations for the pipeline." This paragraph calls for the design of offshore pipelines to mitigate the effects of liquefaction and slope failure, but no specific criteria or methodology are defined.

B.3 API Recommended Practice 1111, Design, Construction, Operation, and Maintenance of Offshore Hydrocarbon Pipelines

API Recommended Practice (RP) 1111 sets out criteria for the design of offshore pipelines. It is intended to be used in conjunction with ANSI B31.4 and B31.8 standards for liquids and gas transmission pipelines. The procedures presented in API RP 1111 are essentially the same as that prescribed by the ANSI standards, and the allowable stress provisions from B31.4 and B31.8 are incorporated by reference. The mention of seismic requirements are quite limited as summarized below:

1. Section 2.1.4, *Dynamic Forces*. A general statement is made that the design should consider dynamic forces imposed on the pipeline and the resulting stresses, and that these stresses may be caused by a number of possible loading conditions, one of which is seismic activity. The provision serves only as an alert to consider seismic events as a source of dynamic loads.

2. Section 2.4.2.1, *On-Bottom Stability.* The discussion of considerations for on-bottom stability includes the effects of natural phenomena. The potential for earthquakes to cause the liquefaction of sea-bottom sediments and associated settlement or floatation of a pipeline is specifically mentioned as a potential situation requiring consideration.

B.4 BS 8010, Code of Practice for Pipelines, Part 3, Pipelines Subsea: Design, Construction and Installation

British Standard BS 8010, Part 3, provides recommendations for the design, construction, installation, testing, and commissioning of subsea pipelines. BS 8010 contains numerous references to seismic activity as an environmental load condition that must be considered. The provisions of BS 8010 that relate to seismic design are listed below:

1. Section 4.2.2.5, *Functional and Environmental Loads.* Earthquakes are identified as an environmental load condition requiring consideration, and cross-reference is made to Appendix B of BS 8010 for further discussion.

2. Section 4.2.5.4, *Equivalent Stress*. This section specifies that equivalent stress (computed in accordance with the von Mises' stress criterion) shall be less than 0.96 times the specified minimum yield stress for environmental load conditions.

3. Section 4.2.6, *Alternative Design for Strain.* This section states that the limit on equivalent stress set forth in Section 4.2.5.4 may be replaced by an allowable strain limit of 0.1%.

4. Section 4.5.4.2, *Soil Instability*, Item (a). This section states that consideration should be given to stabilization enhancement methods in locations where the ground along the pipeline route might become unstable due to a number of reasons, including seismic activity.

5. Section 4.12.1, *Possible Causes of Damage*, Item (I). Seismic activity is named as a possible cause of damage that requires consideration.

6. Section B.1.10, *Seismic Action.* This section calls for consideration of the effects of seismic ground motions along the pipeline route. Specific mention is given to the possibility of soil liquefaction. No guidance is offered on the appropriate level of treatment.

7. Section B.2.7.5, *Liquefaction*, Item (b). This section calls for consideration of soil liquefaction, and seismic action is identified as a potential cause of liquefaction.

8. Section C.1.3, *Axial Compression*, and Section C.1.4, *Bending*. These two subsections under Appendix C, Buckling, provide stress limits for local buckling.

B.5 CSA Z662-96, Oil and Gas Pipeline Systems

The Canadian standard for oil and gas pipeline systems provides stress design requirements for operating pressure, thermal expansion ranges, temperature differential, and sustained force and wind loadings. Other load conditions are not specifically addressed. The Canadian standard provides for the design of pipelines using limit state criteria defined in its non-mandatory Appendix C, although the prescribed load conditions for which the limit state criteria are to be applied are the same as in the mandatory sections of the standard.

B.6 DNV Rules for Submarine Pipeline Systems

The DNV Rules for submarine pipeline systems specify requirements for the design, construction, installation, operation, and maintenance of subsea pipelines. The DNV Rules contain several references to seismic activity as a load condition that must be considered. These provisions are summarized below.

1. Section 2.1.1, *Environmental Phenomena*. This section requires consideration of all environmental phenomena that impair pipeline system function or reduce system reliability. Seismic activity is listed as an environmental phenomenon that should be considered.

2. Section 3.3.1.3, relating to environmental loads. This section states that the return period to be taken for environmental loads shall be greater than 100 years.

3. Section B.1, *Local Buckling*. This section of Appendix B provides methodology for determining critical buckling stress based upon a Ramberg-Osgood representation of the stress-strain curve for steel.

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PROBABILISTIC SEISMIC HAZARD

Nearly all modern earthquake design codes rely on probabilistic seismic hazard analyses to define the level of ground shaking. The basic procedures for estimating the ground shaking hazard in a probabilistic hazard analysis are similar to those used in a deterministic approach where a specific earthquake magnitude and location are specified. The main difference in a probabilistic approach is that multiple earthquakes are considered to contribute to the level of ground shaking likely to be experienced at a particular location.

The general process for performing a probabilistic seismic hazard analysis includes the following steps, illustrated graphically in Figure C.1:

1. Characterize the type and location of earthquake source zones.

2. Define the frequency of occurrence of earthquakes of varying magnitude within the source zones.

3. For a particular location, use attenuation relationships to compute the level of ground shaking from each earthquake from each source zone and weight the resulting ground shaking by the likelihood of earthquake occurrence.

Earthquake source zones are typically characterized as point, line, or area sources (Figure C.2). A point source represents an earthquake at a single location and is typically incorporated into line-source or area-source models. A line source, often used to represent earthquakes occurring along faults, can have an earthquake point source centered at any portion of the line source considered to rupture in an earthquake. An area source is often used to model regions with no known active faults and point sources are assumed to occur at random locations within the defined area.

The rate of occurrence of earthquakes is estimated from regional earthquake records, regional strain rate information, or specific fault investigations that provide estimates of average fault slip rates. A particular concern in establishing earthquake occurrence rates is to maintain consistency between regional deformation associated with the model and deformation related to regional strain measurements.

Two common methods used to estimate recurrence rate for earthquakes of varying magnitude include the use of the Gutenberg-Richter relationship and a characteristic model of earthquake recurrence. The Guttenberg-Richter relationship assumes a continuous distribution of earthquake magnitudes between zero and the maximum magnitude for the particular fault. The form of this relationship is as follows:

$$\log N(M) = a - bM \qquad \text{(C-1)}$$

where:

$N(M)$ = earthquake moment magnitude $[6.0 < M < 8.0]$

a, b = constants determined from regional earthquake catalogs

The a parameter in (C-1) corresponds to a magnitude between –0.05 and +0.05. In probabilistic ground motion hazard analyses, it is customary to truncate the relationship at an earthquake magnitude between 5.00 and 6.50. This truncation is necessary to avoid overestimating regional deformation produced by a large number of very small earthquakes. For areas with known active faults, the maximum earthquake magnitude given by the Gutenberg-Richter equation is generally limited to the magnitude computed based upon empirical relationships (e.g., Wells and Coppersmith, 1994) between magnitude and fault length or fault area assuming the entire fault ruptures.

The concept of a characteristic earthquake is generally accepted as an appropriate means to address hazards from individual faults. The characteristic earthquake approach is based upon the hypothesis that earthquakes generated by a particular fault tend to have similar magnitudes instead of the continuous magnitude distribution assumed by the Gutenberg-Richter model. The characteristic earthquake is typically related to an earthquake that ruptures an entire fault segment.

For area sources, earthquake occurrence rates are nearly always based upon a Gutenberg-Richter recurrence model with the maximum earthquake magnitude estimated using available information and considerable judgment.

In addition to weighting the ground motions at a site produced by each earthquake source, the uncertainty in selection of attenuation relationship can be incorporated into the probabilistic hazard. This may be accomplished by selecting multiple attenuation relationships, with a weighting factor based upon judgment or by accounting for the variability of a particular attenuation relationship directly.

Probabilistic hazard studies produced for areas where there are no well-defined active faults (i.e., modeled entirely with area sources) have a common characteristic: ground motion estimates increase with decreasing probability of occurrence and these motions are associated with smaller magnitude earthquakes occurring closer to the site of interest.

For estimating wave propagation strains or assessing landslide hazard, the ground shaking estimates from a probabilistic hazard analysis can be used directly. For the assessment of liquefaction or lateral spread displacement, it is necessary to define an earthquake magnitude and distance. While this information is generally available as a by-product of the probabilistic hazard analysis, it is often not reported. Deaggregation studies extract information from probabilistic hazard analyses on the contribution of individual point sources within line and area source models. There is little guidance on how to select an appropriate combination of magnitude and distance from a deaggregation study. Past project experience indicates that selecting a combination that captures 50% to 84% of the total seismic hazard may be appropriate. This is illustrated in the Commentary.

The results of probabilistic hazard studies are of no value for estimating fault displacement. However, if probabilistic hazard studies are available for areas with

known fault activity, there will be information on specific faults used in the hazard study (e.g., fault length, fault width, slip rate, dip angle, type of faulting).

It is recommended that assistance from individuals with special expertise in defining earthquake surface fault hazards be used to fault motions for assessing pipeline performance. However, a very approximate estimate of the likelihood of an earthquake of the maximum magnitude on a fault can be made based upon the reported fault slip rate and fault dimensions. The key assumption in this approach is that all geologic slip is associated with the estimate of the maximum earthquake that can occur on a fault. This assumption overestimates the occurrence rate since it does not account for slippage from smaller, more frequent earthquakes. Nonetheless, the approach can be used to compare relative risk from numerous faults and is often adequate for performing preliminary engineering assessments.

The slip rate can be used to estimate the rate of accumulation of seismic moment using the definition of seismic moment rate, M_r:

$$M_r = \mu \cdot RLD \cdot FW \cdot sr \qquad \text{(C-2)}$$

where:

a, b	=	constants determined from regional earthquake catalogs
M_r	=	moment rate
μ	=	shear modulus of earth's crust (typically taken as $3x10^{10}$ N/m^2)
RLD	=	fault rupture length at depth
FW	=	fault width
sr	=	fault slip rate

The moment released, M_e by an earthquake of magnitude M is computed as

$$M_e = 10^{1.5(M)+9} \qquad \text{(C-3)}$$

The earthquake magnitude, M, can be estimated using empirical relationships from Wells and Coppersmith (1994), one of which is provided below:

$$M = 4.38 + 1.49 \cdot \log(RLD) \qquad (\sigma = 0.26 \text{ units of magnitude}) \qquad \text{(C-4)}$$

The mean recurrence period, RP, for an earthquake of magnitude M can be estimated as M_e/M_r which is given by the expression below.

$$RP = \frac{10^{1.5(M)+9}}{\mu \cdot RLD \cdot FW \cdot sr} \qquad \text{(C-5)}$$

By assuming that an earthquake of a selected magnitude is responsible for all of the fault slip, the simplified approach always overestimates the probability of occurrence of a

particular earthquake. Comparisons with published recurrence intervals for many faults in the United States indicate that the simplified approach typically overestimates earthquake probability by less than a factor of two. Since the simple approach always overestimates the likelihood of an earthquake of a specific magnitude, it will generally significantly underestimate the earthquake magnitude for a defined return period. This is the reason the simplified approach is limited to consideration of the maximum earthquake magnitude for a particular fault.

If the maximum magnitude earthquake on a particular fault is not judged to be appropriate or a more refined estimate of return period is needed, assistance from individuals with expertise in seismology is required.

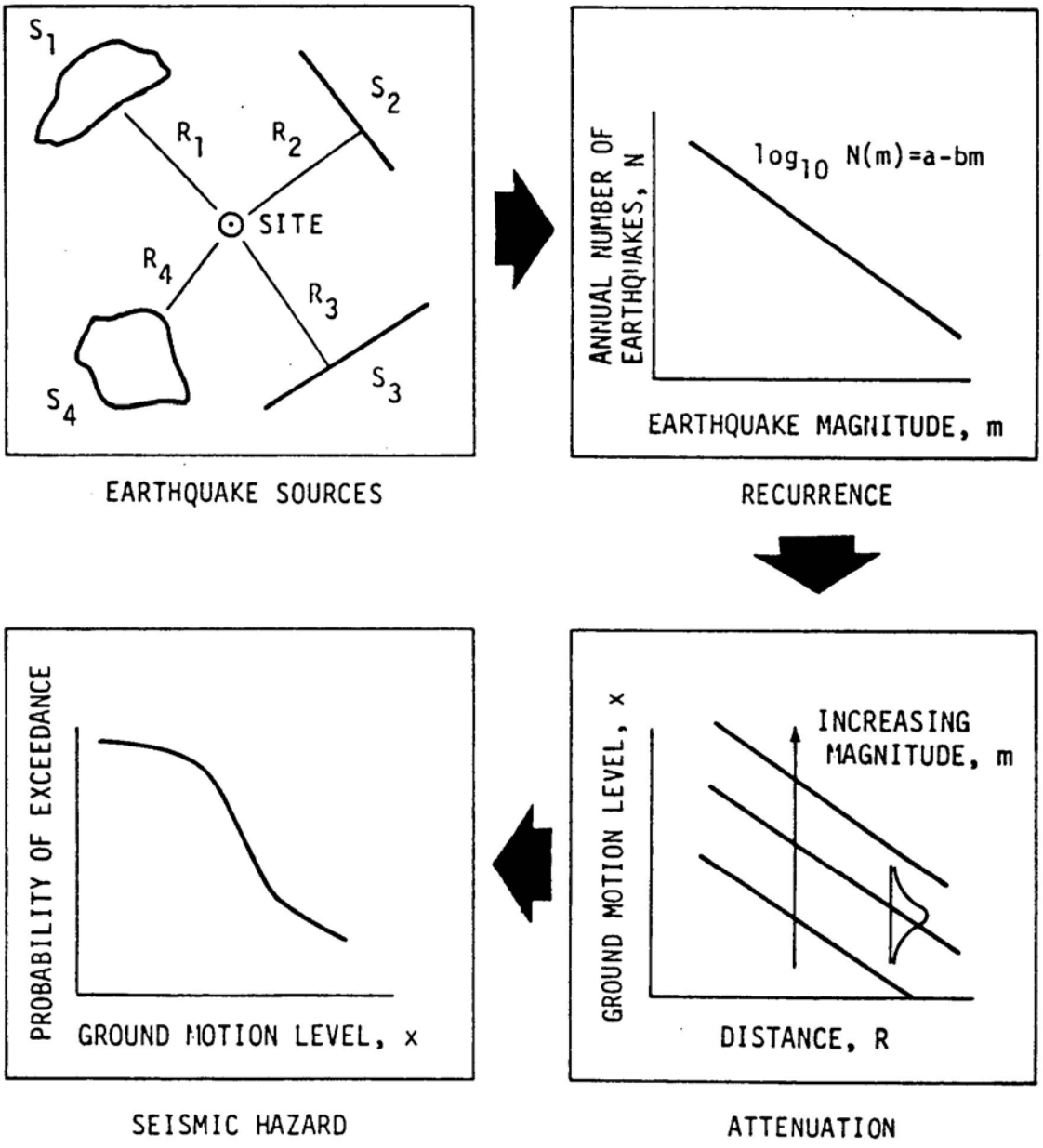

Figure C.1 Probabilistic Seismic Hazard Process (from ASCE, 1984)

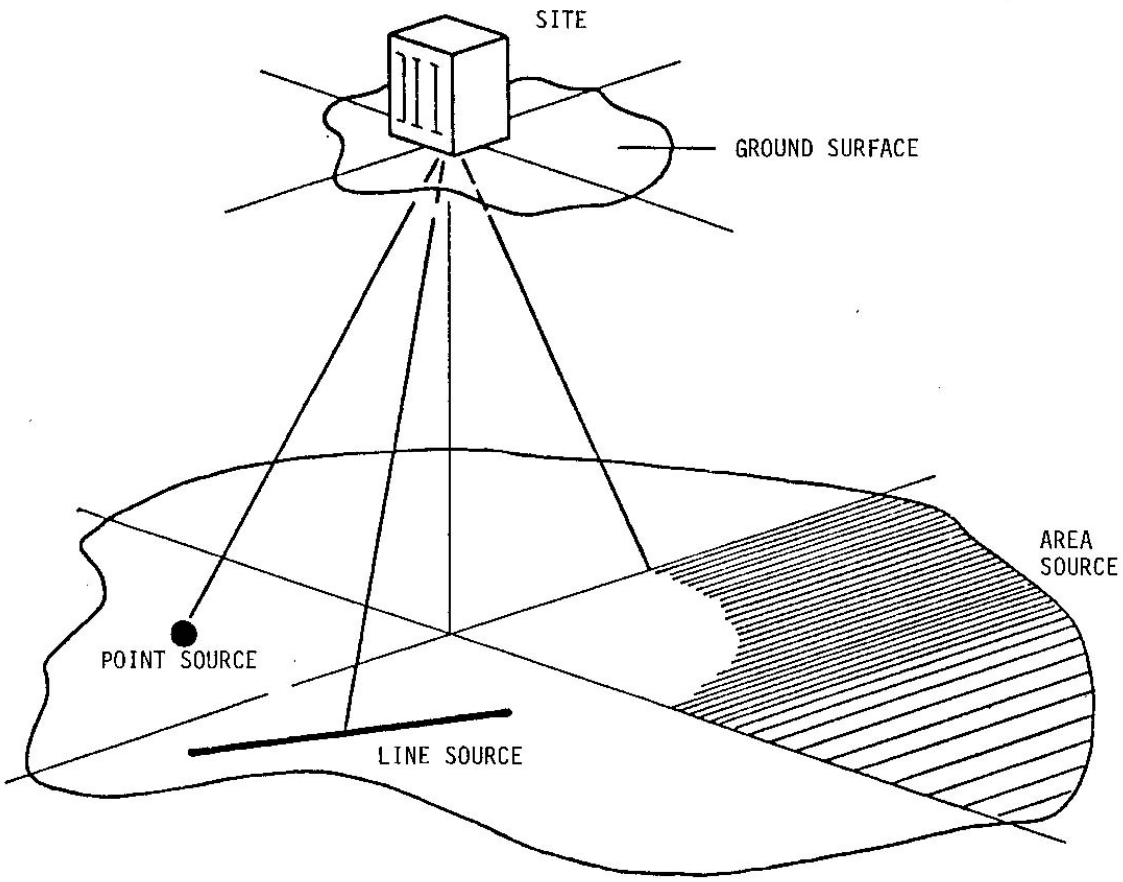

Figure C.2 Common Types of Earthquake Source Models (from ASCE, 1984)

EXAMPLE CALCULATIONS

This example calculation is provided to serve several purposes. First, the example illustrates the application of various equations provided in the guidelines. Second, the example provides a basis for understanding the magnitude of numerical values (e.g., ground displacements, soil spring forces) associated with estimating parameters for a seismic assessment of a buried pipeline. Finally, the example illustrates the processes involved in performing a seismic assessment of a buried pipeline. To assist in presenting the calculations, the example has been framed in the context of a hypothetical pipeline alignment. While parts of the example are extracted from actual past project experience, the results are for illustrative purposes only.

Problem Description:

The site in question is the portion of an NPS 20 pipeline alignment at the south bank of the Flowing River in the western United States. The NPS 20 pipeline crosses the river in a straight alignment. The site is being evaluated for potential liquefaction hazards. The plan and profile of the south side of the river crossing is shown in Figure D.1. The ground is typically flat south of the crossing (less than 0.5% slope) until the pipeline reaches a hill approximately 650 ft (200 m) south of the riverbank. Surface geology maps indicate the hill is an outcropping of weathered shale. The pipeline in the vicinity of the river crossing is classified as a Class 2 location in accordance with ASME B31.8.

The performance requirement established for the NPS 20 pipeline is defined as a mean annual probability of pipeline rupture from earthquake causes less than 0.2%. This is equivalent to a 500-year average return period. A review of available geologic maps and regional hazard information available from the government indicate two potential earthquake sources. One source is the Shakem fault, located 19.3 miles (31 km) from the river crossing. The other source is the Enditall fault, located more than 30 miles (48 km) from the site. Both faults are characterized by strike-slip fault movement with surface fault expression. Seismic parameters available for the two faults in question are summarized in Table 1. The variability in fault length and slip rate is for illustration purposes only. In actual practice, there is considerable variability in all fault descriptive parameters that are usually related to the particular interpretation of subsurface data by different geologists and seismologists.

Table 1: Summary of Fault Descriptive Parameters

Fault	Length, km (range)	Depth km	Slip mm/yr	Sediment Depth km
Shakem	80 (70 - 120)	11	5±2	1
Enditall	175 (100 - 250)	13	1±0.5	1

The pipeline, installed in 1960, is fabricated from API 5L Grade X42 seamless pipe with a coal tar coating. The pipe wall thickness is typically 0.280 inches (7.1 mm) except at the river crossing where the thickness is 0.375 inches (9.5 mm). The river crossing portion of the pipeline also has 3 inches (76 mm) of concrete coating for buoyancy control. The maximum allowable operating pressure for the pipeline is 825 psi (5,700 kPa) although the typical operating pressure is below 500 psi. No internal inspection of the pipeline has been performed to confirm the condition.

Liquefaction is considered possible based upon regional seismic hazard maps and knowledge of past subsurface investigations for other construction projects near the pipeline crossing. Given this information, subsurface investigations to collect SPT (one location) and CPT data (three locations) were performed at the sites indicated in Figure D.1. SPT and CPT data were collected at a common location to provide a direct correlation between the SPT and CPT data. In addition to the SPT data, SPT drilling provided an opportunity to collect soil samples. Samples were collected from each SPT using sample liners and later evaluated to determine density and grain size distribution. Some results from the subsurface investigation are provided in Table 2 and Figures D.2 through D.4.

Table 2: Selected Data from Subsurface Investigations

SPT 1		**CPT 3**	
Sample Depth	20 ft	Test Depth	20 ft
SPT Value	8	q_c (bars)	50
% Fines	19	f_s (bars)	0.2
Average Density (pcf)	110		

Step 1: Define Earthquake for Performing the Seismic Assessment

In most cases, the earthquake hazard will be defined by geologists or seismologists familiar with the tectonic setting of the site being assessed. The following approach, based upon methods described in Section 2 and Appendix C is provided to illustrate the process for obtaining an approximate quantification of the seismic hazard with limited data.

The information on fault length, depth, slip rate, and direction of slip are used to estimate the risk of an earthquake and the ground shaking levels in the event of an earthquake. The calculations necessary to perform this estimate for the Shakem fault are summarized below.

Earthquake Magnitude:

Use the Wells and Coppersmith (1994) relationship for unknown or unspecified type of faulting

$$M = 4.38 + 1.49\left[\log(RLD)\right] = 4.38 + 1.49\left[\log(80)\right] = 7.2$$

Mean Recurrence Interval:

$\mu = 3(10)^{10}$ N/m^2

$M_e = 10^{1.5(M)+9} = 10^{1.5(7.2)+9} = 6.31(10)^{19}$ N-m

$M_r = \mu \cdot RLD \cdot FW \cdot sr = 3(10)^{10}(80,000)(11,000)(.005) = 1.32(10)^{17}$ N-m/yr

Mean recurrence interval estimated to be no more frequent than $\frac{M_e}{M_r} = 478$ years or approximately 500 years.

Amount of Fault Movement:

Although the pipeline does not cross a fault, the design fault dispalcements are computed for the purpose of the example problem. The pipeline is in a Class 2 location so the design fault displacement will be based upon the mean average fault displacement. For the Shakem fault:

$\log(AD) = 0.88SRL - 1.43 = 0.88\log(80) - 1.43 = 0.24$

AD = 1.8 m

The potential variability in the above estimates of fault movement and return period can be estimated by examining the results for possible combinations of fault rupture length and slip rate. The results are summarized in the following tables.

Table 3a: Earthquake Magnitude from Fault Rupture Length

Fault Rupture Length, km		
70	**80**	**120**
7.1	7.2	7.5

Table 3b: Mean Fault Displacement from Fault Rupture Length

Fault Rupture Length, km		
70	**80**	**120**
1.6 m	1.8 m	2.5 m

Table 3c: Earthquake Recurrence Interval (years)

Slip Rate	Fault Rupture Length, km		
mm/yr	**70**	**80**	**120**
3	710	840	1,390
5	430	500	830
7	306	360	600

Similar values for the Enditall fault are provided below:

Magnitude: 7.4 - 8.0

Fault Movement: 2.1 - 4.8 m

Recurrence Interval: 1,120 - 14,430 years

For the best estimate fault parameters, the Enditall fault average return period is estimated to be 5,610 years compared to the approximately 500 years for the Shakem fault. If fault crossing evaluations were to be performed for the Enditall fault, the design fault displacements would be obtained by multiplying the mean average fault displacement by 0.18, the performance goal (500 years) divided by half of the average return period of the fault (2,805 years). This would result in design fault displacements of 0.38 m to 0.86 m. Since both faults are strike-slip, there is no need for a correction to derive fault displacement components in three orthogonal displacements.

It is important to note the considerable variability in the estimates of the earthquake hazard. The level of uncertainty indicated by the results in Table 3 is typical of actual experience in estimating the earthquake hazard. It is possible, but not certain, that additional geologic investigations including trenching across the fault, deep borings, or seismic refraction studies could better define the basic fault descriptors.

PGA at Site:

Use Campbell attenuation relationship for a soil site:

$F = 0 \qquad S_{SR} = 0 \qquad S_{HR} = 0 \qquad R = 31$

$H_T = 0 \qquad H_S = 1 \qquad H_B = 12 \qquad \alpha = 90^\circ$

$$W = 10^{-1.01+0.32M} = 10^{-1.01+0.32(7.2)} = 16$$

$$d_S = \frac{1}{2}\left[H_B + H_T - W\sin(\alpha)\right] \geq H_S = \frac{1}{2}\left[12 + 0 - 16\right] = -3.85$$

$d_S = H_S = 1$

$R_s = \sqrt{d_S^2 + R^2} = \sqrt{1^2 + 33^2} = 31 \text{ km}$

$$\ln(PGA) = -3.512 + 0.904M - 1.328\ln\sqrt{R_S^2 + \left[0.149e^{0.647M}\right]^2} + \left[1.125 - 0.112\ln(R_S) - 0.0957M\right]F + \left[0.440 - 0.171\ln(R_S)\right]S_{SR} + \left[0.405 - 0.222\ln(R_S)\right]S_{HR} + f_A(D) + E\Phi^{-1}(x)$$

$$= -3.512 + 0.904(7.2) - 1.328\ln\sqrt{31^2 + \left[0.149e^{0.647(7.2)}\right]^2}$$

PGA = 0.18 *g*

The range of *PGA*, adopting the variability in earthquake magnitude from Table 3 and not including variability in the Campbell attenuation relationship, is 0.17 - 0.22 *g*. Similar *PGA* values for the Enditall fault are 0.13 *g* to 0.20 *g*.

Although the levels of ground shaking are comparable for the Shakem and Enditall faults, the Shakem fault is determined to be the controlling earthquake hazard because the recurrence interval is more compatible with the stated performance goal.

For the remainder of this example, the central fault description values (length = 80 km, slip rate = 5 mm/yr) are used.

Step 2: Assess Liquefaction Potential for Subsurface Soils

Calculations to assess the potential for liquefaction are performed for the same depth at location 1 where SPT and CPT data were collected. For the SPT calculations, hammer energy was assumed to be 60% and the tests were performed with a standard diameter sampler. A gradation curve for a sample retrieved at the depth being assessed for location 1 is provided in Figure D.4.

Depth = 20 ft = 6.1 m

Depth to water table = 6 ft (1.8 m) at time of test

Dry density = 110 pcf

Total overburden stress = $\sigma_{vo} = 20(110) = 2{,}200$ psf = 1.1 tsf = 105 kPa

Effective stress = $\sigma'_{vo} = \sigma_{vo} - 62.4(20 - 6) = 1{,}326$ psf =0.663 tsf = 63.5 kPa

$P_a = 14.5$ psi = 100 kPa = 2,088 psf

z = D/m = 6.1

$$r_d = \frac{1 - 0.4113\sqrt{z} + 0.04052z + 0.001753z^{1.5}}{1 - 0.4177\sqrt{z} + 0.05729z - 0.006205z^{1.5} + 0.001210z^2}$$

$$r_d = \frac{1 - 0.4113\sqrt{6.1} + 0.04052(6.1) + 0.001753(6.1)^{1.5}}{1 - 0.4177\sqrt{6.1} + 0.05729(6.1) - 0.006205(6.1)^{1.5} + 0.001210(6.1)^2} = 0.96$$

$$CSR = 0.65PGA\left(\frac{\sigma_{vo}}{\sigma'_{vo}}\right) r_d = 0.65(0.18)\left(\frac{2,200}{1,326}\right)0.96 = 0.19$$

SPT Assessment:

$N = 8$

$$C_N = \sqrt{\frac{P_a}{\sigma'_{vo}}} = \sqrt{\frac{2,088}{2,200}} = 1.25$$

$$C_R = 0.75 + 0.25\frac{(z-4)}{6} = 0.75 + 0.25\frac{(6.1-4)}{6} = 0.84$$

$FC = 19\%$

$$\alpha = e^{1.76 - \frac{190}{FC^2}} = e^{1.76 - \frac{190}{19^2}} = 3.23$$

$$\beta = 0.99 + \frac{FC^{1.5}}{1000} = 0.99 + \frac{19^{1.5}}{1000} = 1.07$$

$$(N_1)_{60} = N \cdot C_N \cdot C_E \cdot C_B \cdot C_R \cdot C_S = 8 \cdot 1.26 \cdot 1 \cdot 1 \cdot 0.84 \cdot 1 = 8.4$$

$$(N_1)_{60FC} = \alpha + \beta(N_1)_{60} = 3.23 + 1.07(8.4) = 12.2$$

$$MSF = \frac{10^{3.81}}{M^{4.42}} = \frac{10^{3.81}}{7.2^{4.42}} = 1.05$$

K_σ is 1.0 since the effective stress is less than the reference pressure, P_a

$$CRR = \left(\frac{4.8(10)^{-2} - 4.721(10)^{-3}x + 6.136(10)^{-4}x^2 - 1.673(10)^{-5}x^3}{1 - 1.248(10)^{-1}x + 9.578(10)^{-3}x^2 - 3.285(10)^{-4}x^3 + 3.714(10)^{-6}x^4}\right) MSF \cdot K_\sigma$$

$$= \left(\frac{4.8(10)^{-2} - 4.721(10)^{-3}12.2 + 6.136(10)^{-4}12.2^2 - 1.673(10)^{-5}12.2^3}{1 - 1.248(10)^{-1}12.2 + 9.578(10)^{-3}12.2^2 - 3.285(10)^{-4}12.2^3 + 3.714(10)^{-6}12.2^4}\right) 1.05 \cdot 1.0$$

$$= 0.14$$

Since the CRR of 0.14 is less than the CSR of 0.19, liquefaction is expected for 0.18 *g* *PGA*.

CPT Assessment:

q_c = 50 bar = 5,000 kPa

f_s = 0.2 bar = 20 kPa

$$F = \left[\frac{f_s}{q_c - P_a}\right]100\% = \left[\frac{20}{5000-100}\right]100\% = 0.41\%$$

$$Q_1 = \frac{q_c - \sigma_{vo}}{P_a}\left(\frac{P_a}{\sigma'_{vo}}\right) = \frac{5000-105}{100}\left(\frac{100}{63.5}\right) = 77.1$$

$$I_1 = \sqrt{\left(3.47 - \log Q_1\right)^2 + \left(1.22 + \log F\right)^2} = \sqrt{\left(3.47 - \log 77.1\right)^2 + \left(1.22 + \log 0.41\right)^2} = 1.79$$

$$Q_{0.5} = \frac{q_c - \sigma_{vo}}{100\text{ kPa}}\left(\frac{100\text{ kPa}}{\sigma'_{vo}}\right)^{0.5} = \frac{5000-105}{100}\left(\frac{100}{63.5}\right)^{0.5} = 61.4$$

$$I_{0.5} = \sqrt{\left(3.47 - \log Q_{0.5}\right)^2 + \left(1.22 + \log F\right)^2} = \sqrt{\left(3.47 - \log 61.4\right)^2 + \left(1.22 + \log 0.41\right)^2} = 1.88$$

n = 0.5

$$C_Q = \left(\frac{P_a}{\sigma'_{vo}}\right)^n = \left(\frac{100}{63.5}\right)^{0.5} = 1.26$$

$$\begin{aligned} K_c &= -17.88 + 33.75I_n - 21.63I_n^2 + 5.581I_n^3 - 0.403I_n^4 \\ &= -17.88 + 33.75(1.88) - 21.63(1.88)^2 + 5.581(1.88)^3 - 0.403(1.88)^4 \\ &= 1.16 \end{aligned}$$

$$\left(q_{c1N}\right)_{FC} = K_c \cdot C_Q\left(\frac{q_c}{P_a}\right) = 1.26 \cdot 1.16\left(\frac{5,000}{100}\right) = 73$$

$$CRR = \left[93\left(\frac{(q_{c1N})_{FC}}{1000}\right)^3 + 0.08\right]MSF = \left[93\left(\frac{73}{1000}\right)^3 + 0.08\right]1.05 = 0.12$$

Since the CRR of 0.12 is less than the CSR of 0.19, liquefaction is expected for 0.18 *g* *PGA*.

From similar calculations for the other boring locations, the extent of liquefiable material for the site is estimated. The cross-section of the site is provided in Figure D.1 that indicates the extent of potentially liquefiable material at the riverbank.

Step 3: Assess Potential for Lateral Spread Movement

The site is representative of a free face condition. For this example, thickness of saturated sand deposits with $(N_1)_{60}$ less than 15 is taken as 75% of the average liquefiable thickness of 15.3 m or 11.5 m, the average fines content of the material with $(N_1)_{60}$ less than 15 is 5%, and $D50_{15}$ is 0.10 mm. In practice, this determination is made based upon a review of all SPT and CPT data.

Lateral spread displacement for the onshore portion of the crossing can be estimated as a function of the distance from the crest of the bank using a free-face condition.

$M = 7.2$

$R = 31$ km

$R_o = 10^{0.89M-5.64} = 10^{0.89(7.2)-5.64} = 5.86$

$R^* = R + R_o = 36.86$

$T_{15} = 11.5$

$F_{15} = 5$

$D50_{15} = 0.10$

$H = 20$

For sloping ground conditions:

$$\begin{aligned} Log(LSD) = & -16.213 + 1.532M - 1.406LogR^* \\ & - 0.012R + 0.338LogS + 0.540LogT_{15} \\ & + 3.413Log(100 - F_{15}) - 0.795Log(D50_{15} + 0.1) \end{aligned}$$

For free-face conditions:

$$\begin{aligned} Log(LSD) = & -16.713 + 1.532M - 1.406LogR^* \\ & - 0.012R + 0.592LogW + 0.540LogT_{15} \\ & + 3.413Log(100 - F_{15}) - 0.795Log(D50_{15} + 0.1) \end{aligned}$$

Lateral spread displacement is computed for various distances from the toe of the riverbank as summarized in Table 4. The maximum distance of interest coincides with a transition between river deposits and the weathered shale hillsides bounding the river. Lateral spread displacements on the slope of the bank are estimated using the ground

slope equation even though the slope exceeds the 0% to 6% recommended range in slope for applicability of the equation. This is likely a conservative assumption considering the much larger displacements estimated by the ground slope equation compared to the free-face equation. The surface ground displacement profile assumes free-face conditions beyond the crest of the riverbank since the ground profile in this area is relatively flat. This assumption is consistent with the formulation of data used in the Youd, Hansen, and Bartlett equations. The resulting surface ground displacement profile is illustrated in Figure D.5.

Table 4: Computed Lateral Spread Displacements

Station (m)	Distance from Toe (m)	W & S (%)	Slope LSD (m)	Free-Face LSD (m)
2355	0	N/A	N/A	N/A
2596	241	8.3	2.7	N/A
2605	250	7.8	2.6	1.4
2655	300	6.7	2.5	1.3
2705	350	5.7	2.4	1.2
2739	384	5.2	2.3	1.1

Step 4: Estimate Relative Lateral Spread Displacement Affecting the Pipeline

Typically, the ground displacement resulting in loads on the pipeline is less than that indicated in the plot of surface displacements for portions of the pipeline within the liquefiable material. The ground displacements at the pipeline depth are estimated as a function of the ratio of the liquefiable layer depth below the pipe to the total depth of the liquefiable layer. Alternatively, a more conservative approach is to assume that the pipe is subjected to the same horizontal ground displacements as the surface. This assumption is consistent with block-like movement of the liquefiable layer over the deeper non-liquefiable soil.

Step 5: Compute Vertical Settlement from Pore Water Dissipation

The amount of vertical settlement related to pore water dissipation is estimated using the average computed factor of safety against liquefaction and Figure 2.4. For the location previously assessed, the factor of safety against liquefaction is *CRR/CSR* = 0.13/0.19 = 0.7. Figure 2.4 was developed for clean sands. The use of $(N_1)_{60FC}$ = 12.2 instead of $(N_1)_{60}$ is assumed to account for the presence of fine-grained material. From Figure 2.4, the post-liquefaction volumetric strain at the location where liquefaction is estimated as approximately 3%. The vertical settlement that the pipeline will experience is estimated as 3% of the depth of liquefiable soil beneath the pipeline and is plotted in Figure D.5. The maximum differential vertical displacements that the pipeline is exposed to is less than 15 cm over 35 m of pipe. This is sufficiently small to be neglected in the assessment of pipeline performance.

Step 6: Compute the Soil Spring Properties Along the Pipeline

Soil spring properties vary with soil material and pipeline burial depth. Within the same soil material, soil spring values are assumed to vary linearly between two different burial depths. The following example computes soil springs near stations 2453 and 2749.

Station 2453:

This location is within the zone of soil expected to liquefy. The soil strength is treated as if the soil were a cohesive material ($\phi = 0$) with an undrained shear strength equal to 20% of the effective overburden stress.

Soil cover = 8.4 m = 27.6 ft

Water table elevation = -2.75 m = -9 ft

Ground surface elevation = -13.8 m = -45.3 ft

Diameter = D+2(3inches) = 26 inches = 2.167 feet = 0.660 m

Material = liquefied soil

$H = C + D/2$ = 8.73 m = 28.6 ft

H/D = 13.2

Effective stress = 28.6(110-62.4) = 1,361 psf = 65 kPa

c = 0.2(1,361) = 272 psf = 0.272 ksf = 13 kPa

The primary direction of soil movement is in the axial direction. Therefore, assume all lateral (horizontal and vertical) movement is confined to the soils immediately surrounding the pipeline.

Axial Soil Spring:

$$\alpha = 0.608 - 0.123c - \frac{0.274}{c^2+1} + \frac{0.695}{c^3+1}$$

$$= 0.608 - 0.123(0.272) - \frac{0.274}{(0.272)^2+1} + \frac{0.695}{(0.272)^3+1} = 1.0$$

$$T_u = \pi D \alpha c + \pi D H \bar{\gamma}\left(\frac{1+K_o}{2}\right)\tan(\delta) = \pi(2.167)(1.0)(272) = 1{,}851\frac{\text{lb}}{\text{ft}} = 27\frac{\text{kN}}{\text{m}}$$

Horizontal Soil Spring:

$$N_{ch} = 6.752 + 0.065\left(\frac{H}{D}\right) - \frac{11.063}{\left(\frac{H}{D}+1\right)^2} + \frac{7.119}{\left(\frac{H}{D}+1\right)^3}$$

$$= 6.752 + 0.065(13.2) - \frac{11.063}{(13.2+1)^2} + \frac{7.119}{(13.2+1)^3}$$

$$= 7.6$$

$$P_u = N_{ch}cD + N_{qh}\bar{\gamma}HD = 7.6(272)(2.167) = 4{,}480\frac{\text{lb}}{\text{ft}} = 65.4\frac{\text{kN}}{\text{m}}$$

$$\Delta_p = 0.04\left(H + \frac{D}{2}\right) = 0.04\left(12 \cdot 28.6 + \frac{22.167}{2}\right) = 14 \text{ inches } = 36 \text{ cm}$$

Vertical Bearing Soil Spring:

$$N_c = \cot(\phi + 0.001)\left[e^{\pi \tan(\phi+0.001)} \tan^2\left(45 + \frac{\phi + 0.001}{2}\right) - 1\right]$$

$$= \cot(0.001)\left[e^{\pi \tan(0.001)} \tan^2\left(45 + \frac{0.001}{2}\right) - 1\right] = 5.14$$

$$N_q = e^{\pi \tan(\phi+0.001)} \tan^2\left(45 + \frac{\phi + 0.001}{2}\right) = e^{\pi \tan(0.001)} \tan^2\left(45 + \frac{0.001}{2}\right) = 1$$

$$N_\gamma = e^{0.18\varphi - 2.5} = e^{-2.5} \approx 0$$

$$Q_d = N_c cD + N_q \bar{\gamma} HD + N_\gamma \gamma \frac{D^2}{2}$$

$$= 5.14(272)(2.167) + (110 - 62.4)(2.167)(28.7) = 5{,}990\frac{\text{lb}}{\text{ft}} = 87.4\frac{\text{kN}}{\text{m}}$$

$$\Delta_{qd} = 0.125D = 0.125(26) = 3.3 \text{ inches } = 84 \text{ cm}$$

Vertical Uplift Soil Spring:

$$N_{cv} = 2\left(\frac{H}{D}\right) \le 8$$

$$= 2(9.5) = 19 > 8$$

$$N_{cv} = 8$$

$$Q_u = N_{cv}S_u D + N_{qv}\bar{\gamma}HD = 8(272)(2.167) = 4{,}715\frac{\text{lb}}{\text{ft}} = 68.8\frac{\text{kN}}{\text{m}}$$

$$\Delta_{qu} = \frac{0.12H(N_{qv}\bar{\gamma}HD) + 0.1H(N_{cv}cD)}{N_{cv}cD + N_{qv}\bar{\gamma}HD} = 0.1H = 0.1(28.7\text{ft})\left(12\frac{\text{in}}{\text{ft}}\right) = 34 \text{ inches} = 86 \text{ cm}$$

Station 2749:

Soil Cover = 4.9 ft (1.50 m)

Diameter = D = 20 inches = 1.667 ft = 0.508 m

Material = granular (c = 0)

$H = C + D/2 = 4.9(12)+.5(20) = 68.8$ inches = 5.733 ft = 1.75 m

$H/D = 68.8/20 = 3.4$

The internal friction angle is taken to be 35°.

The pipe is coated with fusion bonded epoxy. Use $\delta = 0.6\phi = 0.6(35) = 21°$

The primary direction of soil movement is in the axial direction. Therefore, assume all lateral (horizontal and vertical) movement is confined to the soils immediately surrounding the pipeline.

Axial Soil Spring:

$$T_u = \pi D\alpha c + \pi DH\bar{\gamma}\left(\frac{1+K_o}{2}\right)\tan(\delta)$$

$$= \pi(1.667)(5.733)(110)\left(\frac{1+0.5}{2}\right)\tan(21^\circ) = 950\frac{\text{lb}}{\text{ft}} = 13.9\frac{\text{kN}}{\text{m}}$$

Horizontal Soil Spring:

$$N_{qh} = 6.816 + 2.019\frac{H}{D} - 0.146\left(\frac{H}{D}\right)^2 + 0.00765\left(\frac{H}{D}\right)^3 - 1.683(10)^{-4}\left(\frac{H}{D}\right)^4$$

$$= 6.816 + 2.019(3.4) - 0.146(3.4)^2 + 0.007651(3.4)^3 - 1.683(10)^{-4}(3.4)^4$$

$$= 12.3$$

$$P_u = N_{ch}cD + N_{qh}\bar{\gamma}HD = 12.3(110)(5.733)(1.667) = 12{,}930\frac{\text{lb}}{\text{ft}} = 189\frac{\text{kN}}{\text{m}}$$

$$\Delta_p = 0.04\left(H + \frac{D}{2}\right) = 0.04\left(12\cdot 5.733 + \frac{20}{2}\right) = 3.2 \text{ inches} = 8 \text{ cm}$$

Vertical Bearing Soil Spring:

$$N_q = e^{\pi \tan(\phi)} \tan^2\left(45 + \frac{\phi}{2}\right) = e^{\pi \tan(35)} \tan^2\left(45 + \frac{35}{2}\right) = 33$$

$$N_c = \cot(\phi + 0.001)\left[e^{\pi \tan(\phi + 0.001)} \tan^2\left(45 + \frac{\phi + 0.001}{2}\right) - 1\right] = \cot(35)\left[N_q - 1\right] = 46$$

$$N_\gamma = e^{(0.18\phi - 2.5)}$$
$$= e^{(0.18(35) - 2.5)} = 45$$

$$Q_d = N_c c D + N_q \bar{\gamma} H D + N_\gamma \gamma \frac{D^2}{2}$$
$$= 33(110)(5.733)(1.667) + (45)(110)\frac{(1.667)^2}{2}$$
$$= 41{,}570 \frac{\text{lb}}{\text{ft}} = 607 \frac{\text{kN}}{\text{m}}$$

$$\Delta_{qd} = 0.125D = 0.125(20) = 2.5 \text{ inches} = 5 \text{ cm}$$

Vertical Uplift Soil Spring:

$$N_{qv} = \tan(\phi)\left(\frac{\phi}{44}\right)\left(\frac{H}{D}\right) = \tan(35)\left(\frac{35}{44}\right)3.4 = 1.9$$

$$Q_u = N_{cv} S_u D + N_{qv} \bar{\gamma} H D = 1.62(110)(4.833)(1.667) = 1{,}431 \approx 1{,}430 \frac{\text{lb}}{\text{ft}}$$

$$\Delta_{qu} = \frac{0.12H(N_{qv}\bar{\gamma}HD) + 0.1H(N_{cv}cD)}{N_{cv}cD + N_{qv}\bar{\gamma}HD} = 0.12H = 0.12(58) = 7.0 \text{ inches}$$

Step 7: Perform Analysis

The analytical model for assessing pipeline response is provided in Figure D.6. In plan, the pipeline is straight with the pipe anchored against movement at the center of the river crossing and at a point approximately 1,000 ft south of the ground deformation boundary. Anchoring the pipeline at the center of the river assumes that that north bank may experience a similar ground failure and the center of the river is a point of symmetry. If no instability of the north bank occurs, this assumption will lead to an overestimate of the pipe strains at the center of the river and an underestimate of the pipe strains at the onshore ground failure boundary. The southerly anchorage point was determined based upon the recommendation in Section 4.4.

$$L_{anchor} = \frac{\pi D t \sigma_y}{T_u} = \frac{\pi(26)(0.375)52,000}{2,100} = 758 \text{ ft} = 231 \text{ m}$$

The length of the pipe elements is one pipe diameter within 100 feet of the ground displacement boundaries. Between the zones with element length of 1 pipe diameter, the pipe elements are allowed to be up to 10 feet long.

No horizontal or vertical soil springs are specified more than 100 feet from the ground displacement boundaries as the pipeline is only exposed to axial loading. Lateral movement (horizontal and vertical) is prevented for this portion of the analytical model. The ground displacement pattern is applied in 120 equal increments to a maximum displacement that is about 50% greater (4 m) than the estimates from Step 4 (2.9 m). This allows the behavior of the pipeline to be evaluated for alternate assumptions that might increase the amount of applied ground displacement.

The amount of axial ground movement relative to the pipe is provided in Figure D.7a. As can be seen in Figure D.7a, the pipeline response is nearly separated between the head and toe regions of the lateral spread. The onshore portion of the pipeline acts to restrain the pipe from ground displacements creating tension in the pipe at the head of the lateral spread. Near the toe of the lateral spread, the ground displacement produces compression in the pipe that is resisted by the pipe outside of the zone of ground displacement. Figure D.7b illustrates the variation of maximum strain magnitude (tension or compression) along the pipeline at a maximum ground displacement of 4 m. The location of maximum tensile and compressive longitudinal strains are also indicated in Figure D.7b.

The variation in maximum longitudinal strain as a function of maximum ground displacement magnitude is shown in Figure D.8. For a specific ground displacement value, the strains plotted in Figure D.8 represent the largest total strain at any of 8 equidistant circumferential locations around the pipe cross-section at any location in the pipe model. For the ground displacement estimated in Step 4, the maximum strain is approximately 0.8% tension and 0.45% compression.

Step 8: Assess Nominal Pipeline Performance for Computed Strain Levels

An assessment will first be performed assuming the pipeline construction meets the requirements of Section 3.1. For a performance requirement that pressure integrity be maintained, the allowable longitudinal tensile strain limit is assumed to be 4%. The corresponding longitudinal compressive strain limit is computed as follows:

For the concrete-coated pipe:

$$\varepsilon_{cp} = 1.76\frac{t}{D} = 1.76\frac{.375}{20} = 3.3\%$$

For the onshore portion of the pipeline (t = 0.280 inches)

$$\varepsilon_{cp} = 1.76\frac{t}{D} = 1.76\frac{.28}{20} = 2.5\%$$

The pipe strain computed for 2.9 m of maximum ground displacement is far less than the above strain limits. On this basis, it is clear that the pipeline is not at risk for the ground displacements modeled in the analysis.

Additional analyses that should be performed, but are not included in this example problem, include the following modifications:

1. Variation in the soil springs to account for uncertainties in the estimated values.

2. Variation in the ground displacement pattern that might include assessing the pipeline assuming the surface ground displacements occur at the pipeline depth.

3. Extension of the pipeline model to represent a condition at the center of the river in which the pipeline is not anchored.

Step 9: Assess Potential for Landslide Hazard South of River Crossing

In addition to the lateral spread displacement, the slope south of the river is examined to determine if a more detailed geotechnical investigation of potential slope instability is necessary. The pipeline is located within the near-surface granular soils (Group B in Figure 2.8) that overly the weathered shale (Group C in Figure 2.8) of the hill. Two potential slide mechanisms are considered:

1. A shallow disruptive slide consisting of failure at the interface between surface soils and the underlying weathered shale.

2. A deep coherent slide within the weathered shale.

The weathered shale is assumed to provide a low-permeability boundary. Therefore, the interface between the surface soil and the weathered shale is assumed to be "wet" while the weathered shale is considered to be "dry." Noting that the slope of the hillside is 10%, the critical acceleration for sliding is estimated from Figure 2.8 to be 0.24 *g* for the disruptive slide and 0.20 *g* for the coherent slide.

The ground motions at the hillside are better represented by using soft rock conditions in the attenuation relationship (S_{sr} = 1). In the Campbell attenuation relationship, this results in the following additional factor:

$$0.44 - 0.17 \ln R = 0.44 - 0.17 \ln(40) = -0.187$$

The following correction factor is applied to the *PGA*:

$$PGA \cdot e^{-0.187} = 0.18\ g \cdot 0.83 = 0.15\ g$$

Since the *PGA* is less than the critical acceleration, there are no concerns for potential landslide movements.

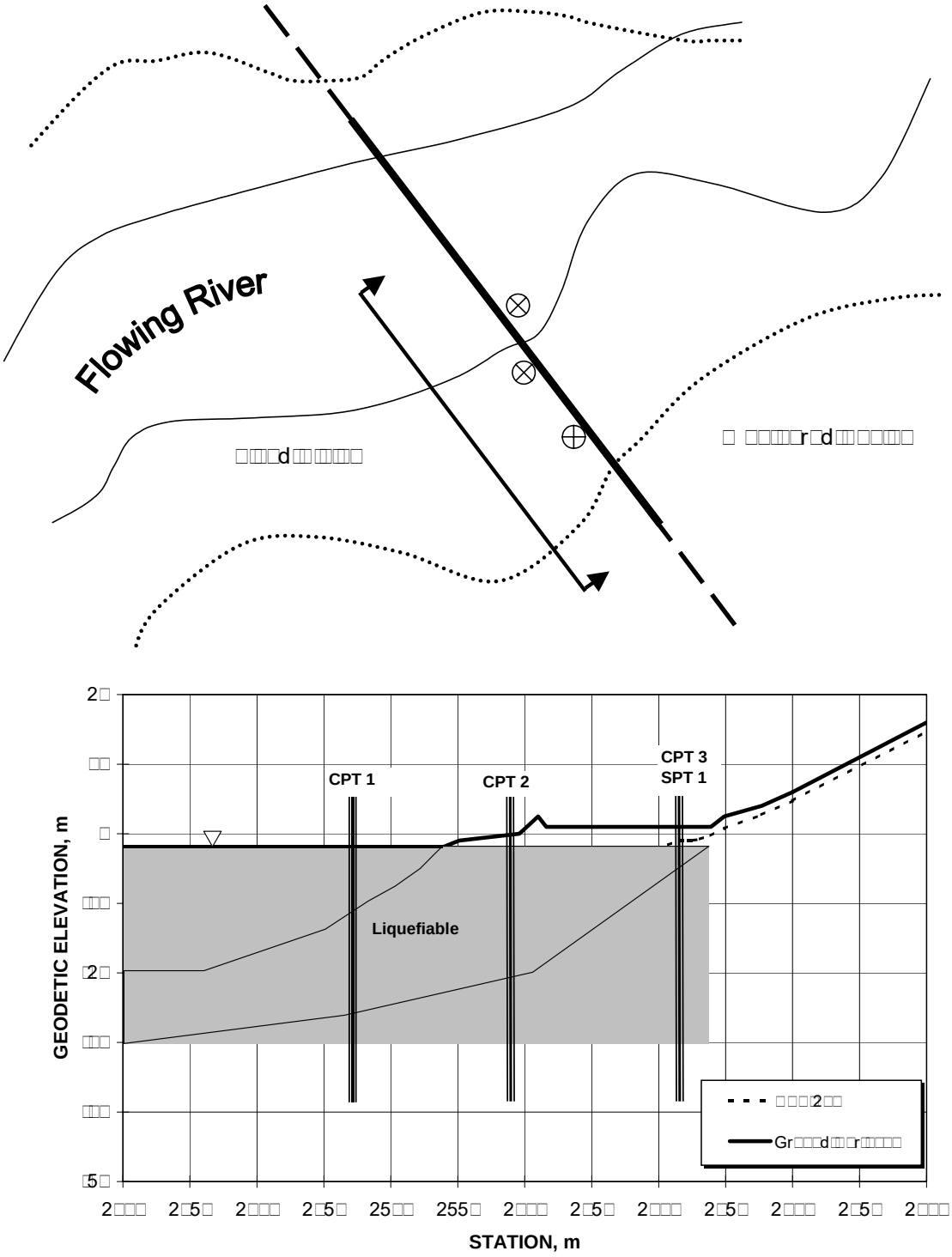

Figure D.1 General Plan and Profile of NPS 20 Pipeline River Crossing

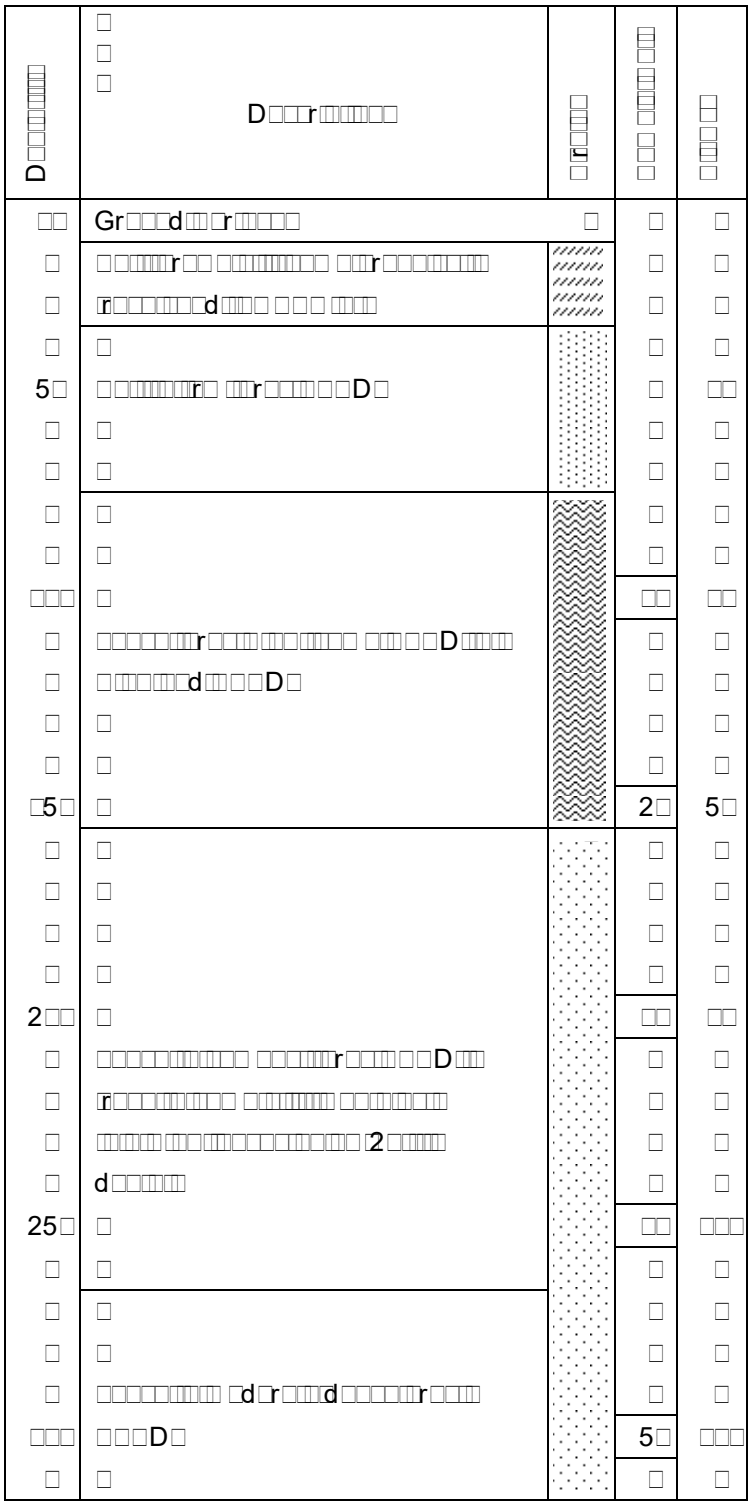

Figure D.2 SPT Boring Results

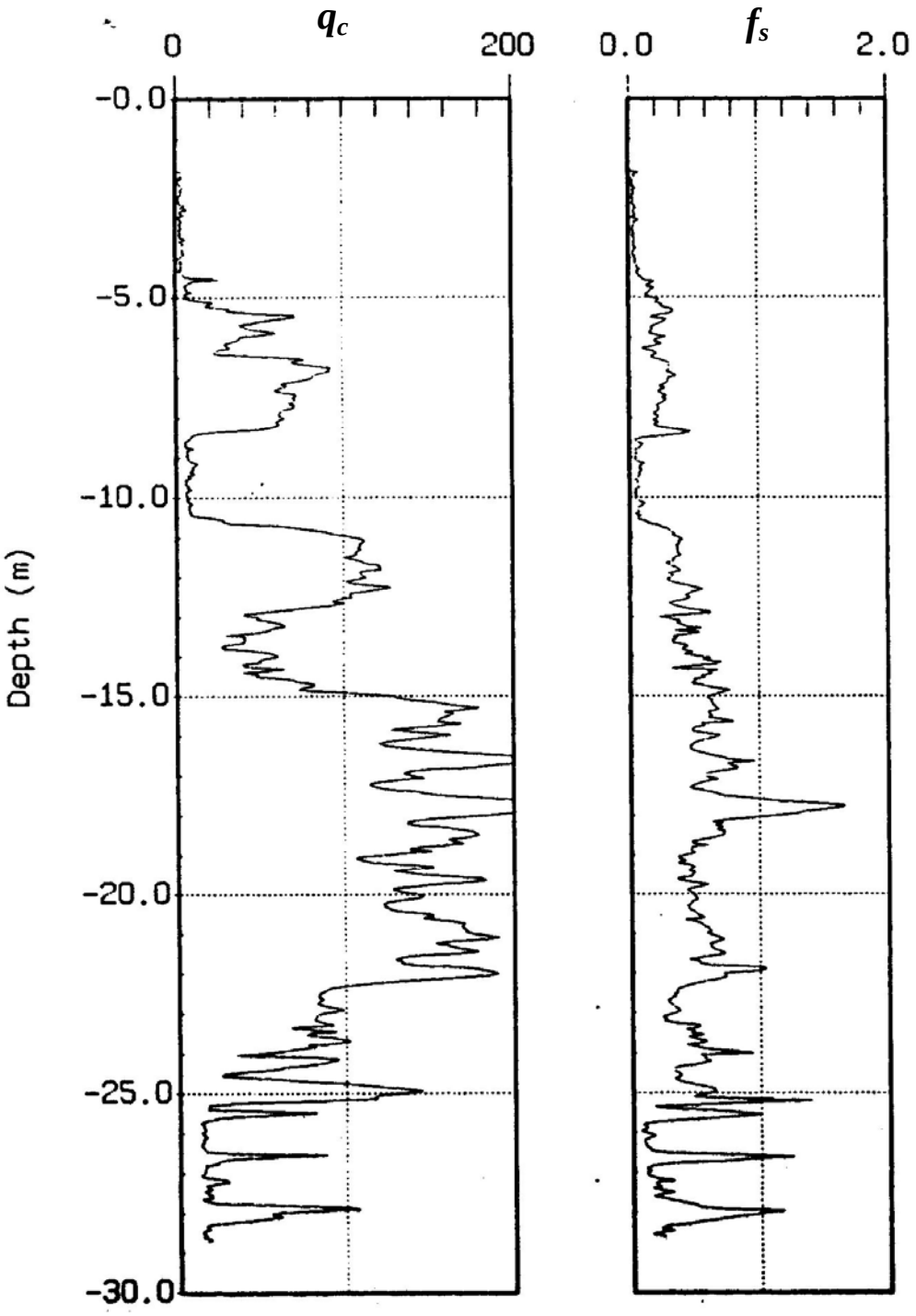

Figure D.3 Log from CPT 3

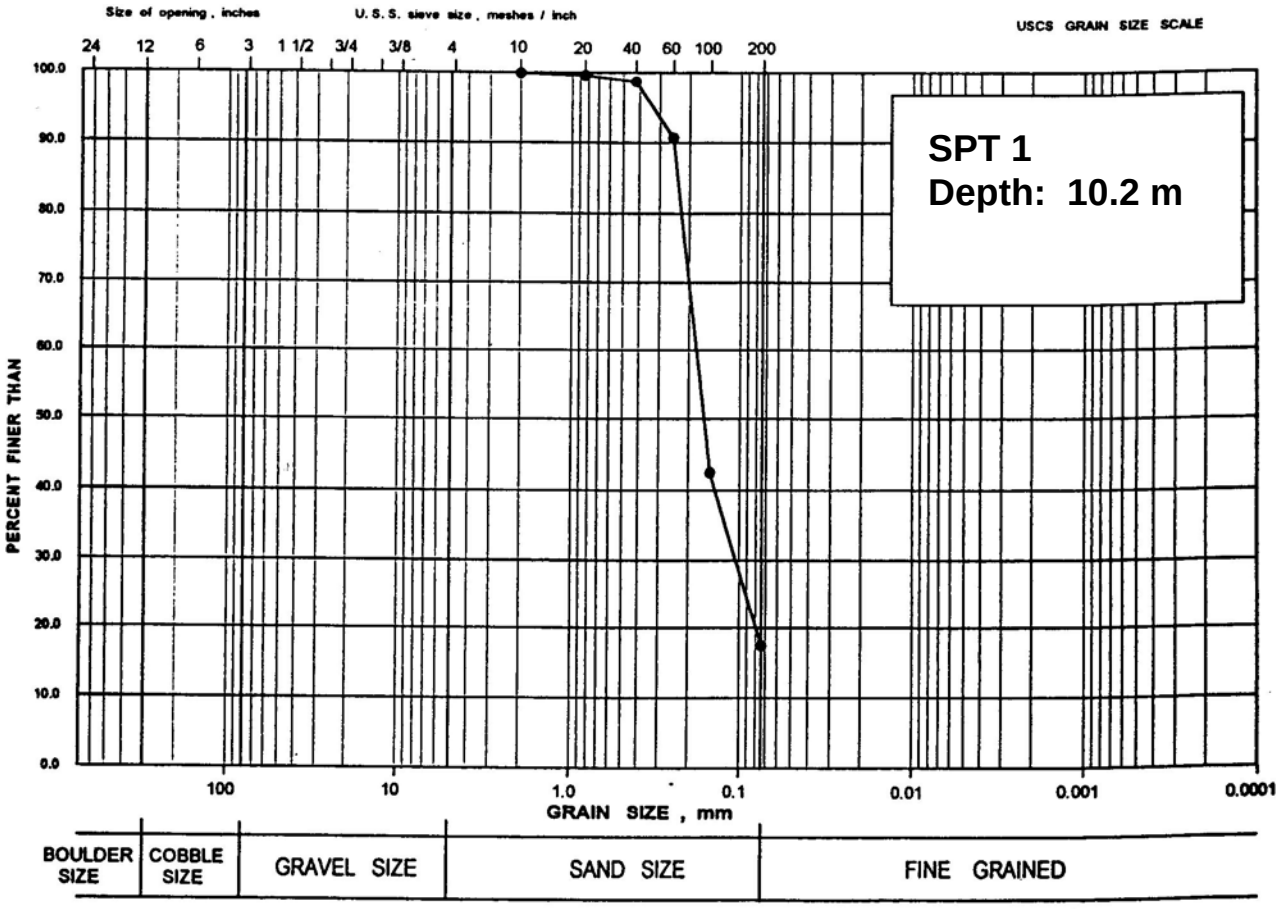

Figure D.4 Gradation Curve from SPT Sample

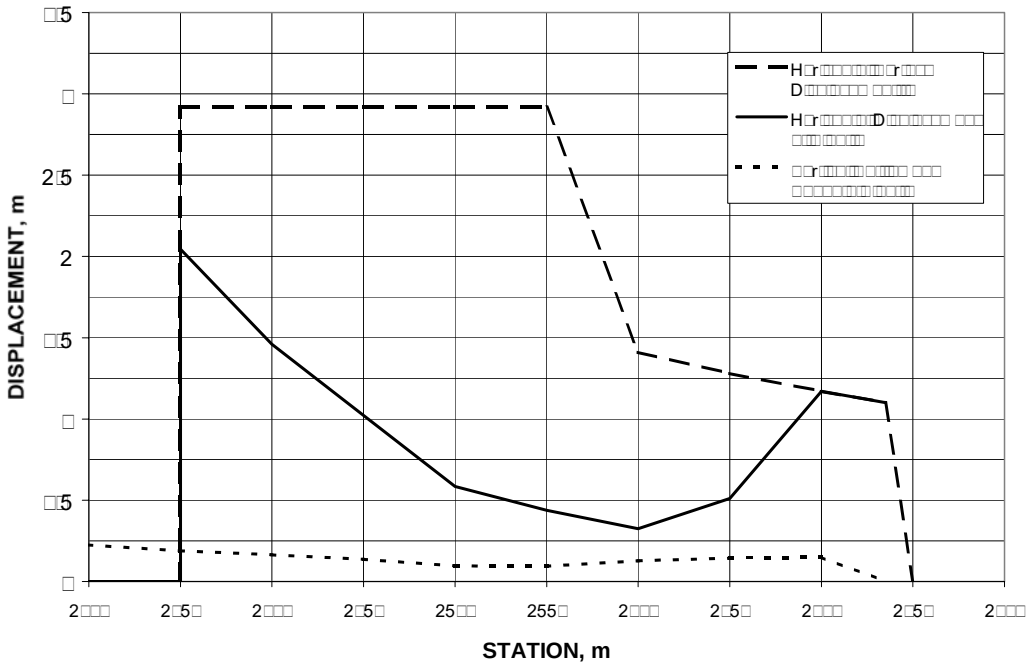

Figure D.5: Estimated Liquefaction-Induced Ground Displacement

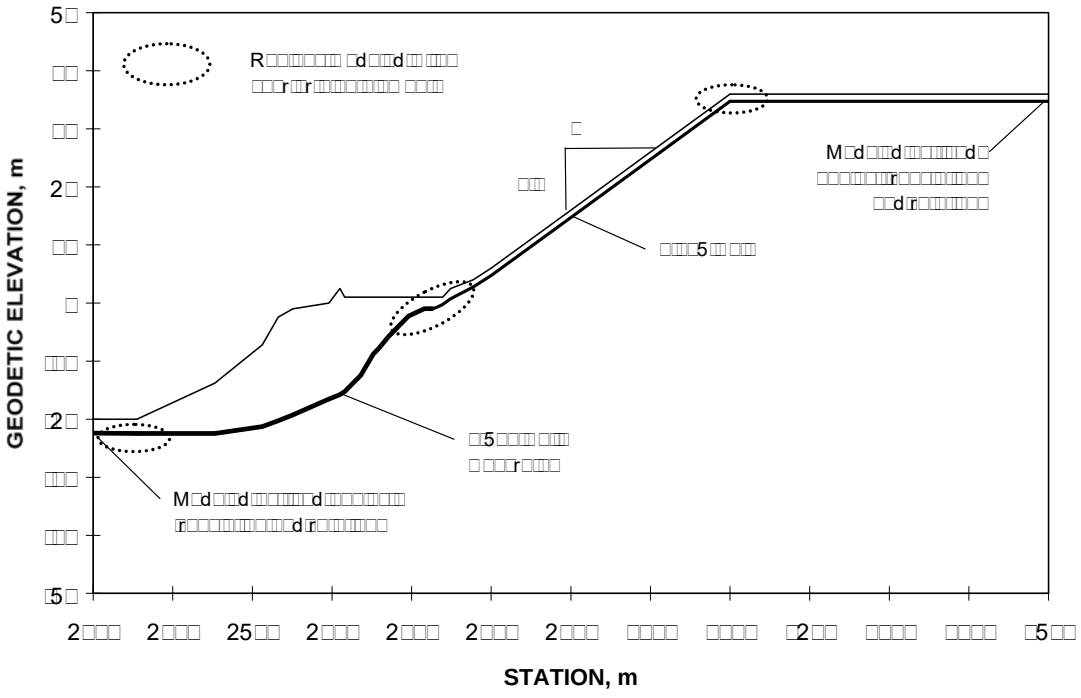

Figure D.6 Schematic Representation of Model Used to Analyze Pipeline Response

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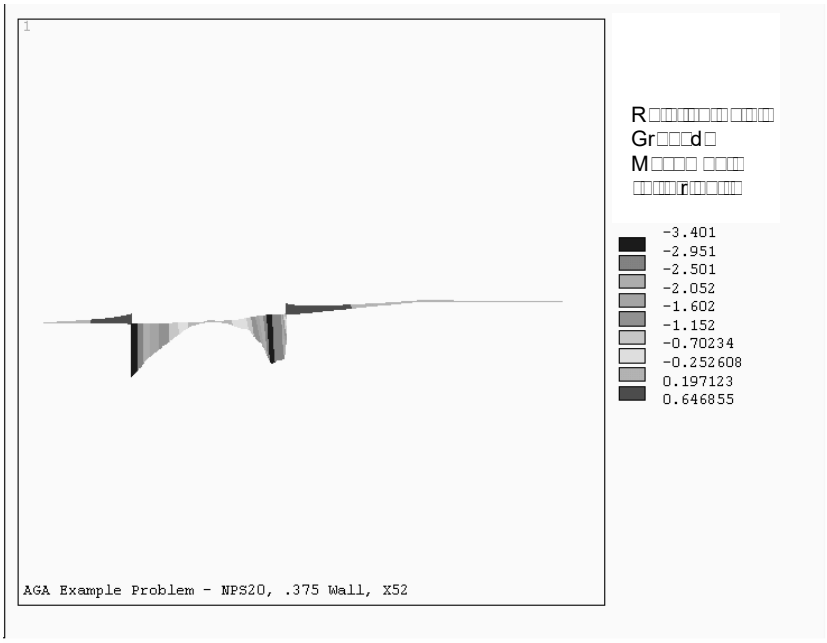

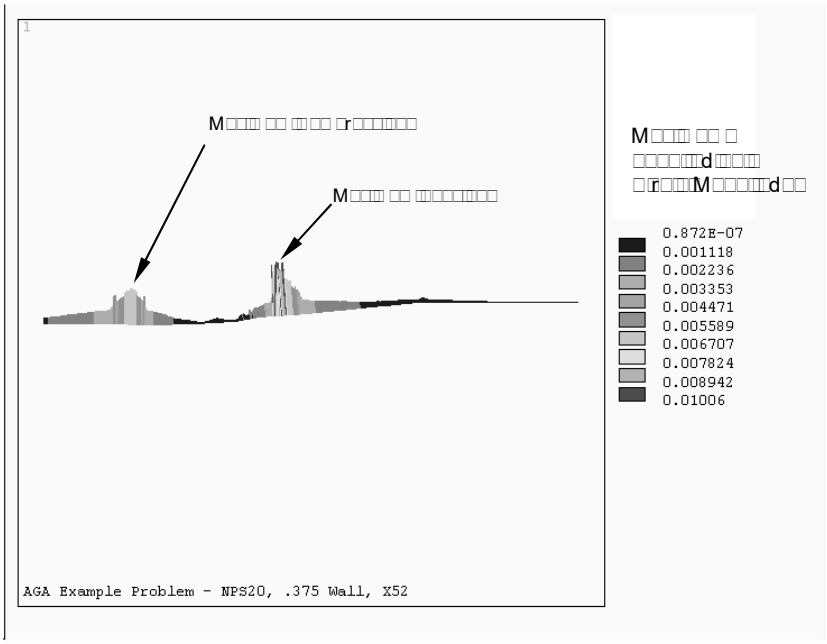

Figure D.7 Maximum Total Compression Strain at 4-m Maximum Ground Displacement

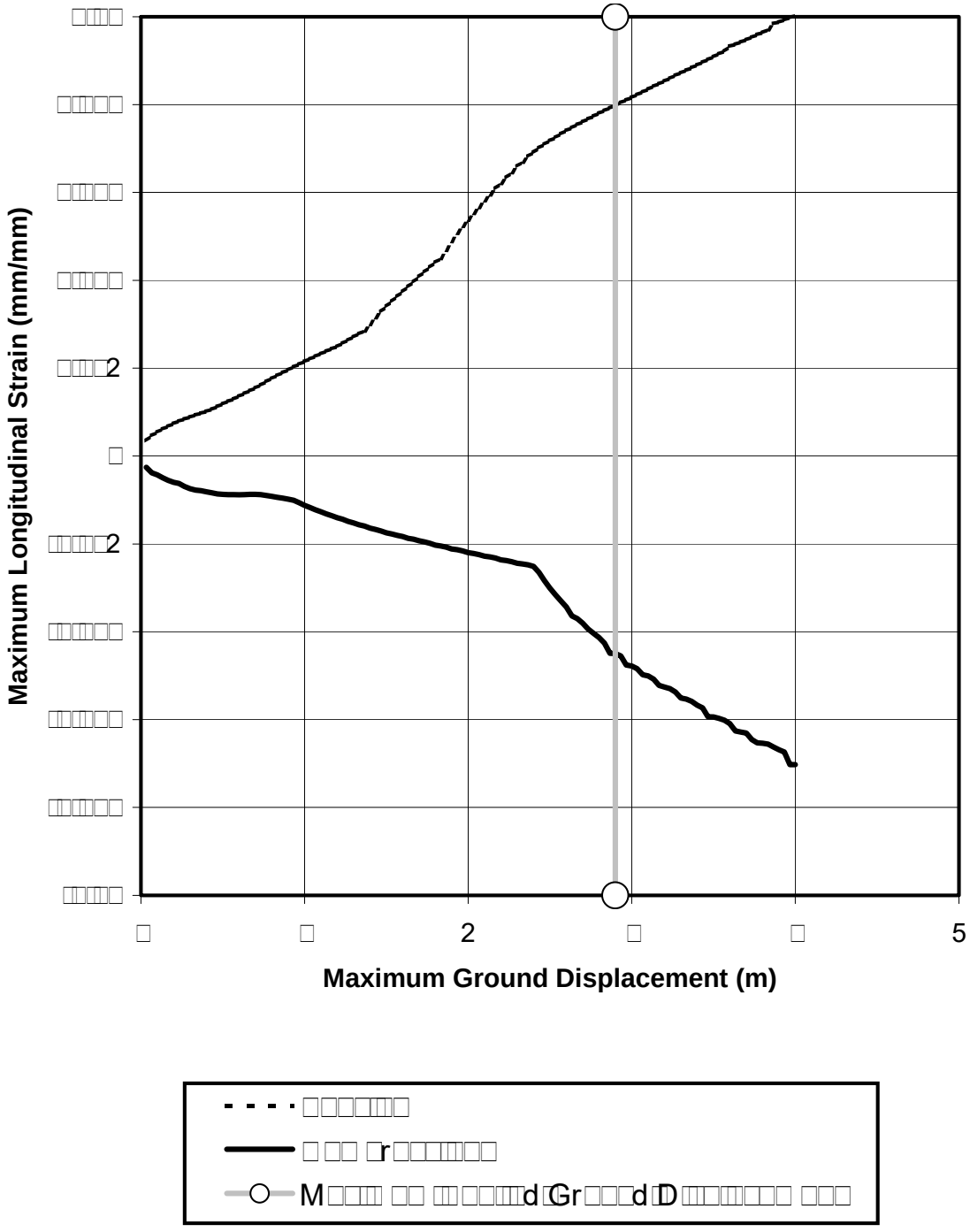

Figure D.8 Variation of Strain with Maximum Ground Displacement

Reviewer (Subject Area)	Background
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Reviewer (Subject Area)	Background
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Appendix F:
Hazardous Materials Supporting Information

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MEMO

To: Andrea Bellanca – Carlson, Barbee, and Gibson, Inc.

From: Johnny Caspers, Ed Ballman

Date: December 3, 2020

Subject: Preliminary Hydrologic and Hydraulic Modeling for the Proposed Giovannoni Logistics Center

Introduction & Project Description

The Giovannoni project (Project) is located on a 208-acre site in the City of American Canyon. The site sits to the west of Highway 29, north of Green Island Road, and south of the developing Napa Logistics Park. The existing property consists of open space, with a total elevation variance of roughly 30 feet; two highpoints to the southeast and southwest of the Project area slope gradually north to a seasonal wetland that discharges into No Name Creek. Along with the Project area, the creek collects runoff from roughly 280 acres of vineyards, open space and previously developed industrial land uses, the majority of which lies to the east of Highway 29.

The first phase of the Project, referred to as the Giovannoni Logistics Center East and covered herein, proposes the construction of two warehouses (gross square footage of the two buildings is roughly one million square feet) along with parking lots to accommodate semi-trucks, trailers, and worker vehicles on roughly 70 acres. The runoff from the developed area will be managed by multiple stormwater facilities on the northern side of the Property designed to meet flood control requirements set forth by the City of American Canyon Department of Public Works and stormwater treatment and flow-duration control requirements outlined in the state-wide MS4 General Permit.

Although not yet constructed, the City of American Canyon plans to extend Devlin Road from its current terminus at the southern end of the Napa Logistics Park, south to intersect with Green Island Road (see **Figure 1)**. This planned extension will serve as the western boundary for the first phase of the Project. Stormwater runoff that, prior to the construction of the road, would flow from east to west through the northern portion of the site will now be directed through four 2-ft by 4-ft concrete box culverts located beneath the roadway. A hydrologic and hydraulic analysis for the new roadway, entitled Devlin Road and Vine Trail Extension, was completed in August 2020 by GHD and will be referred to herein as the "Devlin Road Analysis".

Purpose of the Study

This study seeks to model, assess, and outline how the changes in existing, and proposed land cover, along with the proposed construction of Devlin Road, will impact the hydrology and

hydraulics of the creek directly downstream of the Project area and along the reach to its confluence with the Napa River.

Standards & Methods

In compliance with American Canyon Department of Public Works Engineering Standards and Specifications for Public Improvements (1995) where stormwater detention is utilized, Contra Costa County Flood Control (Flood Control) methodology was used to create the hydrologic model of the pre- and post-project conditions[1]. The following documents were relied upon to inform the modeling and design process:

- Engineering Standards and Specifications for Public Improvements, American Canyon Department of Public Works, May 1995.
- BASMAA Post-Construction Manual, Bay Area Stormwater Management Agencies Association, January 2019.
- HEC-HMS Guidance for Flood Control, Unit Hydrograph Method, March 2018
- HEC-HMS Template Model, Flood Control, June 2016
- HYDRO-6 Program Parameters, Flood Control, March 2018
- Mean Seasonal Isohyets Compiled from Precipitation Records (1900-1960), File: isohyetal_cnty, Napa County GIS, January 2011.

Background and Assumptions

For pre-project conditions, the Project site topography (in the proposed development area) has a maximum elevation of approximately 50 feet in the southeast corner and a minimum of approximately 22 feet in the northwest. The post-project grading will utilize this variance to facilitate runoff.

Soil data was obtained from the NRCS's Soil Survey online database. The database stated that the Project area is comprised of three main soils: Haire loam, Haire clay loam, and Clear Lake clay. These soils, characterized by low rates of infiltration, all fall into the NRCS Hydrologic Soil Group "D".

Infiltration rates for pre- and post-project conditions were ascertained from Table 1 of the Flood Control HYDRO-6 Program Parameters. The lower bound of the infiltration rates provided was used due to the "D" Soil Group classification outlined above; a rate of 0.17 inches/hour was assumed for existing conditions, and 0.03 inches/hour was assumed for proposed industrial conditions. For watersheds that contained multiple land use categories a weighted average was calculated.

[1] Based upon Sections 4.02.A and 4.02.C of the City of American Canyon Department of Public Works Engineering Standards and Specifications for Public Improvements Manual, it is our understanding that the Unit Hydrograph Method outlined by the Contra Costa County Flood Control District is the preferred design method for detention basin analyses.

N-values were determined using Figure 1 (for areas less than 200 acres) of the HYDRO-6 Program Parameters; for pre-project areas a value of 0.065 was assumed, characterizing the site as currently undeveloped, and for post-project areas N-values ranging from 0.029 to 0.04 were estimated using the area-based extrapolation method.

The mean annual precipitation (MAP) for the Project area is 20 inches. This value was used in the GHD Devlin Road Analysis and cross-referenced with an isohyet GIS layer available on the Napa County GIS online database. Precipitation falling on the Project footprint currently sheet flows from southwest to northeast where it enters the wetland area and, ultimately, the unnamed tributary to the Napa River.

Facilities Being Modeled

Detention Upstream of Devlin Road

The construction of Devlin Road will impede the flow of water to No Name Creek during large storm events; therefore, to accurately represent the post-development conditions a detention element was included in the model to account for the active storage provided by the elevated roadway during large flow events. Separate storage relationships were developed for the pre- and post-project conditions to assure that any changes in the open space detention volume east of Devlin is accounted for. The stage-storage relationships used in the modeling are included in **Table 1.** Specifics of the culvert design, provided in the Devlin Road Analysis, were used to inform the modeled culvert discharge.

Table 1. Devlin Road Elevation-Storage Relationships

Elevation	Pre-Project Storage	Post-Project Storage	Change in Storage
ft	*acre-feet*	*acre-feet*	*%*
34	0.0	0.0	0
34.5	0.1	0.1	-27
35	0.8	0.6	-24
35.5	2.3	1.7	-27
36	4.9	3.4	-31
36.5	9.4	6.1	-35
37	15.6	9.8	-37

Drainage Management Areas

The proposed design divides the Project area into two drainage management areas (DMAs) comprised of a mix of parking lot, roof area, and pervious landscaping. The tentative mapping shows that the eastern DMA A is 31.4 acres in size while DMA B to the west is 27.2 acres[2]. In conjunction with Flood Control standards, the DMAs are modeled under the industrial land use classification (see **Attachment 1** for model parameters).

[2] Modeled DMA acreages shown in Attachment 1 and Figure 1 are slightly larger than what is provided in the tentative mapping to comply with peak flow modeling requirements; in contrast to water quality, peak flow modeling in HMS requires that rain falling on the footprints of stormwater management facilities is accounted for in basin sizing and flow reduction.

Stormwater Facilities

To meet the flood control requirement outlined by the City of American Canyon in their Engineering Standards and Specifications Manual (post-project peak flows must be reduced to 90% of the pre-project peak) three detention basins are proposed on site. DMA A will have two detention basins and a dedicated bioretention area for water quality, while DMA B will be serviced by one basin sized to comply with both flood control and water quality treatment standards. The bioretention facilities were sized based on the "4% Rule" outlined in the BASMAA Post-Construction Manual. Furthermore, detention basins and bioretention facilities will also be designed to comply with the 2-year hydromodification requirement required for the regional MS4 permit.

Model and Calculation Parameters

To assess the performance of the proposed stormwater facilities during large storm events, a hydrologic model was developed using the U.S. Army Corps of Engineers' HEC-HMS software and modeling protocols outlined in Flood Control's HEC-HMS Guidance Manual.

Input parameters for the HEC-HMS model were compiled from site-specific topography and precipitation information, preliminary Project plans, soil survey information, and additional input recommendations from Flood Control's HEC-HMS Guidance Manual. **Attachment 1** shows land use parameters that were used to calculate lag time (in hours) for both modeled conditions.

Model runs were developed for three conditions: existing conditions, existing conditions with the addition of Devlin Road, and the proposed Project conditions (per current CBG design). For the three conditions, model runs were developed for the 2-, 10-, and 100-year design storm recurrence intervals using a 24-hour storm duration[3]. These storm events were based on a mean annual precipitation of 20 inches and design storm coefficients and rainfall totals specified by Flood Control methodology.

Model Results

Prior to assessing the effect of the projected development, it is important to understand how the construction of Devlin Road will change the hydrology of the local watershed at large. **Table 3** shows a comparison of the model results for the watershed prior to, and after, the construction of Devlin Road.

Table 3. Summary of HMS Modeling Results for Devlin Road Construction

Scenario	Peak Flow (cfs)		
	2-yr 24-hour	10-yr 24-hour	100-yr 24-hour
No Development	93	170	354
Devlin Road Only	73	124	229

[3] The 10- and 100- year design storms utilized the Contra Costa County Flood Control 24-hour storm distribution curve with a peak percent runoff of 11.5%, whereas the 2-year storm was modeled using the Flood Control's 21.2% curve. The higher peaking storm distribution was utilized in the smaller storm event to more accurately assess hydromodification requirements.

Based on the modeled conditions, the construction of the roadway reduces the peak flow for the 2-, 10-, and 100-year 24-hour storm events by 22%, 27%, and 35%, respectively. These results are wholly dependent on the construction of Devlin Road: water is detained behind the elevated roadway and metered out through the box culverts. Beyond the nominal increase in impervious area incurred by the surface of the roadway, these results reflect no change in land use from the pre-project, no development condition. When the post-development land use changes are added to the Devlin Road scenario in HMS the results show an increase in peak flow shown below in **Table 4.**

Table 4. Summary of HMS Modeling Results for All Scenarios

Scenario	Peak Flow (cfs)		
	2-yr 24-hour	10-yr 24-hour	100-yr 24-hour
No Development	93	170	354
Devlin Road Only	73	124	229
Post Development	75	128	241

While these results show a net increase in the peak flow after the development of the Project area, it is important to understand what factor is driving this change. Focusing on the results from the project site provides a better understanding of the cause for this increase (see **Table 5**).

Table 5. Summary of HMS Modeling Results for Project Site Only

Scenario	Peak Flow (cfs)		
	2-yr 24-hour	10-yr 24-hour	100-yr 24-hour
Devlin Road Only	23	35	73
Post Development	11	16	38

As indicated by the table above, the proposed stormwater facilities go far beyond the required level of peak flow reduction for the design storm events. These results, when viewed in conjunction with the data in **Table 3**, attest to the impact that the reduced detention behind Devlin Road has on the system at large. The roughly thirty percent decrease at all elevations in the stage-storage relationship (refer back to **Table 1**) creates a scenario where the culvert is experiencing a higher water surface elevation for each storm event, despite a marked reduction in peak flows leaving the project site before and after development.

As **Table 4** indicates, the construction of Devlin Road is predicted to greatly reduce the pre-project peak flow rate as water is backed up to the east of the roadway and metered out through the four 2-foot by 4-foot box culverts. However, through further analysis one can see that this benefit is largely derived from the detention provided by the undeveloped Giovannoni property.

Conclusion

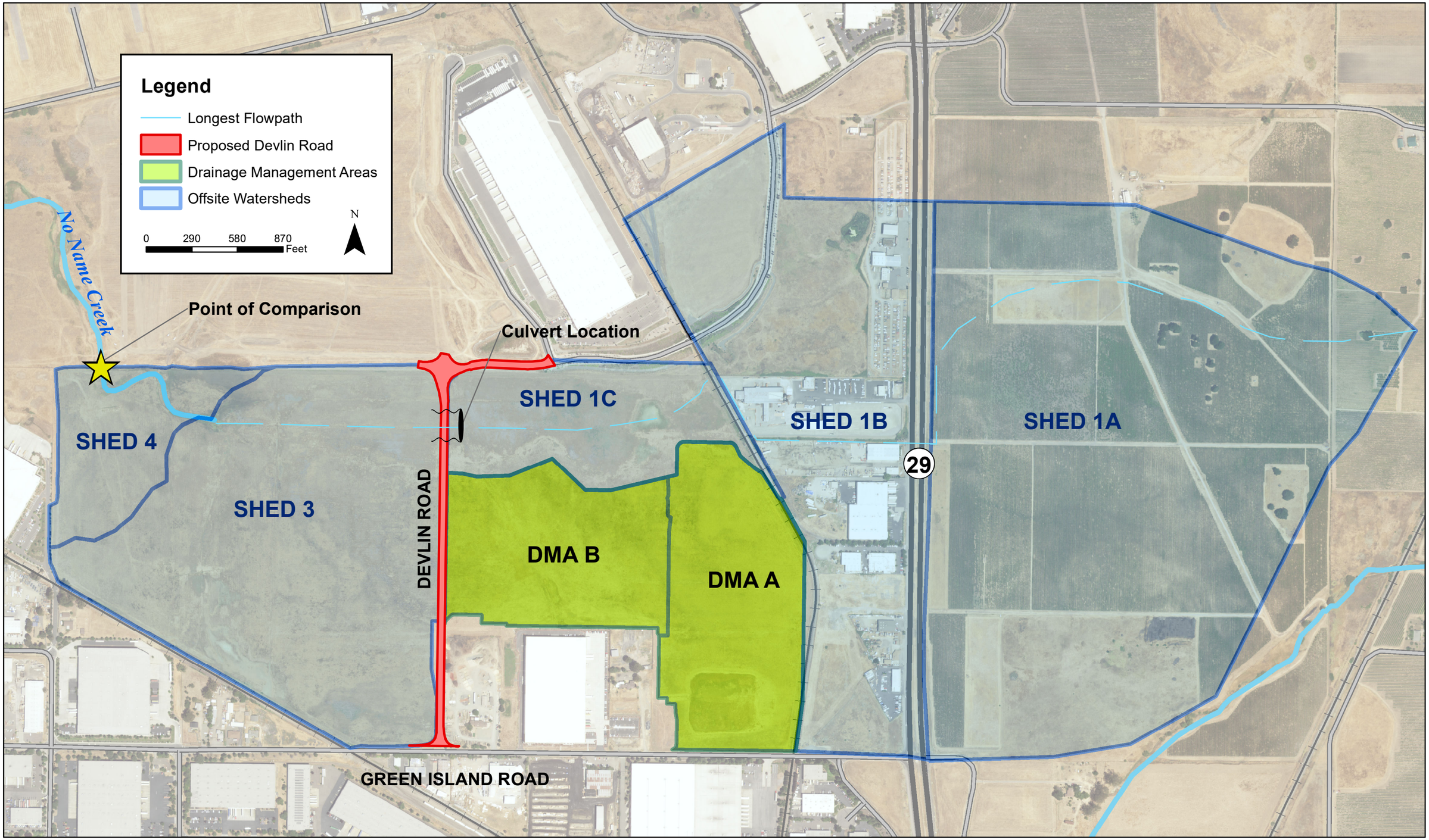
Based upon the outcomes for the three modeled conditions, multiple changes from the pre-project scenario are evident. First off, the construction of Devlin Road will largely constrict the flowrate from the watershed to No Name Creek; the 100-yr discharge drops to 65% of the pre-

project peak flow with the addition of the roadway. Secondly, the peak flow increases to 68% of the pre-project condition for the 100-year storm event after the development of the Project area, but still remains well within the flood control requirements set forth by the City of American Canyon. By viewing this proposed development on the scale of the regional watershed the combined construction of Devlin Road and the Project area will not create adverse effects related to flood control or hydromodification downstream of the development.

Attachment 1. Hydrologic Model Subbasin Parameters for Giovannoni Project American Canyon, Napa County, California.

Modeled Condition	Shed[1]	Area	Infiltration	N	L	Lc	Elevation		Slope	Lag[2,3]
							High	Low		
		acres	*(in/hr)*		*(feet)*	*(feet)*	*(feet)*	*(feet)*	*(feet)*	*(hours)*
No Development	**Watershed 1A**	186.2	0.17	0.065	3880	2208	275	60	293	0.339
	Watershed 1B	96.1	0.10	0.040	3511	506	54	34	30	0.177
	Watershed 1C	64.2	0.17	0.065	4369	2434	54	25	35	0.550
	Watershed 2	68.4	0.17	0.065	4505	2336	54	25	34	0.551
	Watershed 3	52.5	0.17	0.065	3327	1665	44	22	34	0.431
	Watershed 4	19.6	0.17	0.065	1293	484	44	18	104	0.167
Devlin Road Only	**Watershed 1A**	186.2	0.17	0.065	3880	2208	275	60	293	0.339
	Watershed 1B	96.1	0.10	0.040	3511	506	54	34	30	0.177
	Watershed 1C*	91.1	0.17	0.065	2767	1434	47	32	29	0.550
	Watershed 3*	94.5	0.17	0.065	3269	1665	44	22	34	0.414
	Watershed 4	19.6	0.17	0.065	1293	484	44	18	104	0.167
Post-Development	**DMA A**	37.8	0.03	0.028	2620	1060	48	44	8	0.188
	DMA B	31.4	0.03	0.028	2000	1410	40	34	16	0.167
	Watershed 1A	186.2	0.17	0.065	3880	2208	275	60	293	0.339
	Watershed 1B	96.1	0.10	0.040	3511	506	54	34	30	0.177
	Watershed 1C**	29.0	0.17	0.065	2840	1050	47	32	96	0.550
	Watershed 3*	94.4	0.17	0.065	3269	1382	44	26	34	0.431
	Watershed 4	19.6	0.17	0.065	1293	484	44	18	64	0.167

1. Refer to Figure 1 for location. Asterisks denote that a shed was changed to comply to changes in project conditions; however, the general location of the sheds are maintained across the scenarios.
2. Contra Costa Flood Control District Methodology Lag Time Equation: 24 x N x (L*Lc / S^0.05)^0.38.
3. A minimum Lag Time of 0.167 hours was assumed during modeling.



Balance Hydrologics

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Figure 1. Giovannoni Modeling Overview
American Canyon, Napa, California

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Appendix G:
Noise Supporting Information

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Mechanical Equipment Noise Calculation

Receptor: Closest Residence - northwest of Project

		Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements								
		Reference (dBA) 25 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)		
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	Commercial grade mechanical ventilation equipment	60	1	100	1470	0.5	0	24.6	15.8	37.71869728
2	Commercial grade mechanical ventilation equipment	60	1	100	1500	0.5	0	24.4	15.5	35.86095691
3	Commercial grade mechanical ventilation equipment	60	1	100	1550	0.5	0	24.2	15.2	33.0385346
4	Commercial grade mechanical ventilation equipment	60	1	100	1600	0.5	0	23.9	14.8	30.51757813
5	Commercial grade mechanical ventilation equipment	60	1	100	1650	0.5	0	23.6	14.5	28.25791804
6										
7										
8										
9										
10										
							Lmax[4]	**25**	**Leq**	**22**

Notes:
[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding due to terrain or structures
[4] Calculated Lmax is the Loudest value.

Ldn Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	22.2	32.2	3.218518923	1653.93685
	1:00 AM	22.2	32.2	3.218518923	1653.93685
	2:00 AM	22.2	32.2	3.218518923	1653.93685
	3:00 AM	22.2	32.2	3.218518923	1653.93685
	4:00 AM	22.2	32.2	3.218518923	1653.93685
	5:00 AM	22.2	32.2	3.218518923	1653.93685
	6:00 AM	22.2	32.2	3.218518923	1653.93685
Day	7:00 AM	22.2	22.2	2.218518923	165.393685
	8:00 AM	22.2	22.2	2.218518923	165.393685
	9:00 AM	22.2	22.2	2.218518923	165.393685
	10:00 AM	22.2	22.2	2.218518923	165.393685
	11:00 AM	22.2	22.2	2.218518923	165.393685
	12:00 PM	22.2	22.2	2.218518923	165.393685
	1:00 PM	22.2	22.2	2.218518923	165.393685
	2:00 PM	22.2	22.2	2.218518923	165.393685
	3:00 PM	22.2	22.2	2.218518923	165.393685
	4:00 PM	22.2	22.2	2.218518923	165.393685
	5:00 PM	22.2	22.2	2.218518923	165.393685
	6:00 PM	22.2	22.2	2.218518923	165.393685
	7:00 PM	22.2	22.2	2.218518923	165.393685
	8:00 PM	22.2	22.2	2.218518923	165.393685
	9:00 PM	22.2	22.2	2.218518923	165.393685
Night	10:00 PM	22.2	32.2	3.218518923	1653.93685
	11:00 PM	22.2	32.2	3.218518923	1653.93685
			Sum		17366.33692
			Sum/24		723.5973717
			Log10(Sum/24)		2.859496981
			10*Log10(Sum/24)		28.59496981
			24 Hour Ldn		29

Parking Lot activity

Reference Noise Level Calculation

No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage factor[1]	Distance to nearest Property Line	Ground Effect[2]	Shielding (dBA)[3]	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	parking lot activity	70	8	1	1360	1	0	41.3	16.0	39.75422349
2	parking lot activity	70	10	1	1400	1	0	41.1	16.6	45.55393586
3	parking lot activity	70	20	1	1450	1	0	40.8	19.1	82.00418221
4	parking lot activity	70	20	1	1500	1	0	40.5	18.7	74.07407407
5										
6										
7										
8										
9										
10										
							Lmax[4]	**41**	**Leq**	**24**

Notes:
[1] Percentage of time maximum noise levels occur each hour
[2] Soft ground terrain between project site and receptor.
[3] Noise reduction factor due to terrain, landscaping, or structures
[4] Calculated Lmax is the Loudest value.

Ldn Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	23.8	33.8	3.382712826	2413.864156
	1:00 AM	23.8	33.8	3.382712826	2413.864156
	2:00 AM	23.8	33.8	3.382712826	2413.864156
	3:00 AM	23.8	33.8	3.382712826	2413.864156
	4:00 AM	23.8	33.8	3.382712826	2413.864156
	5:00 AM	23.8	33.8	3.382712826	2413.864156
	6:00 AM	23.8	33.8	3.382712826	2413.864156
Day	7:00 AM	23.8	23.8	2.382712826	241.3864156
	8:00 AM	23.8	23.8	2.382712826	241.3864156
	9:00 AM	23.8	23.8	2.382712826	241.3864156
	10:00 AM	23.8	23.8	2.382712826	241.3864156
	11:00 AM	23.8	23.8	2.382712826	241.3864156
	12:00 PM	23.8	23.8	2.382712826	241.3864156
	1:00 PM	23.8	23.8	2.382712826	241.3864156
	2:00 PM	23.8	23.8	2.382712826	241.3864156
	3:00 PM	23.8	23.8	2.382712826	241.3864156
	4:00 PM	23.8	23.8	2.382712826	241.3864156
	5:00 PM	23.8	23.8	2.382712826	241.3864156
	6:00 PM	23.8	23.8	2.382712826	241.3864156
	7:00 PM	23.8	23.8	2.382712826	241.3864156
	8:00 PM	23.8	23.8	2.382712826	241.3864156
	9:00 PM	23.8	23.8	2.382712826	241.3864156
Night	10:00 PM	23.8	33.8	3.382712826	2413.864156
	11:00 PM	23.8	33.8	3.382712826	2413.864156
			Sum		25345.57364
			Sum/24		1056.065568
			Log10(Sum/24)		3.023690883
			10*Log10(Sum/24)		30.23690883
			24 Hour Ldn		30

Loading/Unloading

Receptor: Closest receptor - school south of the site

		Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements								
		Reference (dBA) 50 ft		Usage	Distance to	Ground	Shielding	Calculated (dBA)		
No.	Equipment Description	Lmax	Quantity	factor[1]	Receptor	Effect[2]	(dBA)[3]	Lmax	Leq	Energy
1	Loading/Unloading - surface level	70	10	5	1600	1	0	39.9	21.8	152.5878906
2	Loading/Unloading - surface level	70	10	5	1650	1	0	39.6	21.4	139.1323705
3	Loading/Unloading - surface level	70	10	5	1700	1	0	39.4	21.0	127.2135152
4	Loading/Unloading - surface level	70	10	5	1750	1	0	39.1	20.7	116.6180758
5	Loading/Unloading - docks	70	7	5	1800	1	0	38.9	18.8	75.01714678
6	Loading/Unloading - docks	70	7	5	1850	1	0	38.6	18.4	69.09758553
7	Loading/Unloading - docks	70	7	5	1900	1	0	38.4	18.0	63.78480828
8	Loading/Unloading - docks	70	7	5	1950	1	0	38.2	17.7	59.00301758
9										
10										
							Lmax[4]	**40**	**Leq**	**29**

Notes:
[1] Percentage of time activity occurs each hour
[2] Soft ground terrain between project site and receptor.
[3] Shielding reduction from proposed warehouse structure
[4] Calculated Lmax is the Loudest value.

Ldn Calculations					
	Time	Hourly Leq	Leq'	0.1*Leq	antiLog
Night	12:00 AM	29.0	39.0	3.904420368	8024.544103
	1:00 AM	29.0	39.0	3.904420368	8024.544103
	2:00 AM	29.0	39.0	3.904420368	8024.544103
	3:00 AM	29.0	39.0	3.904420368	8024.544103
	4:00 AM	29.0	39.0	3.904420368	8024.544103
	5:00 AM	29.0	39.0	3.904420368	8024.544103
	6:00 AM	29.0	39.0	3.904420368	8024.544103
Day	7:00 AM	29.0	29.0	2.904420368	802.4544103
	8:00 AM	29.0	29.0	2.904420368	802.4544103
	9:00 AM	29.0	29.0	2.904420368	802.4544103
	10:00 AM	29.0	29.0	2.904420368	802.4544103
	11:00 AM	29.0	29.0	2.904420368	802.4544103
	12:00 PM	29.0	29.0	2.904420368	802.4544103
	1:00 PM	29.0	29.0	2.904420368	802.4544103
	2:00 PM	29.0	29.0	2.904420368	802.4544103
	3:00 PM	29.0	29.0	2.904420368	802.4544103
	4:00 PM	29.0	29.0	2.904420368	802.4544103
	5:00 PM	29.0	29.0	2.904420368	802.4544103
	6:00 PM	29.0	29.0	2.904420368	802.4544103
	7:00 PM	29.0	29.0	2.904420368	802.4544103
	8:00 PM	29.0	29.0	2.904420368	802.4544103
	9:00 PM	29.0	29.0	2.904420368	802.4544103
Night	10:00 PM	29.0	39.0	3.904420368	8024.544103
	11:00 PM	29.0	39.0	3.904420368	8024.544103
			Sum		84257.71308
			Sum/24		3510.738045
			Log10(Sum/24)		3.545398426
			10*Log10(Sum/24)		35.45398426
			24 Hour Ldn		35

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Paoli Loop Road - south of Green Island Road
NOTES: Giovannoni Logistics Center Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	55.4	118.7

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - Paoli Loop Road to future Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	75.5	162.2

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - west of future Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	75.5	162.2

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: South Kelly Road - SR 29 to Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	71.6

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: SR 29 - South Kelly Road to Green Island Road
NOTES: Giovannoni Logistics Center Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
128.4	272.8	585.9	1261.2

TABLE Existing plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Paoli Loop Road - south of Green Island Road
NOTES: Giovannoni Logistics Center Project - Existing plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3700 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn 70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	63.6	136.4

TABLE Existing plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - Paoli Loop Road to future Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	91.4	196.5

TABLE Existing plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - west of future Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4800 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	75.5	162.2

TABLE Existing plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: South Kelly Road - SR 29 to Devlin Road
NOTES: Giovannoni Logistics Center Project - Existing plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2500 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES	
	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	105.2

TABLE Existing plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: SR 29 - South Kelly Road to Green Island Road
NOTES: Giovannoni Logistics Center Project - Existing plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31300 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
129.5	275.2	590.9	1272.1

TABLE Future without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Paoli Loop Road - south of Green Island Road
NOTES: Giovannoni Logistics Center Project - Future without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	63.6	136.4

TABLE Future without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - Paoli Loop Road to future Devlin Road
NOTES: Giovannoni Logistics Center Project - Future without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	86.6	186.1

TABLE Future without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - west of future Devlin Road
NOTES: Giovannoni Logistics Center Project - Future without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	86.6	186.1

TABLE Future without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: South Kelly Road - SR 29 to Devlin Road
NOTES: Giovannoni Logistics Center Project - Future without Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	102.3

TABLE Future without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: SR 29 - South Kelly Road to Green Island Road
NOTES: Giovannoni Logistics Center Project - Future without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 52300 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
180.8	386.7	831.8	1791.0

TABLE Future plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Paoli Loop Road - south of Green Island Road
NOTES: Giovannoni Logistics Center Project - Future plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	70.2	150.8

TABLE Future plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - Paoli Loop Road to future Devlin Road
NOTES: Giovannoni Logistics Center Project - Future plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.6	216.5

TABLE Future plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: Green Island Road - west of future Devlin Road
NOTES: Giovannoni Logistics Center Project - Future plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	86.6	186.1

TABLE Future plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: South Kelly Road - SR 29 to Devlin Road
NOTES: Giovannoni Logistics Center Project - Future plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	61.3	131.5

TABLE Future plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/25/2021
ROADWAY SEGMENT: SR 29 - South Kelly Road to Green Island Road
NOTES: Giovannoni Logistics Center Project - Future plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 52700 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn			
70 Ldn	65 Ldn	60 Ldn	55 Ldn
181.7	388.7	836.0	1800.2

Appendix H:
Transportation Supporting Information

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Traffic Impact Study for the Giovannoni Logistics Center

Prepared for the City of American Canyon

Submitted by
W-Trans

July 22, 2021

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Executive Summary

The proposed project includes the construction of 2.2 to 2.4 million square feet of warehouse which would be built concurrently with the planned extension of Devlin Road between Green Island Road and South Kelly Road in the City of American Canyon. This project is expected to generate an average of 3,888 equivalent passenger car trips per day, including 240 trips during the a.m. peak hour, and 264 during the p.m. peak hour.

The study area for the operational analysis includes the intersections of Devlin Road/South Kelly Road, Devlin Road/Green Island Road and Paoli Loop Road/Green Island Road. Analysis indicates that the unsignalized intersections operate acceptably under Existing Conditions and would continue to do so under Future Conditions and upon the addition of project-related traffic volumes. SR 29/South Kelly Road would operate at LOS F under Future Conditions without or with the project, but this operation was considered acceptable since the intersection is exempt from the City's LOS standard and Caltrans has no operational standard. As required by the City in their Traffic Impact Fee Program, the project should pay a fee toward the cost of the planned future improvements to SR 29 to address cumulative effects of project traffic.

Although the project would be expected to have a less-than-significant transportation impact on vehicle miles traveled (VMT), the implementation of TDM measures such as use of ridesharing, offering secure bicycle parking, and educational materials would further lower the anticipated project VMT and are therefore recommended.

The project includes the addition of sidewalks along the Devlin Road extension and a multi-modal path along Green Island Road in the area adjacent to the project. Bicycle facilities serving the project site are generally adequate, though space should be provided for bicycles to be stored on-site. The project includes an extension to the Napa Valley Vine Trail along Delvin Road which improves local and regional bicycle connectivity. Existing transit stops are not within the immediate vicinity of the site. This is typical for this area and is therefore considered an acceptable condition.

Vehicles would access the project via multiple driveways on Green Island Road and the future Devlin Road extension. Sight distances at the project driveways for both entering and exiting drivers is expected to be adequate assuming placement of buildings, signs and landscaping are outside the areas needed for clear lines of sight. Assuming a maximum project size of 2.4 million square feet, City Code requires a minimum of 1,230 parking spaces should be provided.

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with the proposed development of 2.2 to 2.4 million square feet of warehouse space between Green Island Road and Devlin Road in the area west of SR 29 in the City of American Canyon. The traffic study was completed in accordance with the criteria established by the City of American Canyon and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts and effects on traffic operation of a proposed project, and any associated improvements that would be required in order to mitigate these impacts and effects to an acceptable level under CEQA, the City's General Plan, or other policies. Impacts relative to access for pedestrians, bicyclists, and to transit are addressed in the context of the CEQA criteria. Consistent with SB 743, the project's transportation impacts were analyzed using VMT. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on the study intersections.

Project Profile

The project as proposed includes 2.2 to 2.4 million square feet of high cube warehouse space. The site is situated between Green Island Road and Devlin Road in the area west of SR 29 in the City of American Canyon and would be accessible from either roadway. Approximate boundaries of the site are illustrated in Figure 1.

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Traffic Study for the Giovannoni Logistics Center

Figure 1 – Study Area and Lane Configurations

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Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections selected through consultation from City staff:

1. SR 29/South Kelly Road
2. Devlin Road/South Kelly Road
3. Devlin Road/Green Island Road (Future Intersection)
4. Paoli Loop Road/Green Island Road

Operating conditions during the weekday a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersections

SR 29/South Kelly Road is a signalized four-legged intersection with protected left turns on all approaches. There are crosswalks on the west, north and east legs.

Devlin Road/South Kelly Road is an all-way stop-controlled intersection with crosswalks on the east and south legs.

Devlin Road/Green Island Road (Future) is a future tee intersection with stop control on the southbound Devlin Road approach. Crosswalks are planned at the north leg.

Paoli Loop Road/Green Island Road is a tee intersection with stop control on the northbound Paoli Loop Road approach. There are no crosswalks.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is October 1, 2015 through September 30, 2020.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as reported in the publication *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). A more detailed evaluation is provided for study intersections where the collision rates were higher than the statewide average. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections			
Study Intersection	**Number of Collisions (2015-2020)**	**Calculated Collision Rate (c/mve)**	**Statewide Average Collision Rate (c/mve)**
1. SR 29/South Kelly Road	48	**0.82**	0.58
2. Devlin Road/South Kelly Road	2	0.32	0.55
3. Devlin Road/Green Island Road [1]	-	-	-
4. Paoli Loop Road/Green Island Road	2	**0.20**	0.16

Note: c/mve = collisions per million vehicles entering
[1] Collision rate was not evaluated at this future intersection

Of the 48 reported collisions that occurred at the intersection of SR 29/South Kelly Road, 30 were rear-end collisions with the primary cause being unsafe speeds. This type of crash is common at signalized intersections where there is congestion, especially during peak periods. Because of the regional nature of the traffic that causes the congestion, and as this location is under the jurisdiction of Caltrans, there is little that the City can do to address this condition though increased enforcement and analysis of the potential to improve signal timing to reduce congestion could be requested of the Highway Patrol and Caltrans, respectively.

The collision rate at Paoli Loop Road/Green Island Road is higher than the statewide average, with one of the two reported collisions being a head-on collision and the other being a broadside collision. The broadside collision resulted from "traffic signal and sign" violations, and the head-on collision was attributed to unsafe speed. With no clear pattern and given the very low number of crashes, no remedial actions are apparent.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, sidewalk coverage is limited in the area surrounding the project site. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points. Within the study area, new sidewalks are planned along the future extension of Devlin Road.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Devlin Road between Middleton Way and South Kelly Road. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 2 summarizes

the existing and planned bicycle facilities in the project vicinity as contained in the *Napa Countywide Bicycle Plan*, Napa Valley Transportation Authority, 2019.

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Devlin Road	II	0.09	Middleton Way	South Kelly Road
Planned				
S Kelly Rd	I	0.20	SR 29	Devlin Rd
Vine Trail (along Devlin Rd)	I	1.62	Middleton Way	Watson Ln
Green Island Rd	I	0.33	Vine Trail	Commerce Blvd
Green Island Rd	II	0.25	Northern Intersection of Green Island Rd and Mezzetta Ct	Vine Trail

Source: *Napa Countywide Bicycle Plan*, Napa Valley Transportation Authority, 2019

Transit Facilities

Valley Intercity Neighborhood Express (VINE) Transit provides fixed route bus service throughout Napa County. American Canyon Transit (ACT) is an on-demand, door-to-door, transit service for persons with disabilities who cannot independently use regular fixed-route transit services. Neither VINE nor ACT maintains stops near the project site.

On-demand private taxi services are available in the study area 24 hours a day. Taxis can be used for trips within the local Planning Area and farther destinations, including nearby airports. Other ride-hailing applications are also available in study area and provide transportation throughout the Bay Area.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), 6th Edition, Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing, and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from Caltrans.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Intersection Level of Service Criteria			
LOS	**Two-Way Stop-Controlled**	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop, and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual,* 6th Edition, Transportation Research Board, 2018

Traffic Operation Standards

City of American Canyon

The *City of American Canyon General Plan Circulation Element* specifies minimum level-of-service standards for all streets and intersections in the City's jurisdiction. In section 4.1.6, the City establishes the following performance standards for acceptable LOS:

Achieve and maintain a Multimodal LOS D or better for roadways and intersections during peak hours where possible for as long as possible. However, recognizing that LOS D may not be achievable or cannot be maintained upon full buildout of the General Plan, due to traffic generated from sources beyond control of the City, the City Council shall have the discretion to only require feasible mitigation measures that may not achieve LOS D, but will reduce the impact of any development use or VMT planned for in the Land Use Element of the General Plan.

The locations that may not achieve or maintain LOS D are as follows and will be exempt from the LOS D policy:

- *State Route 29 through the City*
- *American Canyon Road from SR 29 to Flosden Road-Newell Drive*
- *Flosden Road south of American Canyon Road*

Caltrans

The study intersection of SR 29/South Kelly Road is located on the State Transportation Network (STN) and is therefore under jurisdiction of Caltrans. It is noted that Caltrans does not currently have a standard of significance relative to intersection operation as this is no longer a CEQA issue. The new vehicle miles traveled-focused Transportation Impact Study Guide (TISG), published in May 2020, replaced the Guide for the Preparation of Traffic Impact Studies, 2002. As indicated in the TISG, the Department is transitioning away from requesting LOS or other vehicle operations analyses of land use projects and will instead focus on Vehicle Miles Traveled (VMT).

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak hours. This condition does not include project-generated traffic volumes. Volume data was collected on various dates in February, May and November 2019 while local schools were in session and prior to the outbreak of COVID-19 and the resulting change in travel patterns. It is noted that travel patterns within American Canyon vary between the a.m. and p.m. peak hours and individual drivers may use different routes for their morning and evening commutes. Copies of the traffic count data sheets are provided in Appendix B.

Intersection Levels of Service

Under existing conditions, all study intersections are operating acceptably during both peak hours evaluated. The existing traffic volumes are shown in Figure 2. A summary of the intersection Level of Service calculations is contained in Table 4, and copies of the calculations are provided in Appendix C.

Table 4 – Existing Peak Hour Intersection Levels of Service

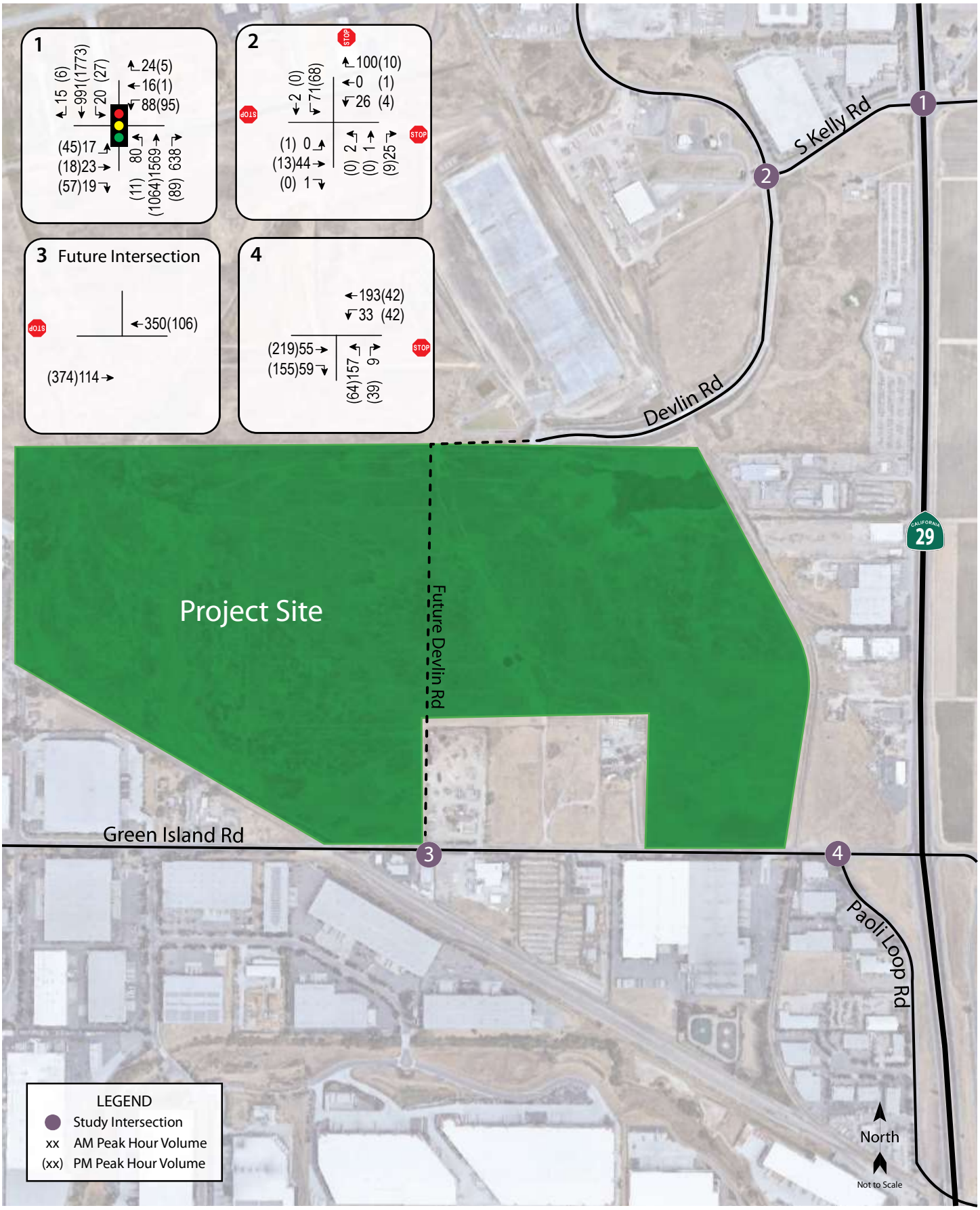
Study Intersection ***Approach***	AM Peak		PM Peak	
	Delay	**LOS**	**Delay**	**LOS**
1. SR 29/S Kelly Rd	34.6	C	15.9	B
2. Devlin Rd/S Kelly Rd	7.8	A	8.0	A
3. Devlin Rd/Green Island Rd [1]	-	-	-	-
Southbound (Devlin Rd) Approach	-	-	-	-
4. Paoli Loop Rd/Green Island Rd	4.9	A	3.1	A
Northbound (Paoli Loop) Approach	*13.3*	*B*	*13.5*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

[1] Level of Service was not evaluated at this future intersection

Future Conditions

Future (2040) a.m. and p.m. peak hour volume projections for SR 29/South Kelly Road were derived from a build-out analysis which is contained in the *Napa Junction III Transportation Impact Analysis Report,* Omni-Means, LTD,



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Traffic Study for the Giovannoni Logistics Center

Figure 2 – Existing Traffic Volumes

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2011; this scenario represents cumulative traffic conditions that would be expected upon build out of the land uses identified in the *General Plan*. Although some of the anticipated development included in this previous effort

may already be complete and occupied, to provide a conservative estimate of future operation the incremental increase in trips associated with build out of the City of American Canyon under its current *General Plan* was added to current volumes to determine Future (year 2040) operating conditions without the project. A growth rate was then created for the intersection of SR 29/South Kelly Road based on the volumes for this location in the *Napa Junction III Transportation Impact Analysis Report*.

Because the west side of SR 29 is already nearly built out other than the project site, so would be expected to experience considerably less of an increase in traffic compared to SR 29, a growth rate of one-percent per year was used to develop future a.m. and p.m. peak hour volumes for the study intersections located west of SR 29.

Under the anticipated Future volumes, the study intersections are expected to operate acceptably during the a.m. and p.m. peak hours except for SR 29/South Kelly Road, which is expected to operate at LOS F during both peak hours. Future volumes are shown in Figure 3 and operating conditions are summarized in Table 5.

Table 5 – Future Peak Hour Intersection Levels of Service

Study Intersection *Approach*	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. SR 29/S Kelly Rd	107.4	F	84.3	F
2. Devlin Rd/S Kelly Rd	8.0	A	8.0	A
3. Devlin Rd/Green Island Rd [1]	-	-	-	-
Southbound (Devlin Rd) Approach	-	-	-	-
4. Paoli Loop Rd/Green Island Rd	5.2	A	3.1	A
Northbound (Paoli Loop) Approach	*14.3*	*B*	*13.4*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

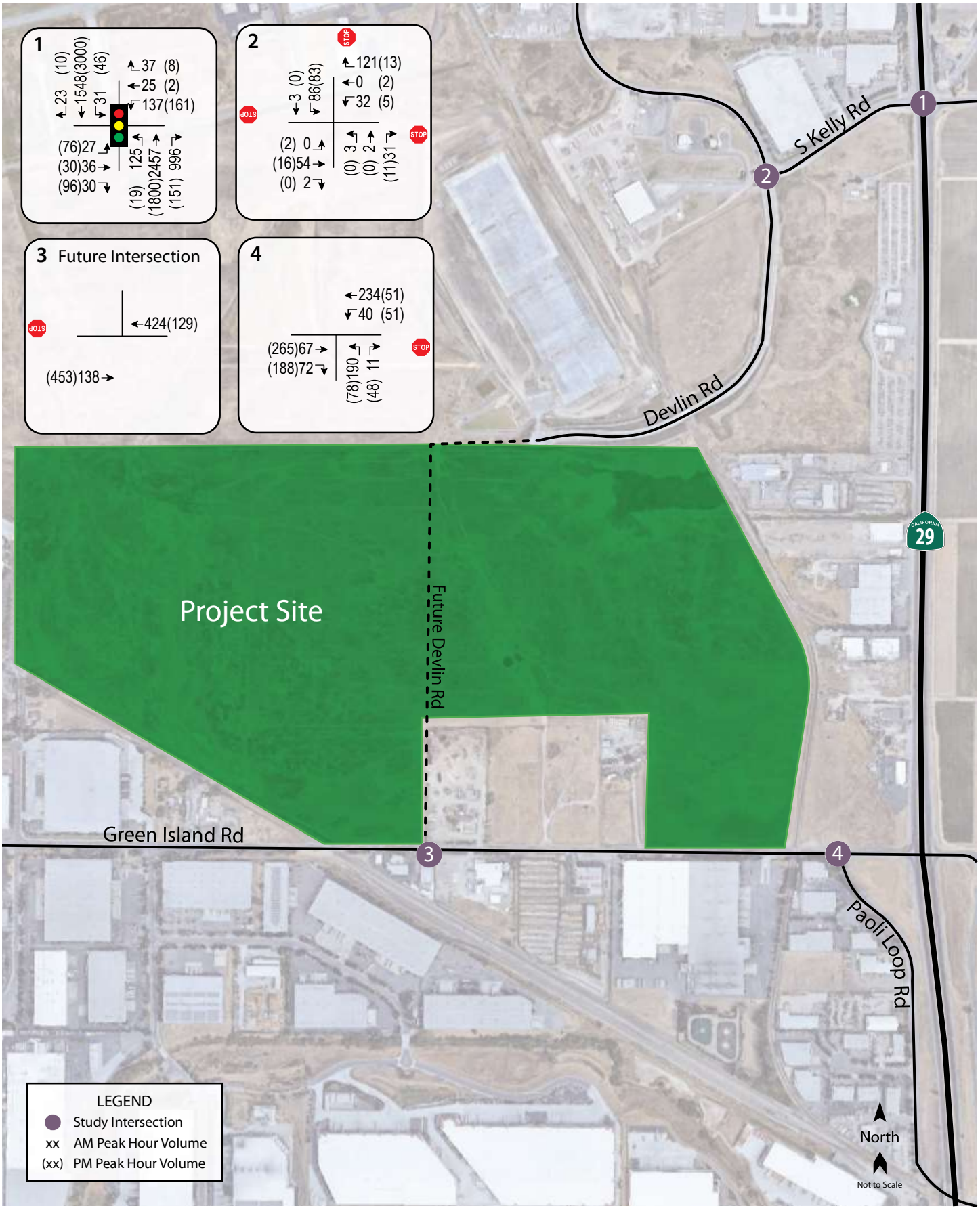
[1] Level of Service was not evaluated at this future intersection

While the intersection of SR 29/South Kelly Road is projected to operate at LOS F during each peak hour, this operation was considered acceptable since SR 29 is exempt from the City's LOS standard and Caltrans no longer applies an LOS standard. The *City of American Canyon – Broadway District Specific Plan Draft EI*R, First Carbon Solutions, 2017, states that there are future plans for SR 29 to have three through lanes in each direction through American Canyon. Because funding has not been identified for this capacity enhancement, it was conservatively assumed that the current configuration with only two through lanes in each direction would remain, and this configuration was used for the analysis.

Furthermore, the future year analysis results for facilities along SR 29 (specifically, the intersection of SR 29/South Kelly Road) is deemed to be more conservative than what was presented for this intersection in the *Watson Ranch Specific Plan Environmental Impact Report* (September 2018) which indicated LOS C and D operation for the a.m. and p.m. peak hours, respectively.

Project Description

The project includes the construction of 2.2 to 2.4 million square feet of warehouse which would be built concurrently with the planned extension of Devlin Road between Green Island Road and South Kelly Road in



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Traffic Study for the Giovannoni Logistics Center

Figure 3 – Future Traffic Volumes

American Canyon. It should be noted that the extension of Devlin Road is identified in the City's General Plan as a circulation improvement and its completion would have been pursued by the City with or without the involvement of this project. The project would be completed in two phases. Phase 1 includes the construction of the Devlin Road extension and two warehouse buildings along with supporting surface parking lots and circulating roads on the east side of the Devlin Road extension. A supply of 858 parking spaces is presently planned for Phase 1. Phase 2 would consist of three or four warehouse buildings and supporting parking lots and circulating roads to the west of the Devlin Road extension.

The extension of Devlin Road would be approximately 3,000 feet long and include bicycle lanes and a sidewalk along its eastern edge. The project also includes the construction of a multi-modal path along the northern side of Green Island Road at the project frontage.

The proposed project site plan for Phase 1 is shown in Figure 4. A site plan for Phase 2 is currently being developed and was not available for use in this study.

Trip Generation

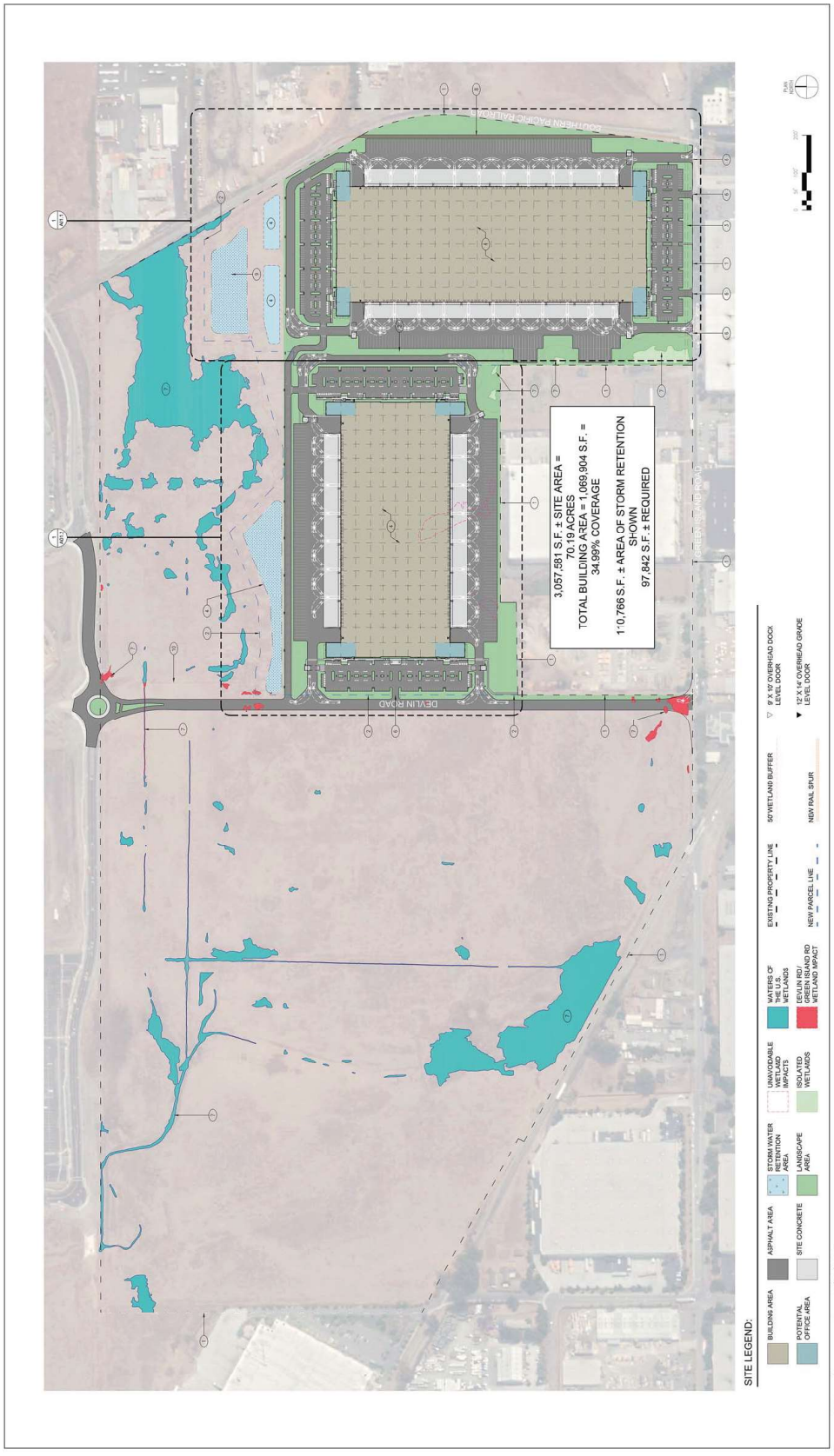
The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for a "High-Cube Transload and Short-Term Storage Warehouse" (Land Use #154). The project would be comprised of multiple warehouse buildings with a combined size of between 2.2 and 2.4 million square feet. To be conservative, the maximum size of 2.4 million square feet was used to estimate the trip generation. The project is not anticipated to generate any internal capture trips, pass-by trip credits or any other trip reductions. The number of truck trips associated with a High-Cube Warehouse was estimated using rates published in the *Trip Generation Manual* and validated using local vehicle classification counts conducted in June 2021. Copies of the counts and truck percentage derivation are provided in Appendix B.

As shown in Table 6, the project is expected to generate an average of 3,888 net-new passenger car equivalent trips per day, including 240 trips during the a.m. peak hour and 264 during the p.m. peak hour. These new trips represent the increase in traffic associated with the project compared to existing volumes. To account for the effect of heavy vehicles (such as tractor trucks), a heavy vehicle adjustment factor was applied to convert truck trips to an equivalent passenger car trip total. The passenger car equivalency factor (PCE) for heavy vehicles is assumed to be 2.0 (i.e., each tractor truck has the effect of two passenger cars due to longer start up times at intersections and when making turns). Thus, the number of truck trips per hour was multiplied by 2.0 to determine the equivalent passenger car trips per hour.

Table 6 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
High-Cube Warehouse	2,400 ksf										
Vehicles (Trucks + Pass. Cars)		1.40	3,360	0.08	192	148	44	0.10	240	67	173
Trucks		0.22	528	0.02	48	37	11	0.01	24	7	17
Pass. Cars		-	*2,832*	-	*144*	*111*	*33*	-	*216*	*60*	*156*
Trucks (pass. car equivalents)		-	*1,056*	-	*96*	*74*	*22*	-	*48*	*14*	*34*
Total Passenger Car Trips			**3,888**		**240**	**185**	**55**		**264**	**74**	**190**

Note: ksf = 1,000 square feet, Total Passenger Car Trips = Passenger Cars plus Passenger Car Equivalent Units of Trucks



Source: First Carbon Solutions 2/2

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Traffic Study for the Giovannoni Logistics Center

Figure 4 – Site Plan

Trip Distribution

The pattern used to allocate new project trips to the street network was determined by reviewing likely routes for employees, visitors, and deliveries. The directionality experienced on SR 29 during the morning and evening commute periods was considered in developing the proposed assumptions. Based on the assumptions shown in Table 7, the following distribution was applied. Project traffic volumes are shown in Figure 5.

Table 7 – Trip Distribution Assumptions

Route	AM		PM	
	Percent	Trips	Percent	Trips
To/from North on SR 29	50%	120	55%	145
To/from South on SR 29	50%	120	45%	119
TOTAL	**100%**	**240**	**100%**	**264**

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, all study intersections are expected to continue operating at LOS C or better. These results are summarized in Table 8. Existing plus Project traffic volumes are shown in Figure 6.

Table 8 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

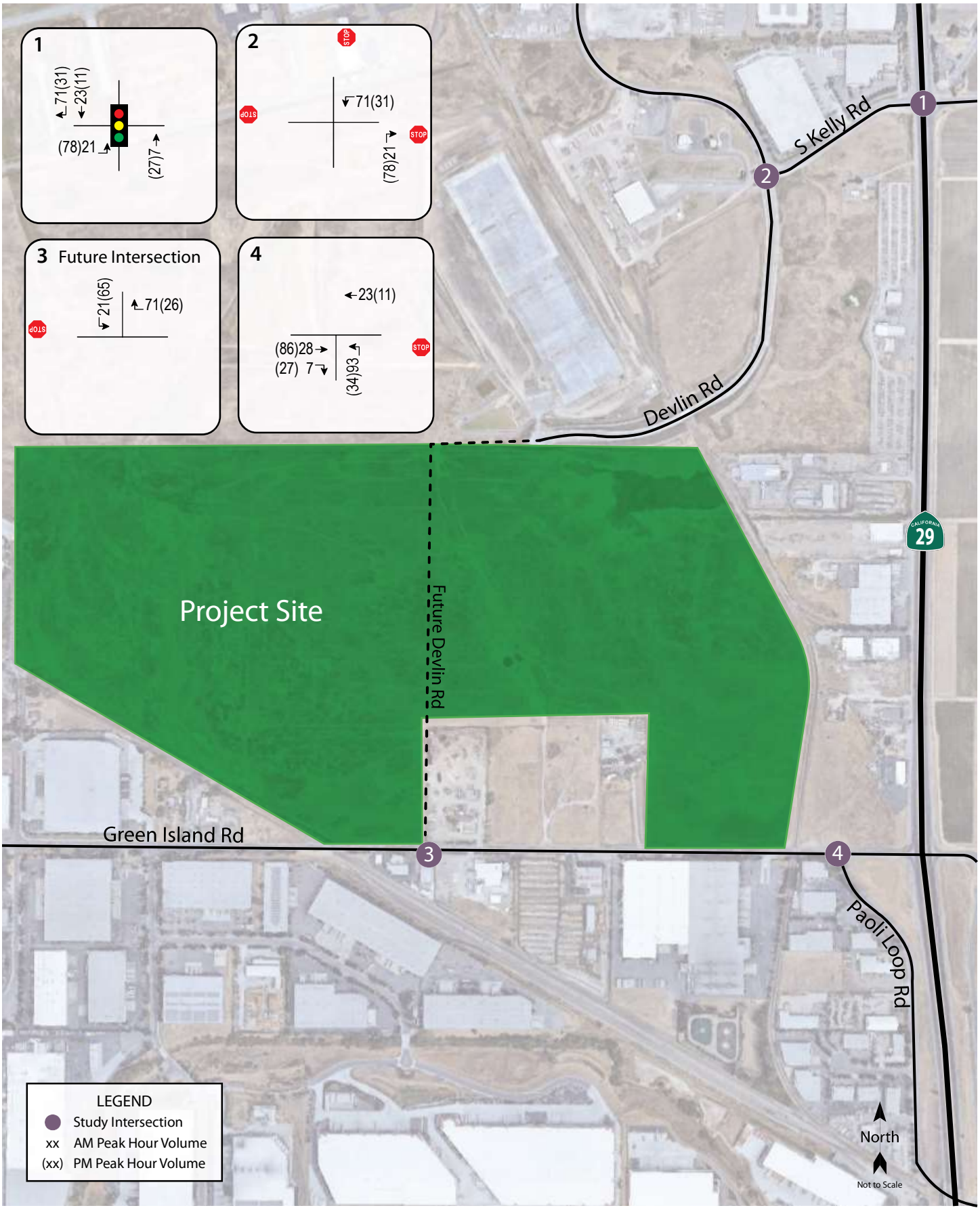
	Study Intersection *Approach*	Existing Conditions				Existing plus Project			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	SR 29/S Kelly Rd	34.6	C	15.9	B	34.7	C	16.7	B
2.	Devlin Rd/S Kelly Rd	7.8	A	8.0	A	8.4	A	7.9	A
3.	Devlin Rd/Green Island Rd	-	-	-	-	0.5	A	1.4	A
	Southbound (Devlin Rd) Approach	-	-	-	-	*12.1*	*B*	*12.7*	*B*
4.	Paoli Loop Rd/Green Island Rd	4.9	A	3.1	A	7.5	A	4.0	A
	Northbound (Paoli Loop) Approach	*13.3*	*B*	*13.5*	*B*	*17.9*	*C*	*18.1*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Finding – The study intersections are anticipated to operate at LOS C or better with project-generated traffic added.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, all unsignalized study intersections are expected to operate acceptably. SR 29/South Kelly Road would continue to operate at LOS F during both peak hours. Future plus Project traffic volumes are shown in Figure 7 and operating conditions are summarized in Table 9.



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Traffic Study for the Giovannoni Logistics Center

Figure 5 – Project Traffic Volumes

W-Trans

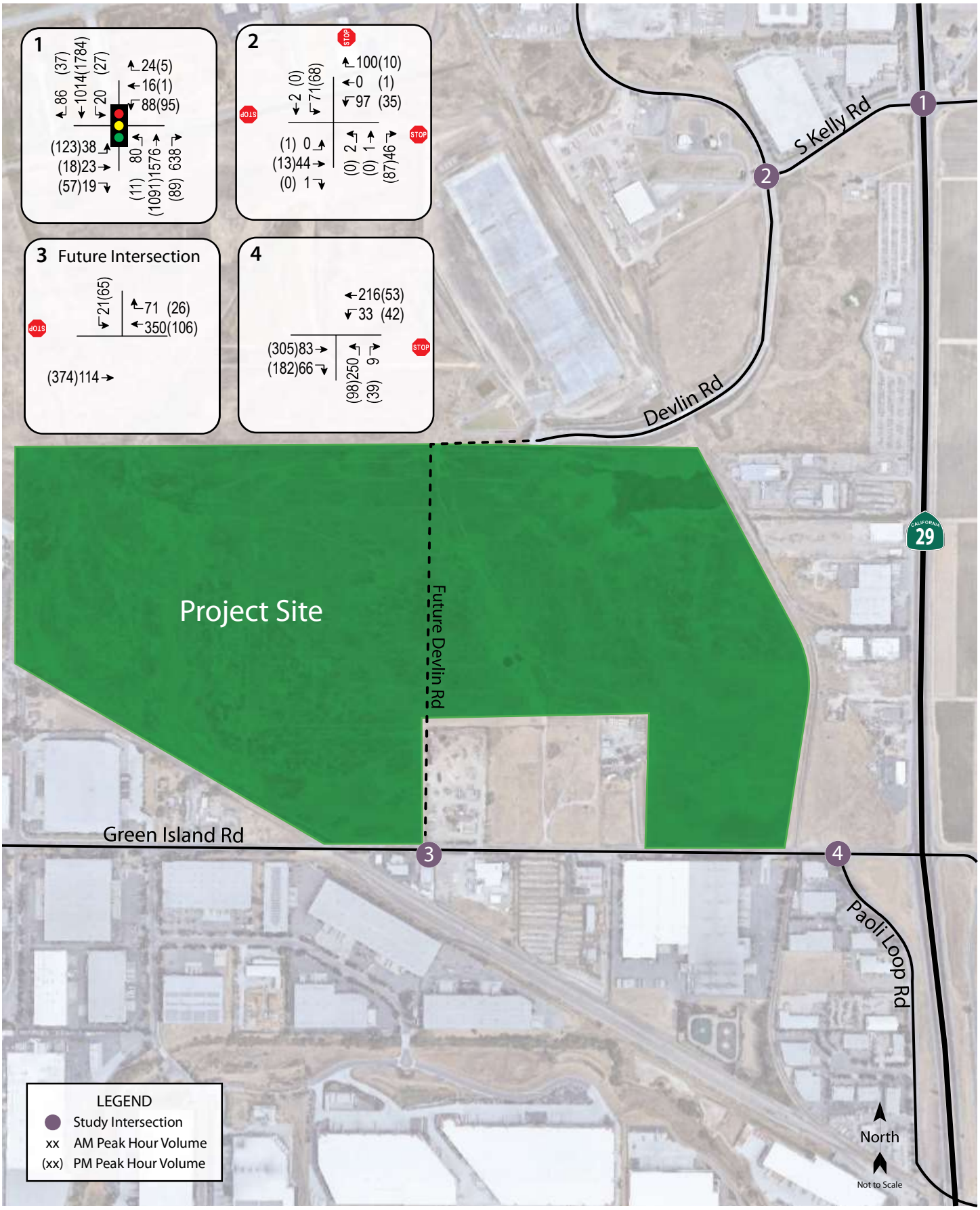

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Figure 6 – Existing Plus Project Traffic Volumes

W-Trans

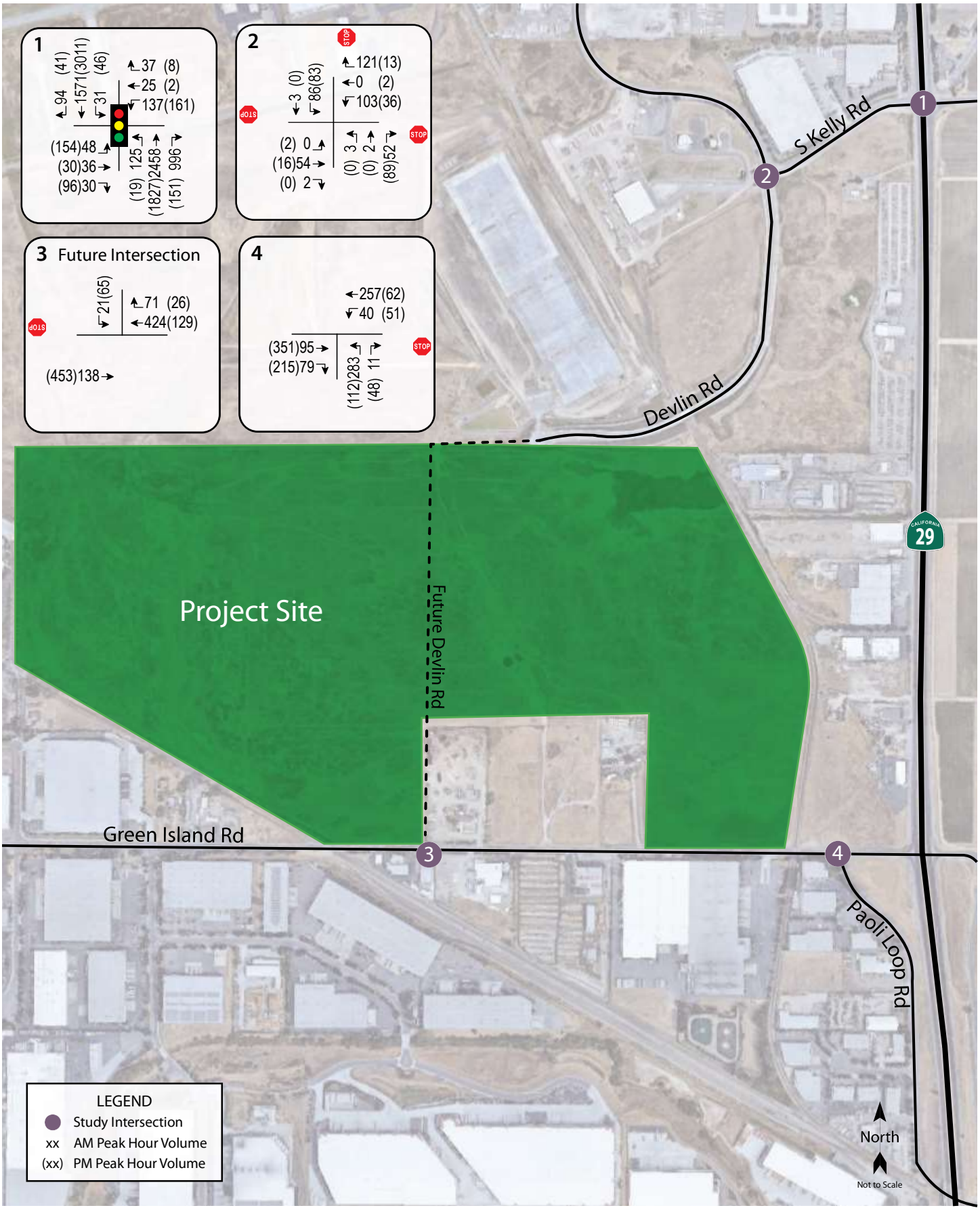

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Figure 7 – Future Plus Project Traffic Volumes

W-Trans

Table 9 – Future and Future plus Project Peak Hour Intersection Levels of Service									
Study Intersection ***Approach***		**Future Conditions**				**Future plus Project**			
		AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR 29/S Kelly Rd	107.4	F	84.3	F	107.0	F	88.7	F
2.	Devlin Rd/S Kelly Rd	8.0	A	8.0	A	8.5	A	7.6	A
3.	Devlin Rd/Green Island Rd	-	-	-	-	0.4	A	1.4	A
	Southbound (Devlin Rd) Approach	-	-	-	-	*13.1*	*B*	*13.9*	*B*
4.	Paoli Loop Rd/Green Island Rd	5.2	A	3.1	A	*7.8*	A	*3.7*	A
	Northbound (Paoli Loop) Approach	*14.3*	*B*	*13.4*	*B*	*19.3*	*C*	*16.7*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

As mentioned previously, there are future plans for SR 29 to have three travel lanes in each direction through American Canyon. As required by the City in their Traffic Impact Fee Program, the project should pay a proportional share fee toward the cost of this planned future infrastructure improvement. As specific building projects move forward, each should contribute to the funds needed for the planned improvements to SR 29 based on the City's fee schedule.

Finding – The study intersections will continue operating acceptably with project traffic added, with the exception of SR 29/South Kelly Road, which would operate at LOS F with or without the addition of project traffic, though the project's effect would be considered acceptable since SR 29 is exempt from the City's LOS standard.

Recommendation – As required by the City in their Traffic Impact Fee Program, the project should pay a fee toward the cost of the planned future improvements to SR 29.

Vehicle Miles Traveled

Senate Bill (SB) 743 established a change in the metric to be applied for determining traffic impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service analysis, the increase in Vehicle Miles Traveled (VMT) because of a project will be the basis for determining impacts. The City of American Canyon has not yet established thresholds of significance related to VMT. The Napa County travel demand model is not currently available for use as a source for VMT analysis. In lieu of an established local methodology, the project-related VMT impacts were quantitatively assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018 and approved by City of American Canyon staff.

Based on a review of established policies currently used by OPR, Sacramento County and the City of San Jose, a VMT impact would be identified at an industrial project if the project VMT per employee is higher than the regional average VMT per employee. For this study, the regional average VMT is defined as the nine county Bay Area average. As reported by the City of Vallejo in their *CEQA Transportation Impact Analysis Guidelines* (dated October 2020), the Nine-County Bay Area Average VMT per employee is 23.00 miles per employee. According to Statewide Travel Demand Model estimates, this project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles. Because this per capita VMT rate is lower than the significance threshold of 23.0 miles, the project would be considered to have a less-than-significant VMT impact. A summary of the VMT findings is provided in Table 10.

Table 10 – Vehicle Miles Traveled Analysis Summary

VMT Metric	Regional Average/ Significance Threshold	Project VMT Rate	Resulting Significance
Employment VMT per Capita	23.00	16.24	Less-Than-Significant

Note: VMT Rate is measured in VMT/Capita, or the number of daily miles driven per employee

Finding – The project would be expected to have a less-than-significant transportation impact on vehicle miles traveled.

Transportation Demand Management (TDM) Measures

The following section describes a potential Transportation Demand Management (TDM) program for employees of the logistics center. While the project's potential impact is expected to be less than significant, implementation of a TDM program would potentially lower the vehicle miles traveled associated with this project and thus have a regional benefit.

According to SB 1128, adopted in 2016, all employers with 50 or more full-time employees within the nine-county Bay Area are subject to SB 1128, which requires employers to offer their employees one of four options – pre-tax benefits, transit or vanpool subsidies, employer-provided transit, or an alternative benefit of equal effectiveness. The following TDM program would fulfill this legislative requirement.

Ridesharing Program

Carpooling is one of the most common and cost-effective alternative modes of transportation and one that commuters can adopt part-time. Given the delivery station's auto-oriented location, it can also be one of the most effective alternatives to driving alone. There are numerous benefits to ridesharing. Carpooling can reduce peak-period vehicle trips and increase commuters' travel choices. Further, it reduces congestion, road and parking facility costs and pollution emissions. Carpooling tends to have the lowest cost per passenger-mile of any

motorized mode of transportation since it makes use of a vehicle seat that would otherwise be empty. Carpooling also provides financial savings for the consumer by decreasing fuel and parking costs. Financial incentives can be an effective way to encourage employees to carpool. The tenant should provide a monetary incentive to employees who agree to carpool to work a minimum of 50 percent of the time. This program should be offered to all employees of the project.

Ridematching

The greatest barrier to workplace carpooling is often simply being able to identify and travel with other employees who live nearby. There are many services that can assist in pairing employees within the same organization or across organizations. The most basic publicly available service is 511.org's free ridematching service, *Merge*. There are also various private ridematching providers (e.g. Zimride, RideAmigos, Via, Scoop) that can effectively create carpool networks while making them safe and convenient for their users. Information on a variety of programs is offered through 511.org.

Recommendation: The tenant should market the *Merge* program to employees and assist on an as-needed basis with ridematching questions or concerns. A monetary incentive may also be offered to employees who carpool to and from work.

Vanpooling

Employer-provided vans can provide several advantages. Vans are defined as vehicles able to carry at least six adults and can reduce the cost of commuting for employees by removing the need for workers to put mileage on their own vehicles and, depending on the level of subsidy, they may not need to pay for gas. For tax purposes, employers may be able to deduct the costs of vans as a "qualified transportation fringe benefit."

Recommendation: The tenant should market the vanpool program to all employees. Identify which employees would be the most suitable to participate in vanpools based on their home locations and reach out directly to those employees to determine if vanpools of at least six persons each are feasible. If so, provide one or more fully subsidized vans for those employees with the condition that they must use it for their commute.

Priority Parking

An easy way of promoting ridesharing is to designate priority employee parking spaces for carpools and vanpools. The cost of this improvement is limited to the paint or sign used and can help market ridesharing as a priority in the organization.

Recommendation: Up to five parking spaces for rideshare vehicles should be designated on the plans for the project.

Electric Vehicle Charging Stations

While the provision of dedicated parking for Electric Vehicles (EVs) and charging stations do not result in trip or VMT reductions, they can help reduce the total GHG emissions of a project.

Recommendation: Electric vehicle parking stalls and charging stations consistent with California Green (Cal Green) building standards should be provided for each building.

Guaranteed Ride Home (GRH)

Guaranteed Ride Home (GRH) is a program that provides a "back-up" ride to employees who use transit, carpool, biking/walking, or other alternatives as their commute mode; in Napa County, it is provided by the NVTA via their V-Commute Program. If an employee who carpools to work, so does not have their own vehicle, needs to leave work for an emergency, such as a sick child or other unexpected need, they will be redeemed for up to four GRH

trips per calendar year. This is an important supportive measure to encourage employees to not drive alone to work and often goes as a welcome, but unused benefit.

Recommendation: The tenant should market the GRH program to employees and assist with sign-ups as needed.

Bicycle Benefits

Bicycle Parking and Maintenance Tools

The provision of both short-term and long-term bicycle parking is important. Secure long-term parking (e.g. bike lockers) is a critical component in encouraging employees to bike to work as the lack of secure parking is often cited by employees as a deterrent. Short-term parking (e.g. bike racks) can be used by employees or visitors.

In addition to providing bicycle parking, some businesses are now encouraging bicycle use by providing employees with the basic tools necessary to maintain their bicycles and on-site shower and clothes locker facilities. Often, these tools can be kept in bicycle storage areas and include simple items such as a bike pump and tire patches that are essential for bike travel, but also inexpensive.

Financial incentives can also be an effective way to encourage employees to ride a bicycle to reach the site. In addition to those who carpool, the applicant should provide a monetary incentive to employees who agree to walk or bicycle to work a minimum of 50 percent of the time.

Recommendation: The tenant should provide both short-term and long-term bicycle parking as well as basic bicycle maintenance tools and on-site shower facilities. Offer a monetary incentive to employees who walk or ride a bicycle to work.

Education, Outreach & Marketing

Welcome Packet for New Employees

New employees should be provided with a welcome packet containing relevant transportation information. The packet should include information on all available TDM measures as well as information from Vine Transit, the Napa County Bicycle Coalition and material regarding 511.org ride-matching services.

Monitor Performance

It is important to continually monitor the performance of a TDM program and adjust measures as necessary to ensure its success. The tenant should conduct mode split and vehicle miles traveled (VMT) surveys each year both to determine if adjustments are needed and to use as marketing material. Employee satisfaction surveys are also an effective way of ensuring a quality TDM program.

Transportation Coordinator

The presence of a staff person dedicated part-time to overseeing and managing the TDM program would be helpful in ensuring the ongoing success of these programs. This would not be a distinct position, but instead would be a role that is integrated into the duties of an on-site manager. The duties can include:

- Create and distribute resident transportation information welcome packets
- Maintain and update the transportation information kiosk board
- Distribute Napa Bicycle Coalition maps
- Monitor bicycle parking to ensure that there is sufficient space
- Assist in selling or distributing transit passes
- Market the TDM program and transit service
- Advertise the unbundled parking program

- Promote 511.org's ride-matching program

Recommendation: An on-site manager for each company occupying the buildings or a representative of the property management organization should be designated as the Transportation Coordinator and tasked with providing appropriate information to employees and both monitoring and tailoring the TDM program as necessary.

Summary of TDM Reductions

The expected VMT reductions associated with the various TDM measures were estimated based on information published in the California Air Pollution Officers Association (CAPCOA) report *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA, 2010, the location of the project site, and knowledge of transportation characteristics of the area. Packaged together as a required commute trip reduction program, the TDM strategies listed above are projected to result in a VMT reduction potential of 12.0 percent. The estimated VMT reduction calculations are summarized in Table 11.

Table 11 – Estimated Employee VMT Reduction

TDM Measure	VMT Reduction (%) Project Estimate
Ridesharing Program	8.5
Education, Outreach, and Marketing	4.0
Bicycle Benefits	Supportive
Emergency Ride Home	Supportive
Total Potential VMT Reduction [1]	**12.0**

Notes: VMT = vehicle miles travelled; TDM = transportation demand management

[1] The reductions shown consider the relative effectiveness of reductions when individual TDM strategies are paired with each other, which is not the sum of the individual measures.

Finding – Successful implementation of the TDM measures identified in this report, such as use of a ridesharing program, offering secure bicycle parking, and providing educational materials strategies, have the potential to reduce project-related travel by 12.0 percent.

Alternative Modes

Pedestrian Facilities

Given the nature of the study area and the surrounding industrial land use, it is reasonable to assume that very few project patrons and employees will desire to walk to reach the project site. There may, however, be a desire by employees to walk in the area for recreational purposes during break times or to reach nearby buildings. Upon completion of the project, sidewalks will be provided along Devlin Road between Green Island Road to South Kelly Road. The project also includes the construction of a multi-modal path along Green Island Road which would be available for use by pedestrians.

Finding – Pedestrian facilities serving the project site are adequate and would be further improved upon completion of the sidewalks along Delvin Road and the multi-modal path along Green Island Road.

Bicycle Facilities

Existing bicycle facilities, including Class II bike lanes on Devlin Road between Middleton Way and South Kelly Road together with shared use of minor streets provide adequate access for bicyclists. The project would include bicycle lanes along the Devlin Road extension and a multi-modal path along the north side of Green Island Road. The planned Class I and II bicycle facilities on South Kelly Road and Green Island Road, as well as the Napa Valley Vine Trail along Devlin Road, would improve bicycle connectivity near the project site.

Finding – Bicycle facilities serving the project site are adequate and would be further improved upon completion of the planned bicycle facilities in the study area.

Bicycle Storage

The project site plan does not identify the provision of bicycle parking or storage facilities.

Finding – The adequacy of the bicycle parking facilities at the site are deemed to be inconclusive since the current site plan does not include a sufficient level of detail.

Recommendation – Bicycle parking serving the project site should be designed to comply with City of American Canyon municipal code requirements and to support the TDM Plan for the project.

Transit

Existing stops are not within an acceptable walking distance of the site. Should an employee need to use transit, they could ride a bicycle along Devlin Road to the nearest transit stop at the intersection of Airport Boulevard/Devlin Road.

Finding – The lack of existing transit service within an acceptable walking distance of the project site is typical for such remote locations and is therefore considered acceptable, though employees could use a bicycle to reach nearby transit stops.

Access and Circulation

Site Access

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on the future extension of Devlin Road. Access to Phase 2 is anticipated to be provided via numerous full access driveways with connections to the Devlin Road extension. All driveways and internal roadways would be designed to current City standards to accommodate heavy vehicles and so can be expected to accommodate the access requirements for both emergency and passenger vehicles.

Sight Distance

A substantially clear line of sight should be maintained between the driver of a vehicle waiting at a driveway and the driver of an approaching vehicle. Sight distances along Green Island Road from the project driveways were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for driveway approaches is based on stopping sight distance using the approach travel speed as the basis for determining the recommended sight distance. Based on the posted speed limit of 40 mph, the minimum stopping sight distance required is 300 feet; a review in the field shows that sight distances at the project driveway locations on Green Island Road would be adequate, provided any vegetation or buildings are sited to ensure maintenance of adequate sight lines. The sight lines for driveways on the Devlin Road connection are expected to be adequate based on a review of the site plans.

Finding – Adequate sight distance would be available at each driveway to accommodate all turns leaving the site. To maintain minimum sight distance standards, it is recommended that vegetation along Green Island Road and the Devlin Road extension be trimmed and maintained by the property management firm.

Parking

The *City of American Canyon Municipal Code, Chapter 19.21.030; Vehicle parking requirements*, states that warehousing and storage projects are required to provide one parking space per 1,000 square feet of gross floor area for the first 20,000 square feet of space, plus one parking space per each 2,000 square feet of gross floor area thereafter. Phase 1 of the project includes two buildings totaling 1,069,904 square feet of warehouse space with 858 parking spaces (428 at Building A and 430 at Building B). The site plan for Phase 2 is currently under development and the size and arrangement of the buildings as well as the specific number of parking spaces has not yet been established. Assuming a conservative total project size of 2,400,000 square feet, Phase 2 would be comprised of approximately 1,330,100 square feet of warehouse. Based on these parameters, the project would be required to provide a total of 1,230 parking spaces (555 with Phase 1 and 675 with Phase 2). Phase 1 of the project as proposed would provide 858 parking spaces, which is greater than the City requirement for that portion of the project and represents a 303-parking space surplus. A summary of the City parking requirements and proposed supply is provided in Table 12.

Table 12 – Parking Analysis Summary

Land Use	Units (ksf)	Supply (Parking Spaces)	City Code Requirements	
			Rate	Parking Spaces Required
Warehousing and Storage (Phase 1 – Building A)	601.4	428	1 per 1,000 square feet for the first 20,000 square feet, plus 1 per 2,000 square feet thereafter	311
Warehousing and Storage (Phase 1 – Building B)	468.5	430		244
Warehousing and Storage (Phase 2)	1,330.1	TBD		675
Total	2,400.0	TBD		1,230

Notes: ksf = 1,000 square feet; TBD = To Be Determined;

Finding – Based upon City requirements and a maximum project size of 2.4 million square feet, the project would be required to provide 1,230 parking spaces.

CEQA Checklist

This section details discussion and results of the analysis of issues identified in the CEQA checklist for potential transportation/traffic impacts. The results are contained in Table 13 below and a discussion of each criterion follows.

Table 13 – XVII. TRANSPORTATION/TRAFFIC

Would the Project:	Potentially Significant Impact	Less than Significant Impact with Mitigation	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

Discussion of Results

a. Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

According to the *City of American Canyon General Plan*, numerous objectives, policies, and programs have been established supporting the need for all modes of travel to be accommodated by the transportation system. This is demonstrated through the following General Plan Guiding Policies.

- **Policy 1.6 Achieve and maintain a Multimodal LOS D or better for roadways and intersections during peak hours where possible and as long as possible.** The locations that may not achieve or maintain LOS D are as follows and will be exempt from the LOS D policy: State Route 29 through the City, American Canyon Road from SR 29 to Flosden Road-Newell Drive, and Flosden Road south of American Canyon Road.
- **Policy 1.9 Use of existing facilities.** Make efficient use of existing transportation facilities and improve these facilities as necessary in accordance with the Circulation Map.
- **Policy 1.11 Reduce Vehicle Miles Traveled.** Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce the total vehicle miles traveled by City residents.
- **Policy 2.1 Promote walking and bicycling.** Promote walking and bike riding for transportation,
- recreation, and improvement of public and environmental health.
- **Policy 3.1 Promote safe, efficient, and convenient public transportation.** Promote the use of public transportation for daily trips, including to schools and workplaces, as well as other purposes.

Roadway Facilities

The proposed project would not cause any study intersections to which it applies to operate below the City's standard of LOS D. The project's roadway impacts would therefore be less-than-significant, and no mitigation measures are required. It should be noted that while SR 29/South Kelly Road would operate at LOS F under Future Conditions without or with the project, this intersection is exempt from the City's LOS standard and Caltrans no longer has an operational standard.

Pedestrian Facilities

The proposed project would provide pedestrian connectivity infrastructure on-site as well as sidewalks along Devlin Road. With these improvements, pedestrian impacts would be reduced to less-than-significant.

Bicycle Facilities

Shared use of minor streets combined with the Class II facility on Devlin Road provides adequate access for bicyclists. Therefore, bicycle impacts would be less-than-significant.

Transit Facilities

The Valley Intercity Neighborhood Express (VINE) Transit provides fixed route bus service in American Canyon. VINE does not currently serve any bus stops within an acceptable walking distance of the site. Should an employee wish to use transit, they could ride a bicycle along Devlin Road to the nearest transit stop north of the project at Airport Boulevard. The lack of transit service within an acceptable walking distance of the project is typical within this area and would therefore be considered a less-than-significant impact.

b. Would the Project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

CEQA Guidelines §15064.3, Subdivision (b) indicates that land use projects would have a significant impact if the project resulted in vehicle miles traveled (VMT) exceeding an applicable threshold of significance. It further notes that if existing models or methods are not available to estimate the VMT for the project being considered, a lead agency may analyze the project's VMT qualitatively. The City of American Canyon currently has no thresholds of significance related to VMT, and as of the date of the analysis, a regional travel demand model for Napa County is under development but not yet available for VMT analysis. The project was assessed quantitatively using the Statewide Travel Demand Model and determined to have a less-than-significant VMT impact.

c. Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

As part of the project, a new segment of Devlin Road would be constructed resulting in a continuous section of roadway running between South Kelly Road and Green Island Road. The project itself as well as the new segment of roadway would be designed and constructed to meet currently applicable codes and requirements, so would not be expected to result in any increased hazards. Project driveways would be expected to have adequate sight lines. The project is therefore expected to have a less-than-significant impact regarding geometric design features or incompatible uses.

d. Would the Project result in inadequate emergency access?

The project site would have adequate emergency access and would improve emergency access and response times to the area near Devlin Road with the provision of a new street connection; therefore, the project would result in a less-than-significant and in fact beneficial impact related to emergency access.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 3,888 passenger-car equivalent trips per day, including 240 trips during the weekday a.m. peak hour and 264 during the p.m. peak hour.
- Under Existing Conditions all study intersections operate acceptably, and they are expected to continue doing so upon the addition of project-related traffic.
- Under anticipated Future volumes the unsignalized study intersections are expected to operate acceptably without or with the addition of project-related traffic. SR 29/South Kelly Road would operate at LOS F either without or with project traffic, which was considered acceptable since SR 29 is exempt from the City's LOS policy.
- The proposed project would have a less-than-significant transportation impact on vehicle miles traveled. Successful operation of the recommended Transportation Demand Management Plan is expected to further lower project-related VMT.
- Pedestrian access would be adequate upon completion of the sidewalks and trail that are part of the proposed project.
- The shared use of minor streets along with the planned facilities outlined in the Napa Countywide Bicycle Plan would provide adequate access for bicyclists, though the project site plan does not identify the provision of bicycle parking.
- The lack of existing transit service within an acceptable walking distance of the project site is typical for this location and is therefore considered acceptable, though employees could use a bicycle to reach nearby transit stops.
- The project's driveways and internal roadways should be designed to current City standards and are therefore expected to accommodate the access requirements for both emergency and passenger vehicles.
- Although sight lines at the project driveways are or would be adequate for the approach speeds, it is recommended that vegetation be trimmed and maintained along Green Island Road and the Devlin Road extension to maintain the minimum sight distance requirements.
- Based upon City requirements, the project is required to provide 1,230 parking spaces.

Recommendations

- As required by the City in their Traffic Impact Fee Program, the project should pay a fee toward the cost of the planned future improvements to SR 29.
- Landscaping, buildings, and signage along the project frontage should be sited to ensure that adequate sight lines are maintained.
- The project should incorporate TDM measures such as a ridesharing program, offering secure bicycle parking, and educational materials to further reduce their carbon footprint.
- Secure bicycle storage should be provided, if not already planned as part of on-site amenities.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Traffic Engineer	Kenny Jeong, PE
Assistant Engineer	Kimberly Tellez
Graphics	Cameron Wong
Editing/Formatting	Hannah Yung-Boxdell, Cameron Wong
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Giovannoni Logistics Center TIS

Intersection # 1: SR 29 & South Kelly Road
Date of Count: Wednesday, May 29, 2019

Number of Collisions: 48
Number of Injuries: 23
Number of Fatalities: 1
Average Daily Traffic (ADT): 31900
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{48 \times 1{,}000{,}000}{31{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.82 c/mve**	**2.1%**	**47.9%**
Statewide Average*	**0.58 c/mve**	**1.0%**	**38.0%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 2: Devlin Road & South Kelly Road
Date of Count: Tuesday, November 05, 2019

Number of Collisions: 2
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 3400
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{2 \times 1{,}000{,}000}{3{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.32 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.55 c/mve**	**0.8%**	**33.2%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Giovannoni Logistics Center TIS

Intersection # 4: Green Island Road & Paoli Loop Road
Date of Count: Thursday, February 21, 2019

Number of Collisions: 2
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 5600
Start Date: October 1, 2015
End Date: September 30, 2020
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{2 \times 1{,}000{,}000}{5{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.20 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.16 c/mve**	**1.8%**	**39.5%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Appendix B

Traffic Count Data

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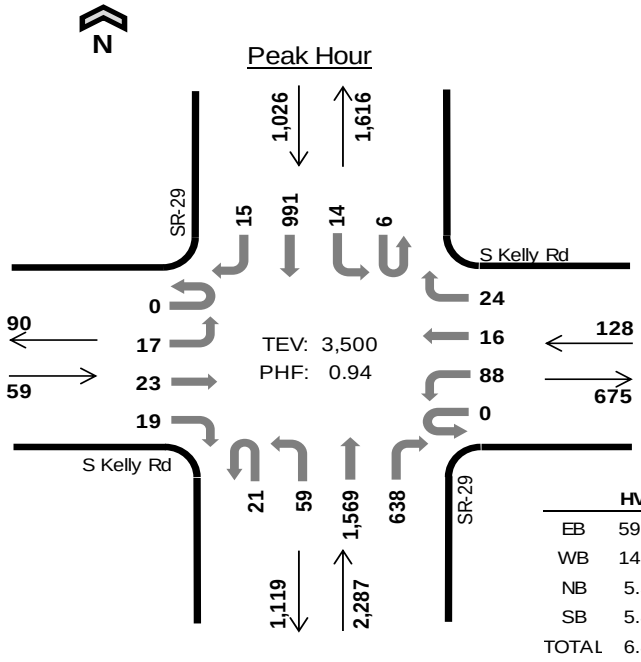
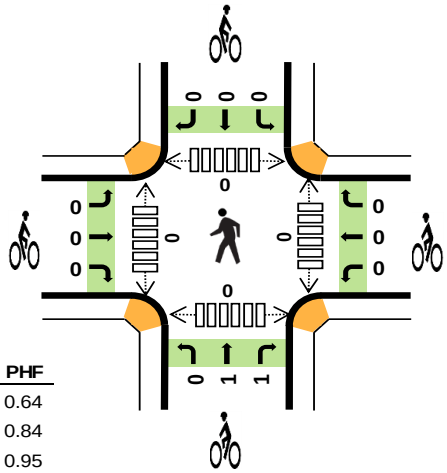
SR-29
S Kelly Rd



Date: 05-29-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	59.3%	0.64
WB	14.8%	0.84
NB	5.5%	0.95
SB	5.8%	0.91
TOTAL	6.8%	0.94

Two-Hour Count Summaries

Interval Start		S Kelly Rd Eastbound				S Kelly Rd Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**7**	**2**	**7**	**0**	**21**	**4**	**3**	**9**	**7**	**420**	**125**	**2**	**4**	**232**	**2**	**845**	0
7:15 AM		**0**	**2**	**3**	**5**	**0**	**27**	**6**	**0**	**2**	**13**	**393**	**192**	**2**	**5**	**271**	**5**	**926**	0
7:30 AM		**0**	**1**	**8**	**1**	**0**	**18**	**4**	**7**	**6**	**19**	**399**	**179**	**1**	**4**	**241**	**6**	**894**	0
7:45 AM		**0**	**7**	**10**	**6**	**0**	**22**	**2**	**14**	**4**	**20**	**357**	**142**	**1**	**1**	**247**	**2**	**835**	**3,500**
8:00 AM		0	7	8	3	0	17	2	1	2	13	370	118	2	0	262	2	807	3,462
8:15 AM		0	12	6	12	0	16	7	0	3	13	328	114	3	1	234	5	754	3,290
8:30 AM		0	8	6	10	0	15	7	0	8	11	349	78	5	6	250	8	761	3,157
8:45 AM		0	7	8	18	0	14	4	1	3	15	300	78	3	1	216	6	674	2,996
Count Total		0	51	51	62	0	150	36	26	37	111	2,916	1,026	19	22	1,953	36	6,496	0
Peak Hour	**All**	**0**	**17**	**23**	**19**	**0**	**88**	**16**	**24**	**21**	**59**	**1,569**	**638**	**6**	**14**	**991**	**15**	**3,500**	**0**
	HV	**0**	**11**	**16**	**8**	**0**	**10**	**7**	**2**	**1**	**17**	**85**	**22**	**0**	**2**	**53**	**4**	**238**	**0**
	HV%	**-**	**65%**	**70%**	**42%**	**-**	**11%**	**44%**	**8%**	**5%**	**29%**	**5%**	**3%**	**0%**	**14%**	**5%**	**27%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**8**	**8**	**37**	**18**	***71***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**5**	**6**	**30**	**14**	***55***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**7**	**2**	**29**	**12**	***50***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**15**	**3**	**29**	**15**	***62***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***
8:00 AM	11	6	31	15	*63*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	12	6	36	20	*74*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	11	7	29	25	*72*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	14	8	36	25	*83*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	83	46	257	144	*530*	0	0	2	0	*2*	0	0	0	0	*0*
Peak Hour	**35**	**19**	**125**	**59**	***238***	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	S Kelly Rd Eastbound				S Kelly Rd Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**4**	**2**	**2**	**0**	**4**	**2**	**2**	**0**	**4**	**29**	**4**	**0**	**1**	**17**	**0**	**71**	0
7:15 AM	**0**	**1**	**3**	**1**	**0**	**3**	**3**	**0**	**0**	**3**	**20**	**7**	**0**	**0**	**13**	**1**	**55**	0
7:30 AM	**0**	**0**	**7**	**0**	**0**	**1**	**1**	**0**	**1**	**7**	**16**	**5**	**0**	**0**	**10**	**2**	**50**	0
7:45 AM	**0**	**6**	**4**	**5**	**0**	**2**	**1**	**0**	**0**	**3**	**20**	**6**	**0**	**1**	**13**	**1**	**62**	**238**
8:00 AM	0	4	5	2	0	4	2	0	0	4	20	7	0	0	15	0	63	230
8:15 AM	0	3	4	5	0	3	3	0	1	6	23	6	0	1	17	2	74	249
8:30 AM	0	3	4	4	0	2	5	0	1	4	15	9	0	1	21	3	72	271
8:45 AM	0	1	6	7	0	6	2	0	0	5	28	3	1	0	20	4	83	292
Count Total	0	22	35	26	0	25	19	2	3	36	171	47	1	4	126	13	530	0
Peak Hour	**0**	**11**	**16**	**8**	**0**	**10**	**7**	**2**	**1**	**17**	**85**	**22**	**0**	**2**	**53**	**4**	**238**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	S Kelly Rd Eastbound			S Kelly Rd Westbound			SR-29 Northbound			SR-29 Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**2**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	1	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**

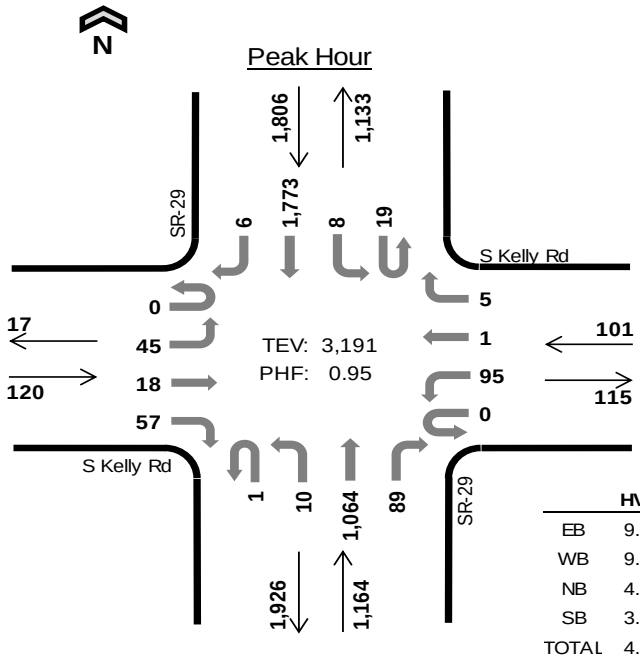
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Two-Hour Count Summaries - RToR

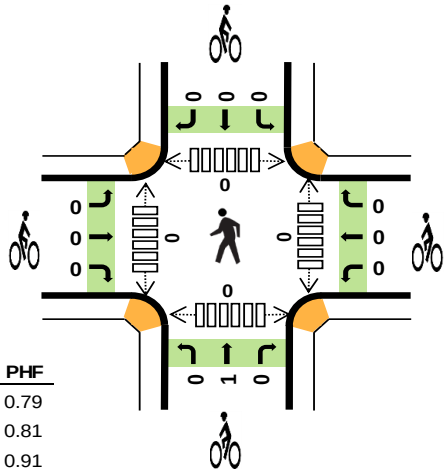
Interval Start	S Kelly Rd Eastbound			S Kelly Rd Westbound			SR-29 Northbound			SR-29 Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**-**	**-**	**1**	**-**	**-**	**6**	**-**	**-**	**0**	**-**	**-**	**17**	**24**	0
7:15 AM	**-**	**-**	**0**	**-**	**-**	**5**	**-**	**-**	**1**	**-**	**-**	**29**	**35**	0
7:30 AM	**-**	**-**	**5**	**-**	**-**	**1**	**-**	**-**	**0**	**-**	**-**	**27**	**33**	0
7:45 AM	**-**	**-**	**9**	**-**	**-**	**2**	**-**	**-**	**0**	**-**	**-**	**10**	**21**	**113**
8:00 AM	-	-	1	-	-	1	-	-	1	-	-	13	16	105
8:15 AM	-	-	0	-	-	8	-	-	1	-	-	22	31	101
8:30 AM	-	-	0	-	-	7	-	-	2	-	-	15	24	92
8:45 AM	-	-	1	-	-	12	-	-	2	-	-	13	28	99
Count Total	-	-	17	-	-	42	-	-	7	-	-	146	212	
Peak Total	**-**	**-**	**15**	**-**	**-**	**14**	**-**	**-**	**1**	**-**	**-**	**83**	**113**	

Interval Start	S Kelly Rd Eastbound			S Kelly Rd Westbound			SR-29 Northbound			SR-29 Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	-	-	-	-	-	-	-	-	-	-	-	-	-	
Peak Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

SR-29
S Kelly Rd



Date: 05-29-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	9.2%	0.79
WB	9.9%	0.81
NB	4.1%	0.91
SB	3.4%	0.94
TOTAL	4.1%	0.95

Two-Hour Count Summaries

Interval Start		S Kelly Rd Eastbound				S Kelly Rd Westbound				SR-29 Northbound				SR-29 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**18**	**6**	**14**	**0**	**19**	**0**	**3**	**1**	**1**	**284**	**35**	**11**	**3**	**399**	**1**	**795**	0
4:15 PM		**0**	**9**	**6**	**18**	**0**	**23**	**0**	**1**	**0**	**4**	**262**	**15**	**5**	**2**	**437**	**1**	**783**	0
4:30 PM		**0**	**7**	**5**	**16**	**0**	**23**	**0**	**1**	**0**	**4**	**276**	**25**	**1**	**2**	**474**	**2**	**836**	0
4:45 PM		**0**	**11**	**1**	**9**	**0**	**30**	**1**	**0**	**0**	**1**	**242**	**14**	**2**	**1**	**463**	**2**	**777**	**3,191**
5:00 PM		0	9	1	8	0	22	0	0	2	2	262	12	2	2	444	0	766	3,162
5:15 PM		0	3	8	5	0	21	0	0	1	2	262	15	3	1	471	0	792	3,171
5:30 PM		0	6	2	6	0	33	1	0	1	1	243	20	7	4	504	0	828	3,163
5:45 PM		0	3	0	3	0	16	0	1	0	6	220	14	0	2	459	0	724	3,110
Count Total		0	66	29	79	0	187	2	6	5	21	2,051	150	31	17	3,651	6	6,301	0
Peak Hour	**All**	**0**	**45**	**18**	**57**	**0**	**95**	**1**	**5**	**1**	**10**	**1,064**	**89**	**19**	**8**	**1,773**	**6**	**3,191**	**0**
	HV	**0**	**2**	**2**	**7**	**0**	**9**	**1**	**0**	**0**	**4**	**38**	**6**	**1**	**2**	**57**	**1**	**130**	**0**
	HV%	**-**	**4%**	**11%**	**12%**	**-**	**9%**	**100%**	**0%**	**0%**	**40%**	**4%**	**7%**	**5%**	**25%**	**3%**	**17%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**3**	**2**	**18**	**15**	***38***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**3**	**3**	**15**	**12**	***33***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**2**	**2**	**10**	**16**	***30***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**3**	**3**	**5**	**18**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	2	3	4	13	*22*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	0	7	20	*28*	0	0	0	1	*1*	0	0	0	0	*0*
5:30 PM	0	2	9	2	*13*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	1	6	8	*15*	0	0	2	1	*3*	0	0	0	0	*0*
Count Total	14	16	74	104	*208*	0	0	3	2	*5*	0	0	0	0	*0*
Peak Hour	**11**	**10**	**48**	**61**	***130***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	S Kelly Rd				S Kelly Rd				SR-29				SR-29				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**1**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**16**	**2**	**0**	**0**	**14**	**1**	**38**	0
4:15 PM	**0**	**1**	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**2**	**11**	**2**	**1**	**0**	**11**	**0**	**33**	0
4:30 PM	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**2**	**6**	**2**	**0**	**1**	**15**	**0**	**30**	0
4:45 PM	**0**	**0**	**0**	**3**	**0**	**2**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**1**	**17**	**0**	**29**	**130**
5:00 PM	0	2	0	0	0	3	0	0	0	1	2	1	0	1	12	0	22	114
5:15 PM	0	0	0	1	0	0	0	0	0	0	5	2	0	0	20	0	28	109
5:30 PM	0	0	0	0	0	2	0	0	0	0	8	1	0	0	2	0	13	92
5:45 PM	0	0	0	0	0	1	0	0	0	3	3	0	0	0	8	0	15	78
Count Total	0	4	2	8	0	15	1	0	0	8	56	10	1	3	99	1	208	0
Peak Hour	**0**	**2**	**2**	**7**	**0**	**9**	**1**	**0**	**0**	**4**	**38**	**6**	**1**	**2**	**57**	**1**	**130**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	S Kelly Rd			S Kelly Rd			SR-29			SR-29			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	2	0	0	1	3	4
Count Total	0	0	0	0	0	0	0	1	2	0	1	1	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Two-Hour Count Summaries - RToR

Interval Start	S Kelly Rd			S Kelly Rd			SR-29			SR-29			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**-**	**-**	**3**	**-**	**-**	**11**	**-**	**-**	**0**	**-**	**-**	**9**	**23**	0
4:15 PM	**-**	**-**	**1**	**-**	**-**	**11**	**-**	**-**	**0**	**-**	**-**	**3**	**15**	0
4:30 PM	**-**	**-**	**0**	**-**	**-**	**7**	**-**	**-**	**0**	**-**	**-**	**1**	**8**	0
4:45 PM	**-**	**-**	**0**	**-**	**-**	**4**	**-**	**-**	**0**	**-**	**-**	**3**	**7**	**53**
5:00 PM	-	-	0	-	-	2	-	-	0	-	-	0	2	32
5:15 PM	-	-	0	-	-	4	-	-	0	-	-	5	9	26
5:30 PM	-	-	0	-	-	4	-	-	0	-	-	2	6	24
5:45 PM	-	-	0	-	-	1	-	-	0	-	-	3	4	21
Count Total	-	-	4	-	-	44	-	-	0	-	-	26	74	
Peak Total	**-**	**-**	**4**	**-**	**-**	**33**	**-**	**-**	**0**	**-**	**-**	**16**	**53**	

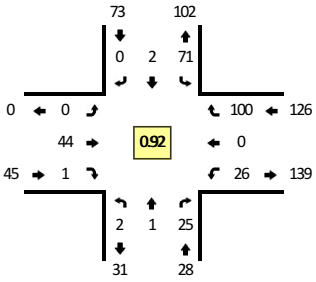
Two-Hour Count Summaries - Initial Queue

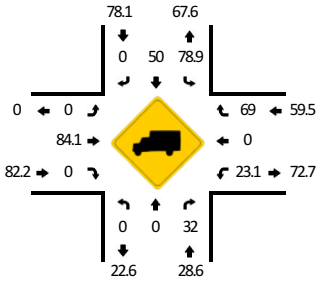
Interval Start	S Kelly Rd			S Kelly Rd			SR-29			SR-29			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	-	10	-	-	-	-	-	-	-	-	-	-	10	
Peak Total	**-**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**	

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

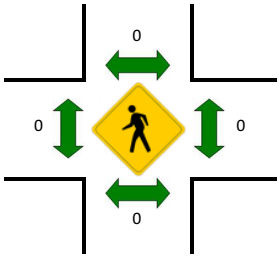
LOCATION: Devlin Rd -- S Kelly Rd | **QC JOB #:** 15107125
CITY/STATE: Napa, CA | **DATE:** Tue, Nov 5 2019

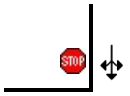
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

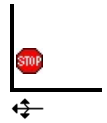


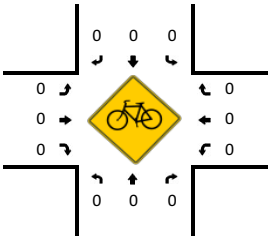


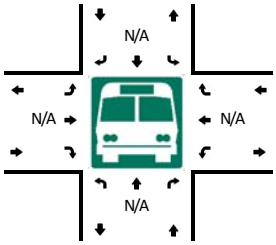
Quality Counts
DATA THAT DRIVES COMMUNITIES

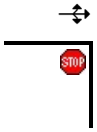


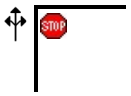


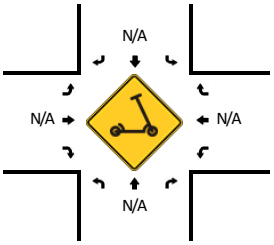












R* = RTOR

15-Min Count Period Beginning At	Devlin Rd (Northbound)					Devlin Rd (Southbound)					S Kelly Rd (Eastbound)					S Kelly Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
6:00 AM	0	0	0	0	0	15	0	0	1	0	0	1	0	0	0	11	0	18	0	0	46	
6:15 AM	0	0	0	0	0	13	0	0	0	0	1	10	0	0	0	15	0	8	0	0	47	
6:30 AM	0	0	2	0	0	7	0	0	0	0	1	3	1	0	0	15	0	19	0	0	48	
6:45 AM	0	1	1	0	0	3	1	0	1	0	0	6	0	0	0	8	0	18	0	0	39	180
7:00 AM	0	0	2	0	0	8	0	0	0	0	0	4	0	0	0	5	0	10	0	0	29	163
7:15 AM	0	0	0	0	0	15	0	0	0	0	1	7	0	0	0	6	0	20	0	0	49	165
7:30 AM	0	0	3	0	0	20	0	0	0	0	0	6	0	0	0	8	0	22	0	0	59	176
7:45 AM	0	0	1	0	0	7	0	0	0	0	1	7	0	0	0	12	0	17	0	0	45	182
8:00 AM	0	0	1	1	0	15	0	0	0	0	0	6	0	0	0	9	0	34	0	0	66	219
8:15 AM	0	0	5	0	0	16	0	0	0	0	0	11	0	0	0	8	0	19	0	0	59	229
8:30 AM	0	0	10	0	0	17	2	0	1	0	0	14	1	0	0	4	0	24	0	0	73	243
8:45 AM	0	1	9	1	0	22	0	0	0	0	0	13	0	0	0	5	0	23	0	0	74	272

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	4	36	4	0	88	0	0	0	0	0	52	0	0	0	20	0	92	0	0	296
Heavy Trucks	0	0	12			72	0	0			0	44	0			0	0	48			176
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

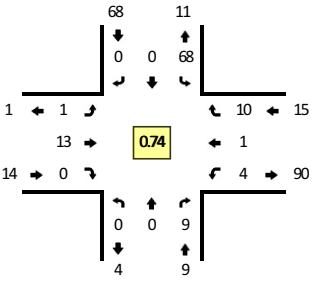
Report generated on 1/19/2021 7:43 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

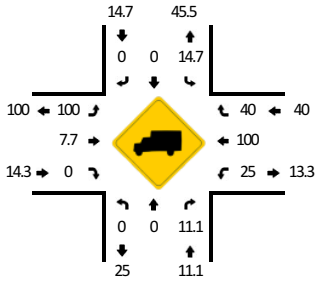
1740

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

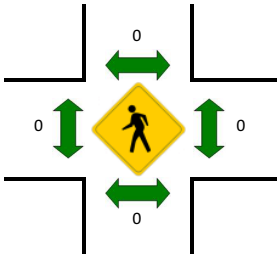
LOCATION: Devlin Rd -- S Kelly Rd | **QC JOB #:** 15107126
CITY/STATE: Napa, CA | **DATE:** Tue, Nov 5 2019

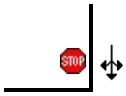
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

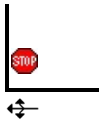


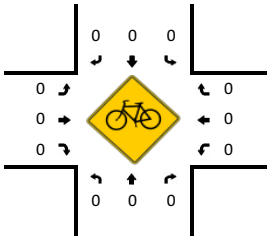


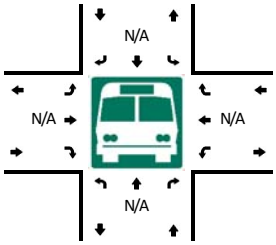
Quality Counts
DATA THAT DRIVES COMMUNITIES

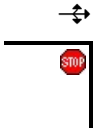


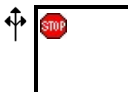


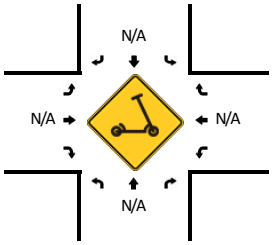












R* = RTOR

15-Min Count Period Beginning At	Devlin Rd (Northbound)					Devlin Rd (Southbound)					S Kelly Rd (Eastbound)					S Kelly Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	2	0	0	21	0	0	0	0	1	5	0	0	0	0	1	6	0	0	36	
4:15 PM	0	0	2	0	0	18	0	0	0	0	0	2	0	0	0	1	0	3	0	0	26	
4:30 PM	0	0	4	0	0	17	0	0	0	0	0	3	0	0	0	2	0	0	0	0	26	
4:45 PM	0	0	1	0	0	12	0	0	0	0	0	3	0	0	0	1	0	1	0	0	18	106
5:00 PM	0	1	10	0	0	10	1	0	1	0	0	3	0	0	0	1	0	2	1	0	30	100
5:15 PM	0	0	3	0	0	15	0	0	0	0	0	1	0	0	0	5	0	2	0	0	26	100
5:30 PM	0	0	2	0	0	9	0	0	0	0	0	0	0	0	0	7	0	1	0	0	19	93
5:45 PM	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	5	80
6:00 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	54
6:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	31
6:30 PM	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	18
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	16

Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	
All Vehicles	0	0	8	0	0	84	0	0	0	0	4	20	0	0	0	0	4	24	0	0	144
Heavy Trucks	0	0	0			12	0	0			4	4	0			0	4	8			32
Buses																					
Pedestrians		0					0					0					0				0
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0
Scooters																					

Comments:

Report generated on 1/19/2021 7:43 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

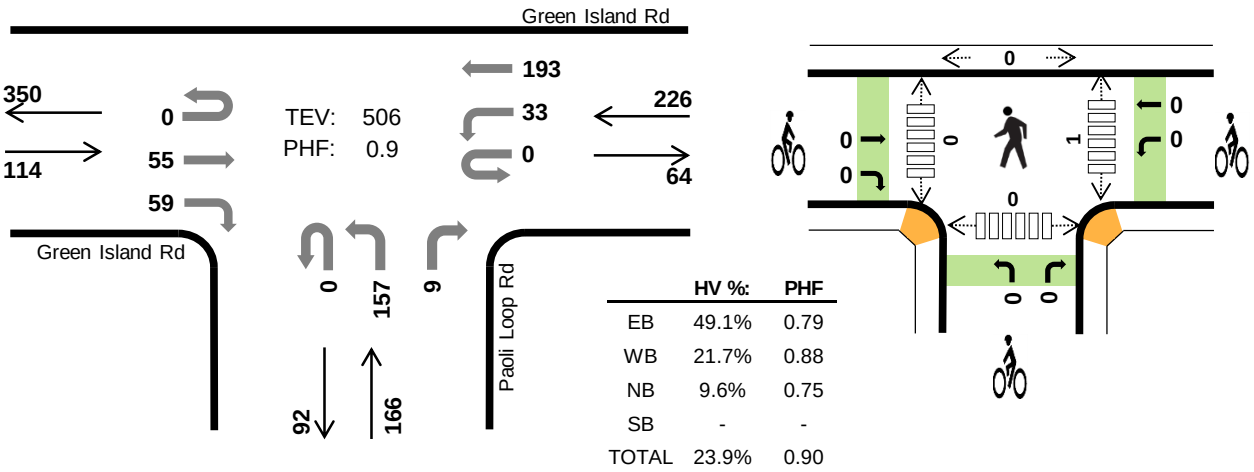
1741

Paoli Loop Rd
Green Island Rd

N

Peak Hour

Date: 02-21-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



Two-Hour Count Summaries

Interval Start		Green Island Rd Eastbound				Green Island Rd Westbound				Paoli Loop Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	24	17	0	9	38	0	0	31	0	2	0	0	0	0	121	0
7:15 AM		0	0	13	18	0	6	38	0	0	25	0	2	0	0	0	0	102	0
7:30 AM		0	0	10	13	0	9	35	0	0	45	0	0	0	0	0	0	112	0
7:45 AM		**0**	**0**	**11**	**10**	**0**	**12**	**52**	**0**	**0**	**53**	**0**	**2**	**0**	**0**	**0**	**0**	**140**	475
8:00 AM		**0**	**0**	**13**	**12**	**0**	**8**	**49**	**0**	**0**	**35**	**0**	**0**	**0**	**0**	**0**	**0**	**117**	471
8:15 AM		**0**	**0**	**15**	**21**	**0**	**9**	**49**	**0**	**0**	**29**	**0**	**3**	**0**	**0**	**0**	**0**	**126**	495
8:30 AM		**0**	**0**	**16**	**16**	**0**	**4**	**43**	**0**	**0**	**40**	**0**	**4**	**0**	**0**	**0**	**0**	**123**	**506**
8:45 AM		0	0	9	12	0	10	33	0	0	26	0	4	0	0	0	0	94	460
Count Total		0	0	111	119	0	67	337	0	0	284	0	17	0	0	0	0	935	0
Peak Hour	**All**	**0**	**0**	**55**	**59**	**0**	**33**	**193**	**0**	**0**	**157**	**0**	**9**	**0**	**0**	**0**	**0**	**506**	**0**
	HV	**0**	**0**	**18**	**38**	**0**	**7**	**42**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**121**	**0**
	HV%	**-**	**-**	**33%**	**64%**	**-**	**21%**	**22%**	**-**	**-**	**10%**	**-**	**0%**	**-**	**-**	**-**	**-**	**24%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	10	5	1	0	*16*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	13	10	3	0	*26*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	13	11	4	0	*28*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	**8**	**9**	**0**	**0**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**13**	**17**	**6**	**0**	***36***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**17**	**12**	**7**	**0**	***36***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**18**	**11**	**3**	**0**	***32***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***
8:45 AM	12	10	3	0	*25*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	104	85	27	0	*216*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hr	**56**	**49**	**16**	**0**	***121***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Green Island Rd				Green Island Rd				Paoli Loop Rd				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	8	0	0	5	0	0	0	0	1	0	0	0	0	16	0
7:15 AM	0	0	2	11	0	1	9	0	0	1	0	2	0	0	0	0	26	0
7:30 AM	0	0	5	8	0	1	10	0	0	4	0	0	0	0	0	0	28	0
7:45 AM	**0**	**0**	**0**	**8**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	87
8:00 AM	**0**	**0**	**5**	**8**	**0**	**1**	**16**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**36**	107
8:15 AM	**0**	**0**	**5**	**12**	**0**	**3**	**9**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**36**	117
8:30 AM	**0**	**0**	**8**	**10**	**0**	**1**	**10**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**121**
8:45 AM	0	0	5	7	0	4	6	0	0	2	0	1	0	0	0	0	25	129
Count Total	0	0	32	72	0	13	72	0	0	23	0	4	0	0	0	0	216	0
Peak Hour	**0**	**0**	**18**	**38**	**0**	**7**	**42**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**121**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Green Island Rd			Green Island Rd			Paoli Loop Rd			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

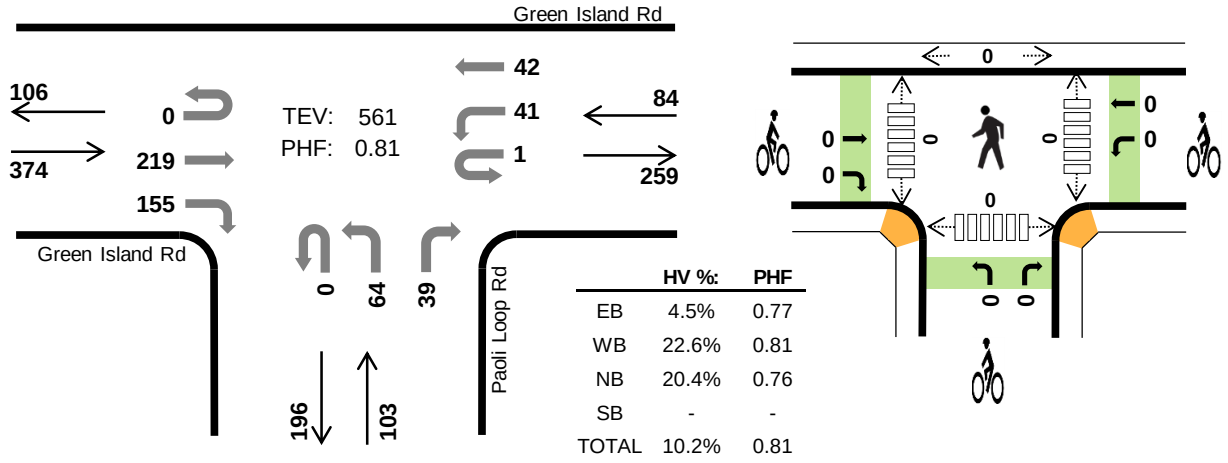
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Paoli Loop Rd
Green Island Rd

N

Peak Hour

Date: 02-21-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



Two-Hour Count Summaries

Interval Start	Green Island Rd Eastbound				Green Island Rd Westbound				Paoli Loop Rd Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**49**	**43**	**1**	**10**	**11**	**0**	**0**	**20**	**0**	**6**	**0**	**0**	**0**	**0**	**140**	0
4:15 PM	**0**	**0**	**55**	**39**	**0**	**7**	**12**	**0**	**0**	**11**	**0**	**7**	**0**	**0**	**0**	**0**	**131**	0
4:30 PM	**0**	**0**	**80**	**42**	**0**	**11**	**6**	**0**	**0**	**16**	**0**	**18**	**0**	**0**	**0**	**0**	**173**	0
4:45 PM	**0**	**0**	**35**	**31**	**0**	**13**	**13**	**0**	**0**	**17**	**0**	**8**	**0**	**0**	**0**	**0**	**117**	**561**
5:00 PM	0	0	46	31	0	8	6	0	0	14	0	6	0	0	0	0	111	532
5:15 PM	0	0	17	14	0	4	9	0	0	6	0	6	0	0	0	0	56	457
5:30 PM	0	0	38	23	0	8	6	0	0	10	0	6	0	0	0	0	91	375
5:45 PM	0	0	32	11	0	4	10	0	0	8	0	1	0	0	0	0	66	324
Count Total	0	0	352	234	1	65	73	0	0	102	0	58	0	0	0	0	885	0
Peak Hour All	**0**	**0**	**219**	**155**	**1**	**41**	**42**	**0**	**0**	**64**	**0**	**39**	**0**	**0**	**0**	**0**	**561**	**0**
Peak Hour HV	**0**	**0**	**6**	**11**	**0**	**4**	**15**	**0**	**0**	**20**	**0**	**1**	**0**	**0**	**0**	**0**	**57**	**0**
Peak Hour HV%	**-**	**-**	**3%**	**7%**	**0%**	**10%**	**36%**	**-**	**-**	**31%**	**-**	**3%**	**-**	**-**	**-**	**-**	**10%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**5**	**5**	**8**	**0**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**4**	**8**	**2**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**6**	**1**	**5**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**2**	**5**	**6**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	5	4	2	0	*11*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	3	3	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	5	4	2	0	*11*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	4	4	1	0	*9*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	32	34	29	0	*95*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**17**	**19**	**21**	**0**	***57***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Green Island Rd				Green Island Rd				Paoli Loop Rd				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**2**	**3**	**0**	**0**	**5**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	0
4:15 PM	**0**	**0**	**2**	**2**	**0**	**3**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	0
4:30 PM	**0**	**0**	**2**	**4**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**0**	**0**	**12**	0
4:45 PM	**0**	**0**	**0**	**2**	**0**	**0**	**5**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**57**
5:00 PM	0	0	3	2	0	0	4	0	0	2	0	0	0	0	0	0	11	50
5:15 PM	0	0	1	0	0	0	3	0	0	3	0	0	0	0	0	0	7	43
5:30 PM	0	0	2	3	0	1	3	0	0	2	0	0	0	0	0	0	11	42
5:45 PM	0	0	1	3	0	0	4	0	0	1	0	0	0	0	0	0	9	38
Count Total	0	0	13	19	0	5	29	0	0	28	0	1	0	0	0	0	95	0
Peak Hour	**0**	**0**	**6**	**11**	**0**	**4**	**15**	**0**	**0**	**20**	**0**	**1**	**0**	**0**	**0**	**0**	**57**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Green Island Rd			Green Island Rd			Paoli Loop Rd			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Tuesday
Date: 6/22/2021

City: American Canyon
Project #: CA21_080110_001n

North Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	0	0	0	0	1	0	0	0	0	3
05:00	0	1	0	0	0	1	0	0	0	0	0	0	0	2
06:00	0	3	1	0	2	2	0	0	2	0	0	0	0	10
07:00	0	1	3	1	1	0	0	0	4	0	0	0	0	10
08:00	0	4	8	1	7	0	0	0	1	0	0	0	0	21
09:00	0	3	15	1	8	0	0	0	3	0	0	0	0	30
10:00	0	7	7	0	4	0	0	1	5	0	0	0	0	24
11:00	0	8	7	0	2	0	0	0	3	0	0	0	0	20
12:00 PM	1	53	11	0	0	0	0	0	4	0	0	0	0	69
13:00	0	9	14	0	2	0	0	0	0	0	0	0	0	25
14:00	0	15	12	0	2	1	0	1	1	0	0	0	0	32
15:00	0	15	3	0	1	0	0	0	1	0	0	0	0	20
16:00	1	9	6	0	2	0	0	0	2	0	0	0	0	20
17:00	0	19	9	0	1	0	0	0	0	0	0	0	0	29
18:00	0	11	0	0	0	0	0	0	1	0	0	0	0	12
19:00	0	3	0	0	0	0	0	0	1	0	0	0	0	4
20:00	0	6	1	0	0	0	0	0	1	0	0	0	0	8
21:00	0	34	6	0	0	0	0	0	0	0	0	0	0	40
22:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	**2**	**204**	**103**	**3**	**33**	**4**		**2**	**31**					**382**
% of Totals	1%	53%	27%	1%	9%	1%		1%	8%					100%

AM Volumes	0	29	41	3	24	3	0	1	20	0	0	0	0	121
% AM		8%	11%	1%	6%	1%		0%	5%					32%
AM Peak Hour		11:00	09:00	07:00	09:00	06:00		10:00	10:00					09:00
Volume		8	15	1	8	2		1	5					30
PM Volumes	2	175	62	0	9	1	0	1	11	0	0	0	0	261
% PM	1%	46%	16%		2%	0%		0%	3%					68%
PM Peak Hour	12:00	12:00	13:00		13:00	14:00		14:00	12:00					12:00
Volume	1	53	14		2	1		1	4					69

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	31		8%	94		25%	49		13%	208		54%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Tuesday
Date: 6/22/2021

City: American Canyon
Project #: CA21_080110_001s

South Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
03:00	1	37	2	0	0	0	0	0	1	0	0	0	0	41
04:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
05:00	0	17	12	0	4	1	0	0	1	0	0	0	0	35
06:00	0	15	11	0	3	2	0	0	3	0	0	0	0	34
07:00	0	12	10	0	11	0	0	0	2	0	0	0	0	35
08:00	0	8	8	1	6	0	0	0	1	0	0	0	0	24
09:00	0	13	5	0	4	0	0	1	4	0	0	0	0	27
10:00	0	8	5	0	1	0	0	0	4	0	0	0	0	18
11:00	0	9	10	0	3	0	0	0	3	0	0	0	0	25
12:00 PM	0	42	15	0	1	0	0	0	2	0	0	0	0	60
13:00	0	3	4	0	5	1	0	0	1	0	0	0	0	14
14:00	0	1	2	1	2	0	0	0	0	0	0	0	0	6
15:00	0	7	5	0	2	0	0	0	2	0	0	0	0	16
16:00	1	4	4	0	3	0	0	0	1	0	0	0	0	13
17:00	0	6	3	1	1	0	0	0	1	0	0	0	0	12
18:00	0	2	0	0	1	0	0	0	1	0	0	0	0	4
19:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
20:00	0	4	0	0	0	0	0	0	1	0	0	0	0	5
21:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	**2**	**201**	**98**	**3**	**48**	**4**		**1**	**30**					**387**
% of Totals	1%	52%	25%	1%	12%	1%		0%	8%					100%

AM Volumes	1	127	63	1	32	3	0	1	21	0	0	0	0	249
% AM	0%	33%	16%	0%	8%	1%		0%	5%					64%
AM Peak Hour		03:00	05:00	08:00	07:00	06:00		09:00	09:00					03:00
Volume		37	12	1	11	2		1	4					41
PM Volumes	1	74	35	2	16	1	0	0	9	0	0	0	0	138
% PM	0%	19%	9%	1%	4%	0%			2%					36%
PM Peak Hour	16:00	12:00	12:00	14:00	13:00	13:00			12:00					12:00
Volume	1	42	15	1	5	1			2					60

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	59		15%	74		19%	25		6%	229		59%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Wednesday
Date: 6/23/2021

City: American Canyon
Project #: CA21_080110_001n

North Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	0	1	0	0	0	0	1	0	0	0	0	3
06:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
07:00	0	1	1	0	1	0	0	0	3	0	0	0	0	6
08:00	0	8	7	1	6	4	0	0	2	0	0	0	0	28
09:00	0	1	13	3	13	0	0	0	5	0	1	0	0	36
10:00	0	2	9	0	1	0	0	0	0	0	0	0	0	12
11:00	0	11	8	0	1	3	0	0	3	0	0	0	0	26
12:00 PM	1	60	10	1	1	1	1	0	2	0	0	0	0	77
13:00	0	13	11	0	1	2	0	0	3	0	0	0	0	30
14:00	0	17	15	0	3	2	0	0	3	0	0	0	0	40
15:00	0	16	3	0	0	2	0	0	3	0	0	0	0	24
16:00	1	10	6	1	3	0	0	0	0	0	0	0	0	21
17:00	0	13	5	1	0	0	0	0	0	0	0	0	0	19
18:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
19:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
20:00	0	6	0	0	0	0	0	0	1	0	0	0	0	7
21:00	0	48	9	0	0	0	0	0	0	0	0	0	0	57
22:00	0	1	0	0	0	0	0	0	1	0	0	0	0	2
23:00	0	1	1	0	0	0	0	0	1	0	0	0	0	3
Totals	**2**	**216**	**100**	**8**	**31**	**14**	**1**		**28**		**1**			**401**
% of Totals	0%	54%	25%	2%	8%	3%	0%		7%		0%			100%

AM Volumes	0	26	39	5	23	7	0	0	14	0	1	0	0	115
% AM		6%	10%	1%	6%	2%			3%		0%			29%
AM Peak Hour		11:00	09:00	09:00	09:00	08:00			09:00		09:00			09:00
Volume		11	13	3	13	4			5		1			36
PM Volumes	2	190	61	3	8	7	1	0	14	0	0	0	0	286
% PM	0%	47%	15%	1%	2%	2%	0%		3%					71%
PM Peak Hour	12:00	12:00	14:00	12:00	14:00	13:00	12:00		13:00					12:00
Volume	1	60	15	1	3	2	1		3					77

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	34		8%	107		27%	40		10%	220		55%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Wednesday
Date: 6/23/2021

City: American Canyon
Project #: CA21_080110_001s

South Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	1	43	2	0	0	0	0	0	0	0	0	0	0	46
04:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
05:00	0	17	10	0	3	0	0	0	1	0	0	0	0	31
06:00	0	14	7	1	4	0	0	0	1	0	0	0	0	27
07:00	1	12	18	0	8	2	2	0	4	0	0	0	0	47
08:00	0	10	2	3	12	2	2	0	4	0	0	0	0	35
09:00	0	8	3	0	5	2	2	0	3	0	0	0	0	23
10:00	0	8	7	0	5	2	2	0	2	0	0	0	0	26
11:00	0	12	8	0	1	3	2	0	2	0	0	0	0	28
12:00 PM	0	48	10	1	2	3	2	0	3	0	0	0	0	69
13:00	0	4	8	0	1	4	1	0	3	0	0	0	0	21
14:00	0	5	1	0	1	2	1	0	3	0	0	0	0	13
15:00	1	5	3	2	2	2	2	0	0	0	0	0	0	17
16:00	0	6	1	1	1	0	0	1	0	0	0	0	0	10
17:00	0	5	4	1	0	0	0	0	0	0	0	0	0	10
18:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
19:00	0	0	0	0	0	0	0	0	2	0	0	0	0	2
20:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
21:00	0	6	0	0	1	0	0	1	1	0	0	0	0	9
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	1	1	0	0	0	0	0	2	0	0	0	0	4
Totals	**3**	**213**	**90**	**9**	**46**	**22**	**16**	**2**	**31**					**432**
% of Totals	1%	49%	21%	2%	11%	5%	4%	0%	7%					100%

AM Volumes	2	128	59	4	38	11	10	0	17	0	0	0	0	269
% AM	0%	30%	14%	1%	9%	3%	2%		4%					62%
AM Peak Hour	07:00	03:00	07:00	08:00	08:00	11:00	07:00		07:00					07:00
Volume	1	43	18	3	12	3	2		4					47
PM Volumes	1	85	31	5	8	11	6	2	14	0	0	0	0	163
% PM	0%	20%	7%	1%	2%	3%	1%	0%	3%					38%
PM Peak Hour	15:00	12:00	12:00	15:00	12:00	13:00	12:00	16:00	12:00					12:00
Volume	1	48	10	2	2	4	2	1	3					69

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	82		19%	90		21%	20		5%	240		56%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Thursday
Date: 6/24/2021

City: American Canyon
Project #: CA21_080110_001n

North Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	2	0	0	0	0	0	0	2	0	0	0	0	4
06:00	0	3	2	1	1	0	0	0	0	0	0	0	0	7
07:00	0	1	2	0	0	0	0	0	0	0	2	0	0	5
08:00	0	14	9	0	5	0	0	0	1	0	0	0	0	29
09:00	0	5	14	1	8	0	0	0	0	0	0	0	0	28
10:00	0	2	8	1	3	0	0	0	2	0	2	0	0	18
11:00	0	14	7	0	1	0	0	0	4	0	0	0	0	26
12:00 PM	0	67	6	0	2	0	0	0	2	0	1	0	0	78
13:00	0	5	12	1	2	0	0	0	3	0	2	0	0	25
14:00	0	23	15	0	4	0	0	0	1	0	0	0	0	43
15:00	0	10	6	1	0	2	0	0	0	0	0	0	0	19
16:00	1	9	6	0	2	0	0	0	1	0	0	0	0	19
17:00	0	9	3	0	0	0	0	0	3	0	0	0	0	15
18:00	0	9	5	0	0	0	0	0	1	0	0	0	0	15
19:00	0	3	2	0	0	0	0	0	1	0	0	0	0	6
20:00	0	6	1	0	0	0	0	0	1	0	0	0	0	8
21:00	0	47	9	0	0	0	0	0	0	0	0	0	0	56
22:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	**1**	**229**	**108**	**5**	**28**	**2**			**22**		**7**			**402**
% of Totals	0%	57%	27%	1%	7%	0%			5%		2%			100%

AM Volumes	0	41	42	3	18	0	0	0	9	0	4	0	0	117
% AM		10%	10%	1%	4%				2%		1%			29%
AM Peak Hour		08:00	09:00	06:00	09:00				11:00		07:00			08:00
Volume		14	14	1	8				4		2			29
PM Volumes	1	188	66	2	10	2	0	0	13	0	3	0	0	285
% PM	0%	47%	16%	0%	2%	0%			3%		1%			71%
PM Peak Hour	16:00	12:00	14:00	13:00	14:00	15:00			13:00		13:00			12:00
Volume	1	67	15	1	4	2			3		2			78

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	34		8%	103		26%	34		8%	231		57%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Delvin Rd Bet. Kelly Rd & Middleton Wy

Day: Thursday
Date: 6/24/2021

City: American Canyon
Project #: CA21_080110_001s

South Bound

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	45	3	0	0	0	0	0	0	0	0	0	0	48
04:00	1	8	0	0	0	0	0	0	0	0	0	0	0	9
05:00	0	16	10	0	3	0	0	0	0	0	0	0	0	29
06:00	0	15	6	0	4	0	0	0	0	0	0	0	0	25
07:00	0	13	15	1	8	0	0	0	1	0	2	0	0	40
08:00	0	17	12	0	6	0	0	0	1	0	0	0	0	36
09:00	1	9	4	0	6	0	0	0	3	0	0	0	0	23
10:00	1	6	4	0	2	0	0	0	1	0	2	0	0	16
11:00	0	11	2	0	3	0	0	0	2	0	1	0	0	19
12:00 PM	0	53	7	1	3	0	0	0	3	0	0	0	0	67
13:00	0	1	11	0	3	1	0	0	2	0	2	0	0	20
14:00	0	7	12	0	4	0	0	0	1	0	0	0	0	24
15:00	0	4	4	1	1	0	0	0	1	0	0	0	0	11
16:00	0	4	1	0	1	0	0	0	2	0	0	0	0	8
17:00	0	3	4	0	1	0	0	0	3	0	0	0	0	11
18:00	0	3	2	1	0	1	0	0	0	0	0	0	0	7
19:00	0	4	2	1	0	0	0	0	0	0	0	0	0	7
20:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
21:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
22:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	**3**	**226**	**100**	**5**	**45**	**2**			**21**		**7**			**409**
% of Totals	1%	55%	24%	1%	11%	0%			5%		2%			100%

AM Volumes	3	140	56	1	32	0	0	0	8	0	5	0	0	245
% AM	1%	34%	14%	0%	8%				2%		1%			60%
AM Peak Hour	04:00	03:00	07:00	07:00	07:00				09:00		07:00			03:00
Volume	1	45	15	1	8				3		2			48
PM Volumes	0	86	44	4	13	2	0	0	13	0	2	0	0	164
% PM		21%	11%	1%	3%	0%			3%		0%			40%
PM Peak Hour		12:00	14:00	12:00	14:00	13:00			12:00		13:00			12:00
Volume		53	12	1	4	1			3		2			67

Directional Peak Periods	**AM 7-9**			**NOON 12-2**			**PM 4-6**			**Off Peak Volumes**		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	76		19%	87		21%	19		5%	227		56%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Truck Proportion Comparison

Description	Category	Vehicle Volumes/Percentages		
		Daily	AM Pk Hr	PM Pk Hr
Project Trip Generation	Total Number of Vehicles	3,360	192	240
	Number of Trucks	528	48	24
	Percent Trucks	**15.7%**	**25.0%**	**10.0%**
June 22-24, 2021 Comparison Counts on Devlin Road	Avg Number of Vehicles	804.3	372.0	432.3
	Avg of Trucks	159.7	59.7	11.3
	Percent Trucks	**19.9%**	**16.0%**	**2.6%**

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Appendix C

Intersection Level of Service Calculations

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Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.809

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	80	1569	638	20	991	15	17	23	19	88	16	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	1569	638	20	991	15	17	23	19	88	16	24
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	417	170	5	264	4	5	6	5	23	4	6
Total Analysis Volume [veh/h]	85	1669	679	21	1054	16	18	24	20	94	17	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Generated with PTV VISTRO
Version 7.00-08

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	44	0	11	42	0	0	37	0	0	37	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	106	106	106	106	106	106	106	106	106	106
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	6	70	70	3	74	74	13	13	13	13
g / C, Green / Cycle	0.06	0.66	0.66	0.03	0.69	0.69	0.13	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.05	0.63	0.69	0.01	0.29	0.29	0.01	0.03	0.07	0.03
s, saturation flow rate [veh/h]	1781	1870	1697	1781	1870	1860	1363	1731	1362	1690
c, Capacity [veh/h]	107	1230	1116	46	1294	1287	182	218	181	213
d1, Uniform Delay [s]	49.26	16.71	18.17	50.98	7.07	7.07	45.20	41.62	47.91	41.62
k, delay calibration	0.04	0.40	0.49	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.96	14.50	41.36	2.58	0.08	0.08	0.09	0.17	0.85	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.95	1.05	0.46	0.41	0.41	0.10	0.20	0.52	0.20
d, Delay for Lane Group [s/veh]	54.22	31.21	59.53	53.56	7.15	7.15	45.29	41.79	48.76	41.80
Lane Group LOS	D	C	F	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.27	24.19	32.71	0.56	3.85	3.83	0.45	1.05	2.39	0.98
50th-Percentile Queue Length [ft/ln]	56.66	604.79	817.73	13.98	96.36	95.87	11.14	26.13	59.82	24.54
95th-Percentile Queue Length [veh/ln]	4.08	32.26	43.99	1.01	6.94	6.90	0.80	1.88	4.31	1.77
95th-Percentile Queue Length [ft/ln]	102.00	806.45	1099.6	25.16	173.45	172.57	20.05	47.04	107.67	44.18

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Movement, Approach, & Intersection Results

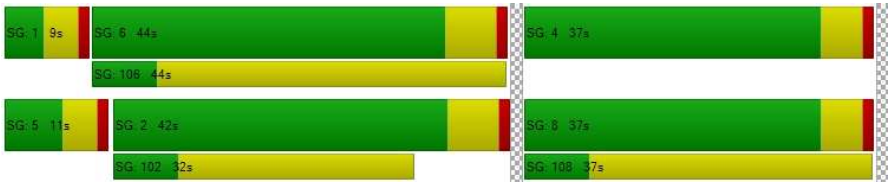
d_M, Delay for Movement [s/veh]	54.22	39.61	59.53	53.56	7.15	7.15	45.29	41.79	41.79	48.76	41.80	41.80
Movement LOS	D	D	E	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	45.68			8.04			42.81			46.57		
Approach LOS	D			A			D			D		
d_I, Intersection Delay [s/veh]	34.64											
Intersection LOS	C											
Intersection V/C	0.809											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.327	1.998	2.406
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	789	702	702
d_b, Bicycle Delay [s]	15.31	16.50	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	3.567	2.460	1.662	1.786
Bicycle LOS	D	B	A	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.146

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	2	1	25	71	2	0	0	44	1	26	0	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	1	25	71	2	0	0	44	1	26	0	100
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	7	19	1	0	0	12	0	7	0	27
Total Analysis Volume [veh/h]	2	1	27	77	2	0	0	48	1	28	0	109
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	898	661	727	830	938
Degree of Utilization, x	0.03	0.12	0.00	0.06	0.15

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.10	0.39	0.01	0.19	0.51
95th-Percentile Queue Length [ft]	2.59	9.84	0.21	4.70	12.75
Approach Delay [s/veh]	7.15	8.84		7.61	7.49
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	7.84				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	0	0	0	114	350	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	114	350	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	29	88	0
Total Analysis Volume [veh/h]	0	0	0	114	350	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.47	10.19	7.98	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.83		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.289

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	157	9	55	59	33	193
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	9	55	59	33	193
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	3	15	16	9	54
Total Analysis Volume [veh/h]	174	10	61	66	37	214
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.01	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	13.45	11.22	0.00	0.00	7.53	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.25	1.25	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	31.29	31.29	0.00	0.00	1.95	1.95
d_A, Approach Delay [s/veh]	13.33		0.00		1.11	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	11	1064	89	27	1773	6	45	18	57	95	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1064	89	27	1773	6	45	18	57	95	1	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	280	23	7	467	2	12	5	15	25	0	1
Total Analysis Volume [veh/h]	12	1120	94	28	1866	6	47	19	60	100	1	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	44	0	11	42	0	0	37	0	0	37	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	63	63	63	63	63	63	63	63	63	63
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	1	34	34	2	33	33	12	12	12	12
g / C, Green / Cycle	0.01	0.54	0.54	0.04	0.52	0.52	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.33	0.33	0.02	0.50	0.50	0.03	0.05	0.08	0.00
s, saturation flow rate [veh/h]	1781	1870	1820	1781	1870	1868	1410	1649	1320	1630
c, Capacity [veh/h]	22	1016	988	66	969	968	324	302	260	299
d1, Uniform Delay [s]	31.17	9.87	9.88	29.89	14.75	14.77	23.76	22.24	27.15	21.25
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.94	0.22	0.22	1.58	3.45	3.53	0.08	0.17	0.35	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.61	0.61	0.42	0.97	0.97	0.15	0.26	0.39	0.02
d, Delay for Lane Group [s/veh]	39.11	10.08	10.10	31.47	18.21	18.30	23.84	22.41	27.50	21.26
Lane Group LOS	D	B	B	C	B	B	C	C	C	C
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.21	3.75	3.66	0.40	9.30	9.33	0.59	0.97	1.31	0.06
50th-Percentile Queue Length [ft/ln]	5.23	93.73	91.50	9.92	232.52	233.20	14.86	24.19	32.70	1.61
95th-Percentile Queue Length [veh/ln]	0.38	6.75	6.59	0.71	14.30	14.34	1.07	1.74	2.35	0.12
95th-Percentile Queue Length [ft/ln]	9.42	168.72	164.70	17.86	357.55	358.43	26.75	43.54	58.86	2.90

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Movement, Approach, & Intersection Results

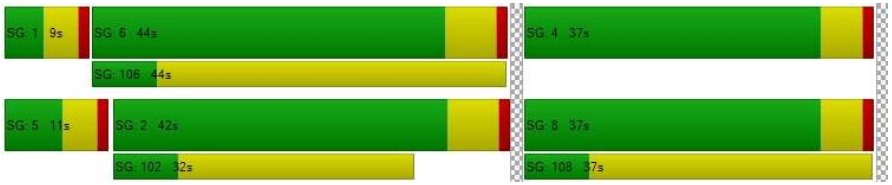
d_M, Delay for Movement [s/veh]	39.11	10.09	10.10	31.47	18.25	18.30	23.84	22.41	22.41	27.50	21.26	21.26
Movement LOS	D	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.38			18.45			22.94			27.15		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	15.94											
Intersection LOS	B											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.464	1.987	2.073
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	789	702	702
d_b, Bicycle Delay [s]	15.31	16.50	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.571	3.127	1.768	1.735
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.131

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	0	0	9	68	0	0	1	13	0	4	1	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	9	68	0	0	1	13	0	4	1	10
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	3	23	0	0	0	4	0	1	0	3
Total Analysis Volume [veh/h]	0	0	12	92	0	0	1	18	0	5	1	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	993	703	779	849	933
Degree of Utilization, x	0.01	0.13	0.00	0.02	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.04	0.45	0.00	0.07	0.07
95th-Percentile Queue Length [ft]	0.92	11.24	0.00	1.72	1.64
Approach Delay [s/veh]	6.67	8.60		7.34	6.94
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.04				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	0	0	0	374	106	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	374	106	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	94	27	0
Total Analysis Volume [veh/h]	0	0	0	374	106	0
Pedestrian Volume [ped/h]	0		0		0	

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Version 7.00-08

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.61	8.80	7.42	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.20		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.161

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	64	39	219	155	42	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	39	219	155	42	42
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	12	68	48	13	13
Total Analysis Volume [veh/h]	79	48	270	191	52	52
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.07	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	14.31	12.27	0.00	0.00	8.43	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.89	0.89	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	22.25	22.25	0.00	0.00	3.72	3.72
d_A, Approach Delay [s/veh]	13.54		0.00		4.22	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.12					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	107.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.136

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	125	2451	996	31	1548	23	27	36	30	137	25	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	2451	996	31	1548	23	27	36	30	137	25	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	613	249	8	387	6	7	9	8	34	6	9
Total Analysis Volume [veh/h]	125	2451	996	31	1548	23	27	36	30	137	25	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	33	186	0	9	162	0	0	45	0	0	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	36	0	0	10	0	0	36	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	186	186	5	172	172	37	37	37	37
g / C, Green / Cycle	0.08	0.77	0.77	0.02	0.72	0.72	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.07	0.92	1.02	0.02	0.42	0.42	0.02	0.04	0.10	0.04
s, saturation flow rate [veh/h]	1781	1870	1697	1781	1870	1860	1340	1731	1335	1692
c, Capacity [veh/h]	140	1446	1312	37	1338	1332	181	270	178	263
d1, Uniform Delay [s]	109.59	27.19	27.19	117.08	16.73	16.76	96.46	88.92	105.65	88.78
k, delay calibration	0.13	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.80	93.41	146.49	35.78	1.90	1.92	0.38	0.47	10.06	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	1.19	1.31	0.84	0.59	0.59	0.15	0.24	0.77	0.24
d, Delay for Lane Group [s/veh]	129.39	120.60	173.67	152.86	18.63	18.68	96.84	89.38	115.70	89.23
Lane Group LOS	F	F	F	F	B	B	F	F	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.49	108.17	117.51	2.30	20.95	20.93	1.57	3.70	8.97	3.41
50th-Percentile Queue Length [ft/ln]	212.17	2704.1	2937.6	57.54	523.87	523.23	39.26	92.50	224.21	85.31
95th-Percentile Queue Length [veh/ln]	13.26	146.61	169.24	4.14	28.46	28.43	2.83	6.66	13.88	6.14
95th-Percentile Queue Length [ft/ln]	331.61	3665.1	4230.9	103.57	711.55	710.80	70.66	166.50	346.99	153.56

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	129.39	136.35	173.67	152.86	18.65	18.68	96.84	89.38	89.38	115.70	89.23	89.23
Movement LOS	F	F	F	F	B	B	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	146.51			21.25			91.55			107.46		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	107.44											
Intersection LOS	F											
Intersection V/C	1.136											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.856	2.073	2.670
Crosswalk LOS	F	D	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1517	1317	342	342
d_b, Bicycle Delay [s]	7.01	14.01	82.50	82.50
I_b,int, Bicycle LOS Score for Intersection	4.507	2.881	1.713	1.888
Bicycle LOS	E	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.165

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	3	2	31	86	3	0	0	54	2	32	0	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	31	86	3	0	0	54	2	32	0	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	8	22	1	0	0	14	1	8	0	30
Total Analysis Volume [veh/h]	3	2	31	86	3	0	0	54	2	32	0	121
Pedestrian Volume [ped/h]	0			0			0			0		

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Version 7.00-08

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	877	653	719	820	925
Degree of Utilization, x	0.04	0.13	0.00	0.07	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.13	0.45	0.01	0.22	0.59
95th-Percentile Queue Length [ft]	3.21	11.30	0.31	5.49	14.77
Approach Delay [s/veh]	7.28	9.00		7.71	7.66
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	7.99				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	0	0	0	138	424	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	138	424	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	35	106	0
Total Analysis Volume [veh/h]	0	0	0	138	424	0
Pedestrian Volume [ped/h]	0		0		0	

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Version 7.00-08

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.37	10.71	8.17	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.54		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.331

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	190	11	67	72	40	234
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	11	67	72	40	234
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	3	17	18	10	59
Total Analysis Volume [veh/h]	190	11	67	72	40	234
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.01	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	14.45	11.95	0.00	0.00	7.56	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.52	1.52	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	37.94	37.94	0.00	0.00	2.13	2.13
d_A, Approach Delay [s/veh]	14.31		0.00		1.10	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	5.18					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	84.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.959

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	19	1800	151	46	3000	10	76	30	96	161	2	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	1800	151	46	3000	10	76	30	96	161	2	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	450	38	12	750	3	19	8	24	40	1	2
Total Analysis Volume [veh/h]	19	1800	151	46	3000	10	76	30	96	161	2	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	104
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	52	0	12	49	0	0	43	0	0	43	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	107	107	107	107	107	107	107	107	107	107
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	2	73	73	4	70	70	16	16	16	16
g / C, Green / Cycle	0.02	0.68	0.68	0.04	0.65	0.65	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.52	0.54	0.03	0.80	0.81	0.05	0.08	0.13	0.01
s, saturation flow rate [veh/h]	1781	1870	1820	1781	1870	1868	1405	1648	1264	1639
c, Capacity [veh/h]	29	1270	1236	74	1222	1221	244	247	144	245
d1, Uniform Delay [s]	52.33	11.51	11.86	50.41	18.53	18.53	43.22	41.88	51.74	38.91
k, delay calibration	0.04	0.27	0.29	0.04	0.50	0.50	0.04	0.04	0.23	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.36	2.47	3.04	3.10	111.51	112.13	0.27	0.61	85.09	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.77	0.79	0.62	1.23	1.23	0.31	0.51	1.12	0.04
d, Delay for Lane Group [s/veh]	61.69	13.98	14.90	53.52	130.04	130.66	43.49	42.49	136.83	38.94
Lane Group LOS	E	B	B	D	F	F	D	D	F	D
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.56	12.11	12.63	1.22	59.98	60.13	1.87	3.10	7.16	0.22
50th-Percentile Queue Length [ft/ln]	13.97	302.85	315.80	30.48	1499.6	1503.1	46.87	77.43	178.90	5.45
95th-Percentile Queue Length [veh/ln]	1.01	17.82	18.46	2.19	85.74	85.99	3.37	5.58	12.07	0.39
95th-Percentile Queue Length [ft/ln]	25.15	445.55	461.53	54.86	2143.5	2149.8	84.36	139.38	301.86	9.81

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Movement, Approach, & Intersection Results

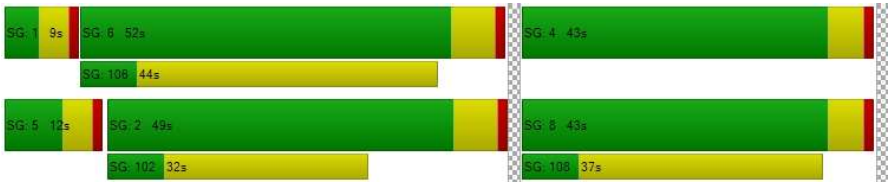
d_M, Delay for Movement [s/veh]	61.69	14.40	14.90	53.52	130.35	130.66	43.49	42.49	42.49	136.83	38.94	38.94
Movement LOS	E	B	B	D	F	F	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	14.90			129.19			42.86			131.11		
Approach LOS	B			F			D			F		
d_I, Intersection Delay [s/veh]	84.32											
Intersection LOS	F											
Intersection V/C	0.959											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	41.58	41.58	41.58
I_p,int, Pedestrian LOS Score for Intersection	0.000	4.181	2.023	2.163
Crosswalk LOS	F	D	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	875	817	723	723
d_b, Bicycle Delay [s]	16.45	18.18	21.20	21.20
I_b,int, Bicycle LOS Score for Intersection	3.185	4.081	1.893	1.842
Bicycle LOS	C	D	A	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.118

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	0	0	11	83	0	0	2	16	0	5	2	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	11	83	0	0	2	16	0	5	2	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	3	21	0	0	1	4	0	1	1	3
Total Analysis Volume [veh/h]	0	0	11	83	0	0	2	16	0	5	2	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	996	703	779	853	933
Degree of Utilization, x	0.01	0.12	0.00	0.02	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.40	0.00	0.06	0.07
95th-Percentile Queue Length [ft]	0.84	9.99	0.00	1.62	1.64
Approach Delay [s/veh]	6.65	8.51		7.31	6.94
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	7.95				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	0	0	0	453	129	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	453	129	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	113	32	0
Total Analysis Volume [veh/h]	0	0	0	453	129	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.58	8.91	7.47	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.74		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.157

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	78	48	265	188	51	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	48	265	188	51	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	12	66	47	13	13
Total Analysis Volume [veh/h]	78	48	265	188	51	51
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.07	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	14.13	12.15	0.00	0.00	8.41	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.87	0.87	0.00	0.00	0.14	0.14
95th-Percentile Queue Length [ft/ln]	21.67	21.67	0.00	0.00	3.62	3.62
d_A, Approach Delay [s/veh]	13.38		0.00		4.20	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.10					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	34.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	80	1576	638	20	1014	86	38	23	19	88	16	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	1576	638	20	1014	86	38	23	19	88	16	24
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	419	170	5	270	23	10	6	5	23	4	6
Total Analysis Volume [veh/h]	85	1677	679	21	1079	91	40	24	20	94	17	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	44	0	11	42	0	0	37	0	0	37	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	106	106	106	106	106	106	106	106	106	106
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	6	70	70	3	74	74	13	13	13	13
g / C, Green / Cycle	0.06	0.66	0.66	0.03	0.69	0.69	0.13	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.05	0.63	0.69	0.01	0.32	0.32	0.03	0.03	0.07	0.03
s, saturation flow rate [veh/h]	1781	1870	1697	1781	1870	1819	1363	1731	1362	1690
c, Capacity [veh/h]	107	1230	1116	46	1294	1259	182	218	181	213
d1, Uniform Delay [s]	49.26	16.81	18.17	50.98	7.38	7.39	45.96	41.62	47.91	41.62
k, delay calibration	0.04	0.41	0.49	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.96	15.04	42.49	2.58	0.09	0.10	0.22	0.17	0.85	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.96	1.06	0.46	0.46	0.46	0.22	0.20	0.52	0.20
d, Delay for Lane Group [s/veh]	54.22	31.85	60.67	53.56	7.47	7.48	46.18	41.79	48.76	41.80
Lane Group LOS	D	C	F	D	A	A	D	D	D	D
Critical Lane Group	Yes	No	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.27	24.56	33.07	0.56	4.45	4.34	1.01	1.05	2.39	0.98
50th-Percentile Queue Length [ft/ln]	56.66	613.88	826.77	13.98	111.18	108.41	25.20	26.13	59.82	24.54
95th-Percentile Queue Length [veh/ln]	4.08	32.68	44.54	1.01	7.91	7.75	1.81	1.88	4.31	1.77
95th-Percentile Queue Length [ft/ln]	102.00	817.05	1113.3	25.16	197.64	193.79	45.35	47.04	107.67	44.18

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Movement, Approach, & Intersection Results

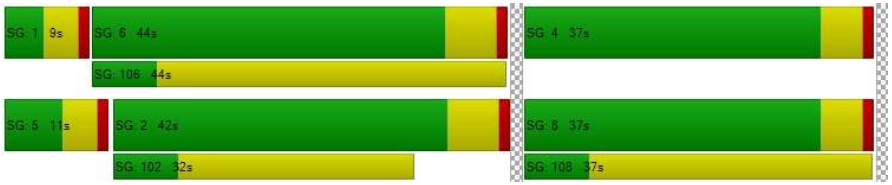
d_M, Delay for Movement [s/veh]	54.22	40.43	60.67	53.56	7.48	7.48	46.18	41.79	41.79	48.76	41.80	41.80
Movement LOS	D	D	E	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	46.54			8.29			43.88			46.57		
Approach LOS	D			A			D			D		
d_I, Intersection Delay [s/veh]	34.66											
Intersection LOS	C											
Intersection V/C	0.811											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.405	2.030	2.406
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	789	702	702
d_b, Bicycle Delay [s]	15.31	16.50	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	3.573	2.542	1.698	1.786
Bicycle LOS	D	B	A	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.245

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	2	1	46	71	2	0	0	44	1	97	0	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	1	46	71	2	0	0	44	1	97	0	100
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	13	19	1	0	0	12	0	26	0	27
Total Analysis Volume [veh/h]	2	1	50	77	2	0	0	48	1	105	0	109
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	861	635	697	802	872
Degree of Utilization, x	0.06	0.12	0.00	0.06	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.20	0.41	0.01	0.19	0.96
95th-Percentile Queue Length [ft]	4.91	10.28	0.22	4.87	24.10
Approach Delay [s/veh]	7.45	9.12		7.78	8.46
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.37				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	21	0	0	114	350	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	0	114	350	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	0	29	88	18
Total Analysis Volume [veh/h]	21	0	0	114	350	71
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 7.00-08

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.06	10.72	8.16	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.08	3.08	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.06		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	250	9	83	66	33	216
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	250	9	83	66	33	216
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	3	23	18	9	60
Total Analysis Volume [veh/h]	278	10	92	73	37	240
Pedestrian Volume [ped/h]	0		0		0	

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Version 7.00-08

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.01	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	17.99	15.41	0.00	0.00	7.62	0.00
Movement LOS	C	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.90	2.90	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	72.43	72.43	0.00	0.00	2.02	2.02
d_A, Approach Delay [s/veh]	17.90		0.00		1.02	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	7.45					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	11	1091	89	27	1784	37	123	18	57	95	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1091	89	27	1784	37	123	18	57	95	1	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	287	23	7	469	10	32	5	15	25	0	1
Total Analysis Volume [veh/h]	12	1148	94	28	1878	39	129	19	60	100	1	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	44	0	11	42	0	0	37	0	0	37	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	68	68	68	68	68	68	68	68	68	68
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	1	38	38	2	36	36	13	13	13	13
g / C, Green / Cycle	0.01	0.56	0.56	0.04	0.53	0.53	0.19	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.34	0.02	0.51	0.52	0.09	0.05	0.08	0.00
s, saturation flow rate [veh/h]	1781	1870	1821	1781	1870	1857	1410	1649	1320	1630
c, Capacity [veh/h]	22	1040	1013	65	994	987	325	309	260	306
d1, Uniform Delay [s]	33.41	10.09	10.10	32.06	15.30	15.41	26.70	23.57	28.68	22.53
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.05	0.21	0.22	1.65	3.23	3.78	0.29	0.16	0.34	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.60	0.61	0.43	0.96	0.97	0.40	0.26	0.38	0.02
d, Delay for Lane Group [s/veh]	41.46	10.30	10.32	33.71	18.53	19.20	26.99	23.73	29.02	22.54
Lane Group LOS	D	B	B	C	B	B	C	C	C	C
Critical Lane Group	No	No	No	Yes	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.22	4.19	4.09	0.43	10.37	10.59	1.88	1.05	1.42	0.07
50th-Percentile Queue Length [ft/ln]	5.62	104.72	102.34	10.81	259.31	264.69	46.96	26.14	35.40	1.76
95th-Percentile Queue Length [veh/ln]	0.40	7.54	7.37	0.78	15.65	15.92	3.38	1.88	2.55	0.13
95th-Percentile Queue Length [ft/ln]	10.11	188.49	184.22	19.46	391.36	398.10	84.52	47.05	63.73	3.16

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Movement, Approach, & Intersection Results

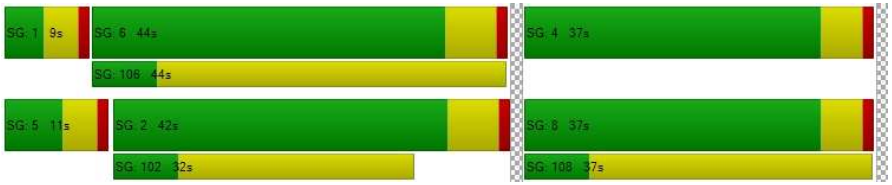
d_M, Delay for Movement [s/veh]	41.46	10.31	10.32	33.71	18.86	19.20	26.99	23.73	23.73	29.02	22.54	22.54
Movement LOS	D	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.61			19.08			25.75			28.66		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.74											
Intersection LOS	B											
Intersection V/C	0.623											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.637	2.024	2.073
Crosswalk LOS	F	D	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	789	702	702
d_b, Bicycle Delay [s]	15.31	16.50	18.95	18.95
I_b,int, Bicycle LOS Score for Intersection	2.594	3.164	1.903	1.735
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.136

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	0	0	87	68	0	0	1	13	0	35	1	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	87	68	0	0	1	13	0	35	1	10
Peak Hour Factor	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	29	23	0	0	0	4	0	12	0	3
Total Analysis Volume [veh/h]	0	0	118	92	0	0	1	18	0	47	1	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	962	679	750	799	807
Degree of Utilization, x	0.12	0.14	0.00	0.02	0.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.42	0.47	0.00	0.07	0.25
95th-Percentile Queue Length [ft]	10.45	11.68	0.00	1.83	6.23
Approach Delay [s/veh]	7.27	8.83		7.62	7.83
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	7.91				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	65	0	0	374	106	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	0	0	374	106	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	0	0	94	27	7
Total Analysis Volume [veh/h]	65	0	0	374	106	26
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.65	9.79	7.48	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.41	0.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.29	10.29	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.65		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.299

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	98	39	305	182	42	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	39	305	182	42	53
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	12	94	56	13	16
Total Analysis Volume [veh/h]	121	48	377	225	52	65
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.30	0.08	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	18.82	16.15	0.00	0.00	8.90	0.00
Movement LOS	C	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.76	1.76	0.00	0.00	0.17	0.17
95th-Percentile Queue Length [ft/ln]	44.02	44.02	0.00	0.00	4.22	4.22
d_A, Approach Delay [s/veh]	18.06		0.00		3.95	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.96					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	107.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.138

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	125	2458	996	31	1571	94	48	36	30	137	25	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	2458	996	31	1571	94	48	36	30	137	25	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	615	249	8	393	24	12	9	8	34	6	9
Total Analysis Volume [veh/h]	125	2458	996	31	1571	94	48	36	30	137	25	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	33	186	0	9	162	0	0	45	0	0	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	31	0	0	36	0	0	10	0	0	36	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	186	186	5	172	172	37	37	37	37
g / C, Green / Cycle	0.08	0.77	0.77	0.02	0.72	0.72	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.07	0.92	1.02	0.02	0.45	0.45	0.04	0.04	0.10	0.04
s, saturation flow rate [veh/h]	1781	1870	1697	1781	1870	1833	1340	1731	1335	1692
c, Capacity [veh/h]	140	1446	1313	37	1338	1312	181	270	178	263
d1, Uniform Delay [s]	109.59	27.19	27.19	117.08	17.54	17.69	98.03	88.92	105.65	88.78
k, delay calibration	0.13	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.80	94.43	147.54	35.78	2.21	2.32	0.78	0.47	10.06	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	1.19	1.32	0.84	0.62	0.63	0.27	0.24	0.77	0.24
d, Delay for Lane Group [s/veh]	129.39	121.62	174.73	152.86	19.75	20.01	98.80	89.38	115.70	89.23
Lane Group LOS	F	F	F	F	B	C	F	F	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.49	108.58	117.91	2.30	23.38	23.40	2.84	3.70	8.97	3.41
50th-Percentile Queue Length [ft/ln]	212.17	2714.4	2947.8	57.54	584.43	585.01	71.04	92.50	224.21	85.31
95th-Percentile Queue Length [veh/ln]	13.26	147.35	169.99	4.14	31.31	31.33	5.12	6.66	13.88	6.14
95th-Percentile Queue Length [ft/ln]	331.61	3683.8	4249.6	103.57	782.67	783.34	127.88	166.50	346.99	153.56

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	129.39	137.42	174.73	152.86	19.87	20.01	98.80	89.38	89.38	115.70	89.23	89.23
Movement LOS	F	F	F	F	B	C	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	147.52			22.31			93.35			107.46		
Approach LOS	F			C			F			F		
d_I, Intersection Delay [s/veh]	106.99											
Intersection LOS	F											
Intersection V/C	1.138											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.930	2.103	2.670
Crosswalk LOS	F	D	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1517	1317	342	342
d_b, Bicycle Delay [s]	7.01	14.01	82.50	82.50
I_b,int, Bicycle LOS Score for Intersection	4.512	2.959	1.748	1.888
Bicycle LOS	E	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.258

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	3	2	52	86	3	0	0	54	2	103	0	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	52	86	3	0	0	54	2	103	0	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	13	22	1	0	0	14	1	26	0	30
Total Analysis Volume [veh/h]	3	2	52	86	3	0	0	54	2	103	0	121
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	845	630	691	794	868
Degree of Utilization, x	0.07	0.14	0.00	0.07	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.22	0.47	0.01	0.23	1.03
95th-Percentile Queue Length [ft]	5.41	11.77	0.33	5.68	25.79
Approach Delay [s/veh]	7.57	9.27		7.88	8.59
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	8.50				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	21	0	0	138	424	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	0	138	424	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	0	35	106	18
Total Analysis Volume [veh/h]	21	0	0	138	424	71
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.10	11.35	8.37	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.53	3.53	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.10		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.531

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	283	11	95	79	40	257
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	283	11	95	79	40	257
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	3	24	20	10	64
Total Analysis Volume [veh/h]	283	11	95	79	40	257
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.53	0.01	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	19.40	16.57	0.00	0.00	7.64	0.00
Movement LOS	C	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	3.23	3.23	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	80.81	80.81	0.00	0.00	2.20	2.20
d_A, Approach Delay [s/veh]	19.29		0.00		1.03	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	7.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR29/South Kelly Rd

Control Type:	Signalized	Delay (sec / veh):	88.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.973

Intersection Setup

Name	SR 29						S Kelly Rd					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			55.00			30.00			50.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	SR 29						S Kelly Rd					
Base Volume Input [veh/h]	19	1827	151	46	3011	41	154	30	96	161	2	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	1827	151	46	3011	41	154	30	96	161	2	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	457	38	12	753	10	39	8	24	40	1	2
Total Analysis Volume [veh/h]	19	1827	151	46	3011	41	154	30	96	161	2	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	104
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	4	11	0	6	11	0	0	13	0	0	13	0
Maximum Green [s]	10	70	0	16	70	0	0	16	0	0	16	0
Amber [s]	3.7	5.5	0.0	3.7	5.5	0.0	0.0	4.4	0.0	0.0	4.4	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	52	0	12	49	0	0	43	0	0	43	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	37	0	0	25	0	0	0	0	0	30	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	4.5	0.0	2.7	4.5	0.0	0.0	3.4	0.0	0.0	3.4	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	107	107	107	107	107	107	107	107	107	107
L, Total Lost Time per Cycle [s]	4.70	6.50	6.50	4.70	6.50	6.50	5.40	5.40	5.40	5.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.70	4.50	4.50	2.70	4.50	4.50	3.40	3.40	3.40	3.40
g_i, Effective Green Time [s]	2	73	73	4	70	70	16	16	16	16
g / C, Green / Cycle	0.02	0.68	0.68	0.04	0.65	0.65	0.15	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.53	0.54	0.03	0.82	0.82	0.11	0.08	0.13	0.01
s, saturation flow rate [veh/h]	1781	1870	1821	1781	1870	1861	1405	1648	1264	1639
c, Capacity [veh/h]	29	1270	1237	74	1222	1216	244	247	144	245
d1, Uniform Delay [s]	52.33	11.69	12.05	50.41	18.53	18.53	45.91	41.88	51.74	38.91
k, delay calibration	0.04	0.28	0.30	0.04	0.50	0.50	0.14	0.04	0.23	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.36	2.71	3.33	3.10	118.88	121.46	3.38	0.61	85.09	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.78	0.80	0.62	1.25	1.25	0.63	0.51	1.12	0.04
d, Delay for Lane Group [s/veh]	61.69	14.39	15.38	53.52	137.41	139.99	49.29	42.49	136.83	38.94
Lane Group LOS	E	B	B	D	F	F	D	D	F	D
Critical Lane Group	No	No	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.56	12.53	13.08	1.22	62.49	63.07	4.23	3.10	7.16	0.22
50th-Percentile Queue Length [ft/ln]	13.97	313.20	326.99	30.48	1562.2	1576.6	105.64	77.43	178.90	5.45
95th-Percentile Queue Length [veh/ln]	1.01	18.33	19.01	2.19	89.83	90.87	7.60	5.58	12.07	0.39
95th-Percentile Queue Length [ft/ln]	25.15	458.32	475.28	54.86	2245.7	2271.6	189.92	139.38	301.86	9.81

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Movement, Approach, & Intersection Results

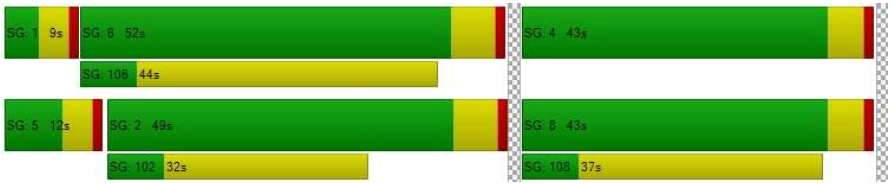
d_M, Delay for Movement [s/veh]	61.69	14.85	15.38	53.52	138.68	139.99	49.29	42.49	42.49	136.83	38.94	38.94
Movement LOS	E	B	B	D	F	F	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	15.33			137.44			46.23			131.11		
Approach LOS	B			F			D			F		
d_I, Intersection Delay [s/veh]	88.67											
Intersection LOS	F											
Intersection V/C	0.973											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	41.58	41.58	41.58
I_p,int, Pedestrian LOS Score for Intersection	0.000	4.344	2.058	2.163
Crosswalk LOS	F	E	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	875	817	723	723
d_b, Bicycle Delay [s]	16.45	18.18	21.20	21.20
I_b,int, Bicycle LOS Score for Intersection	3.207	4.115	2.022	1.842
Bicycle LOS	C	D	B	A

Sequence

Ring 1	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Devlin Rd/S Kelly Rd

Control Type:	All-way stop	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

Intersection Setup

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	130.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			Yes		

Volumes

Name	Devlin Rd						S Kelly Rd			S Kelly Rd		
Base Volume Input [veh/h]	0	0	89	83	0	0	2	16	0	36	2	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	89	83	0	0	2	16	0	36	2	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	22	21	0	0	1	4	0	9	1	3
Total Analysis Volume [veh/h]	0	0	89	83	0	0	2	16	0	36	2	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	973	686	758	815	828
Degree of Utilization, x	0.09	0.12	0.00	0.02	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.30	0.41	0.00	0.07	0.20
95th-Percentile Queue Length [ft]	7.53	10.27	0.00	1.69	4.91
Approach Delay [s/veh]	7.07	8.67		7.52	7.63
Approach LOS	A	A		A	A
Intersection Delay [s/veh]	7.77				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 3: Devlin Rd/Green Island Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	Devlin Rd		Green Island Rd			
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Devlin Rd		Green Island Rd			
Base Volume Input [veh/h]	65	0	0	453	129	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	0	0	453	129	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	0	0	113	32	7
Total Analysis Volume [veh/h]	65	0	0	453	129	26
Pedestrian Volume [ped/h]	0		0		0	

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Version 7.00-08

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.95	10.22	7.53	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.01	12.01	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.95		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Green Island Rd/Paoli Loop Rd

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.263

Intersection Setup

Name	Paoli Loop Rd				Green Island Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Paoli Loop Rd				Green Island Rd	
Base Volume Input [veh/h]	112	48	351	215	51	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	48	351	215	51	62
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	12	88	54	13	16
Total Analysis Volume [veh/h]	112	48	351	215	51	62
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.08	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	17.40	14.93	0.00	0.00	8.77	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.50	1.50	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	37.57	37.57	0.00	0.00	4.00	4.00
d_A, Approach Delay [s/veh]	16.66		0.00		3.96	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.71					
Intersection LOS	C					

Appendix I:
Utilities and Service Systems Supporting Information

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I.1 - Water Supply Assessment

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DRAFT Water Supply Assessment for the Giovannoni Logistics Center Project

Prepared for:

Buzz Oates Construction, Inc.

Prepared by:

Balance Hydrologics
1800

September 2021

September 21, 2021

A REPORT PREPARED FOR:

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EXECUTIVE SUMMARY

Giovannoni Logistics Center ("Project") in the City of American Canyon in Napa County, California, is a proposed light industrial project. The Project is bounded by the Napa Logistics Park and Devlin Road to the north, Green Island Road and warehouses to the south, Green Island Road Business Park to the west, and Union Pacific Railroad/Napa Branch Line to the east. The Project is broken up into two construction phases. Phase 1 is the eastern portion of the project including two warehouses with roughly 1.1 million square feet of warehouse space. Phase 2 is the western portion of the project with conceptually up to 1.3 million square feet of similar uses.

This Water Supply Assessment (WSA) presents the proposed potable and recycled water use for the Project, and assesses the potential impact to citywide supply and demand projections through the year 2040 for the City of American Canyon. The Project would be served by water provided by the City of American Canyon. Phase 1 is estimated to use up to 10.8 acre-feet per year (afy) of potable water to serve the two warehouses at the site, and up to 37.1 afy of recycled water, predominantly for landscape irrigation. Phase 2 is estimated to use up to 13.1 afy of potable water for warehouses and up to 45.0 afy of recycled water for landscape irrigation.

The Project will use less potable water over the long-term than was assumed in the demand analysis in the City's Urban Water Management Plan (UWMP) for the project site (133.3 afy less). In addition, compliance with the City's Zero Water Footprint policy would offset the Project's potable demand through off-site implementation of project-funded water conservation measures of up to 23.9 afy. The citywide supply/demand analysis in this WSA anticipates sufficient supply in all normal years, but shortfalls in water supply during dry-year scenarios in 2035 and 2040, consistent with the analysis in the 2015 UWMP. State Water Project carryover water is anticipated to be available in amounts great enough to accommodate these deficiencies. In addition, the City may choose to make use of other options available, including Advanced Table A Water, drought demand restrictions, or water purchases on the open market. As such, adequate supply is projected to be available under all planning scenarios.

The City produces recycled water to meet demand and, along with recycled water supplied by the Napa Sanitation District, has sufficient long-term supply capacity to meet projected demand both at the project site and throughout the City's service area.

1 INTRODUCTION

This report analyzes the projected water supply and demand for the Giovannoni Logistics Center (Project) in the City of American Canyon in Napa County, California. The Water Supply Assessment (WSA) is intended to support environmental planning documentation for the Project, which includes approximately 2.4 million square feet of warehouse space.

1.1 Regulatory Background

Section 10910 of the California Water Code (as revised by Senate Bill 610, or SB610) requires: "The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act, pursuant to Section 21080.1 of the Public Resources Code, "…[to] identify a water system…that may supply water for the project," and to prepare a WSA to address the increased water use over existing conditions. The WSA is intended to:

1. Identify the water system or systems that would (or may) supply water to the project;
2. Compare project water demands with those projections included in the most-recently adopted Urban Water Management Plan or Plans for those service providers; and
3. Assess whether the public water system's total projected water availability for the entire system(s) during normal, single dry, and multiple dry years over a 20-year period will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses (including agricultural and manufacturing uses).

Within this assessment, California Water Code Section 10910(4)(d) requires a discussion of existing water supply entitlements, water rights, or water service contracts relevant to the public water system(s). Also, Section 10910 (2)(f) requires that "If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment: (1) a review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project (2) a description of any groundwater basin or basins from which the proposed project will be supplied."

The proposed Project is a logistics warehouse complex on approximately 208 acres with 2.4 million square feet of warehouse space. Section 10912(a) of the California Water Code outlines the types of projects requiring a Water Supply Assessment, including:

- "A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area."

As such, the Project requires a WSA. See Section 3.1 for a discussion of estimated water demand for the Project.

Water supply for the proposed project would be served by the City of American Canyon ("City"). Water sources available to the City are discussed in Section 2. The City prepared a 2015 Urban Water Management (UWMP) (Kennedy Jenks, 2016) that projected water supply and demand within the service district through 2040. While the Project was not explicitly named in the 2015 UWMP, the UWMP did generally account for projected increases in demand associated with expected development in the city limits of American Canyon, including the parcel for the Project. Section 3.2 discusses the differences in potable and recycled water demand of the proposed project area compared to the assumed demand. Section 4 compares the system-wide supply and demand for the City to assess whether there is sufficient supply to support existing water uses, the Project, and other planned future uses through 2040.

1.2 Project Location

The Project is located in the northern portion of the City of American Canyon in Napa County, California. The proposed development is bounded by the Napa Logistics Park and Devlin Road to the north, Green Island Road and warehouses to the south, Green Island Road Business Park to the west, and Union Pacific Railroad/Napa Branch Line to the east. The Project is broken up into two construction phases. Phase 1 is the eastern portion of the project including two warehouses, roughly 1.1 million square feet of warehouse floor space. Phase 2 is the western portion of the project with conceptually up to 1.3 million square feet of warehouse space.

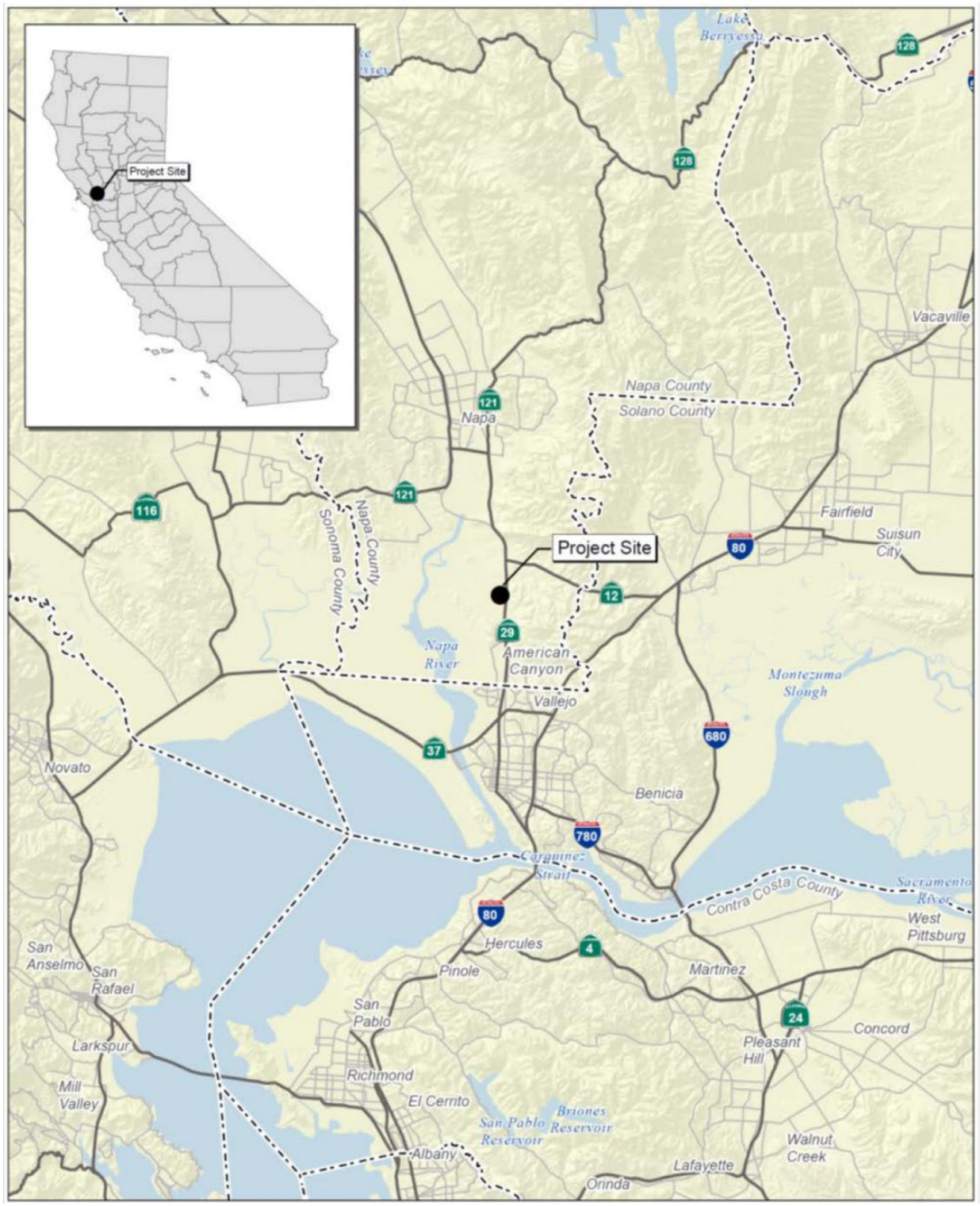

Figure 1-1 Project Location

1.3 Existing Conditions

The project site is currently undeveloped parcels composed generally of mix grasses and several seasonal wetlands. Most of the seasonal wetlands on the proposed project site are located on the northern edges of the parcel and will be left as a wetland/mitigation preserve outside the development footprint of the project.

1.4 Proposed Project

The proposed project entails developing 208-acres for light industrial uses constructed in two phases. Phase 1 is the 94.7-acre area east of Devlin Road extension, including two warehouses, totaling roughly 1.1 million square feet, associated impervious surfaces, stormwater facilities, and wetland preservation areas. Phase 2 is the 113.1-acre area west of Devlin Road, and would conceptually include up to 1.3 million square feet of warehouse space and associated infrastructure. In total the Project would develop 161 acres, leaving 47 acres as open space, including the northern portion of the project site adjacent to No Name Creek. **Figure 1-2** shows the proposed project layout, as described in the Project's Stormwater Control Plan (Balance, 2021)[1].

Potable water supply for the Project will be served by the City of American Canyon, and landscape irrigation will be supplied by recycled water, also from the City, via water infrastructure installed within Devlin Road extension. Laterals would extend from Devlin Road water lines to project warehouses (**Figure 1-3**).

[1] Note that only Phase I is shown in the figure. Phase II is being evaluated at a programmatic level, and thus specific site plans for this portion of the site have not yet been completed. It is expected that the site would include warehouses, similar to Phase I, with up to 1.3 million square feet of floor space.

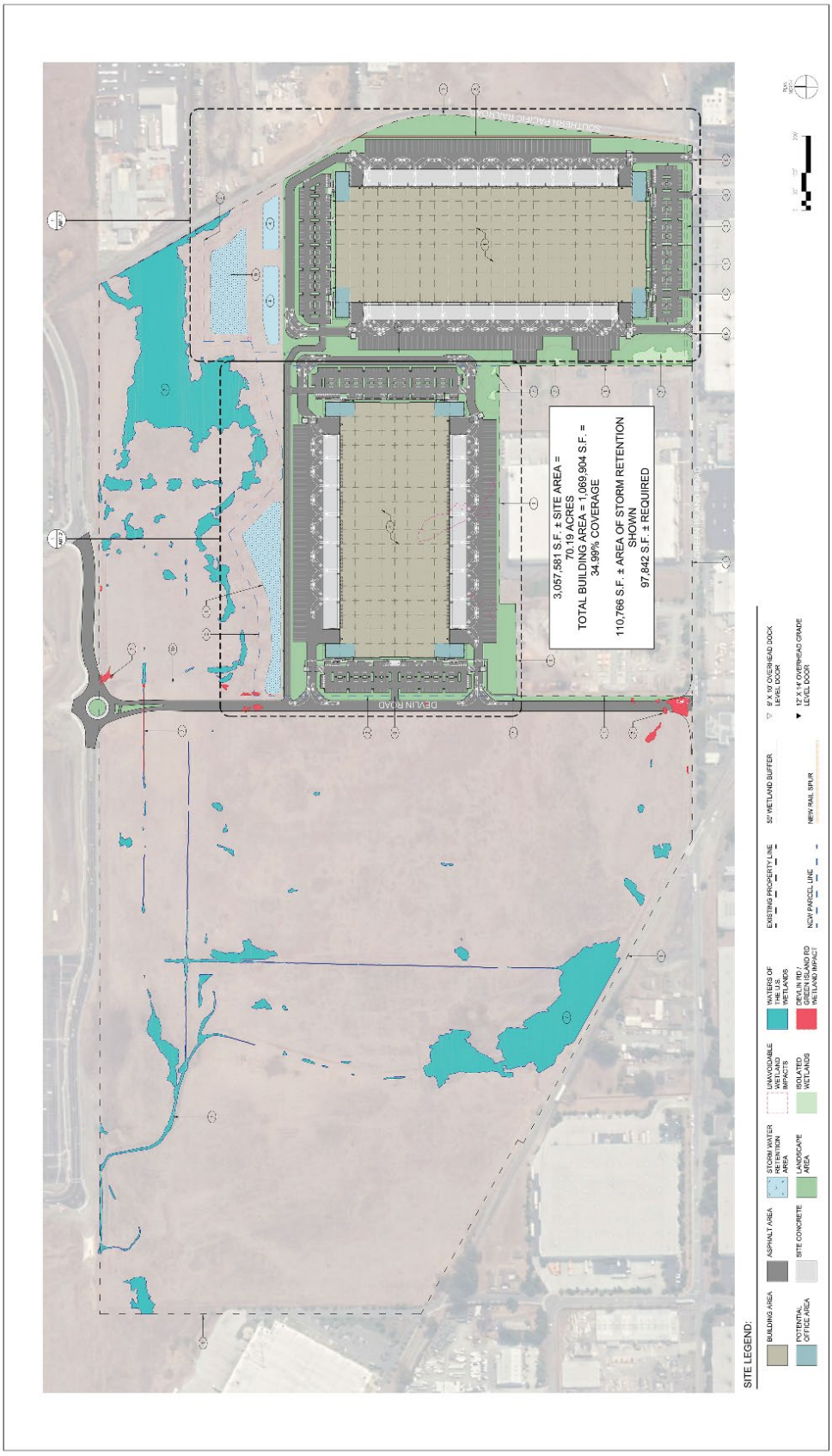

Figure 1-2 Proposed Project

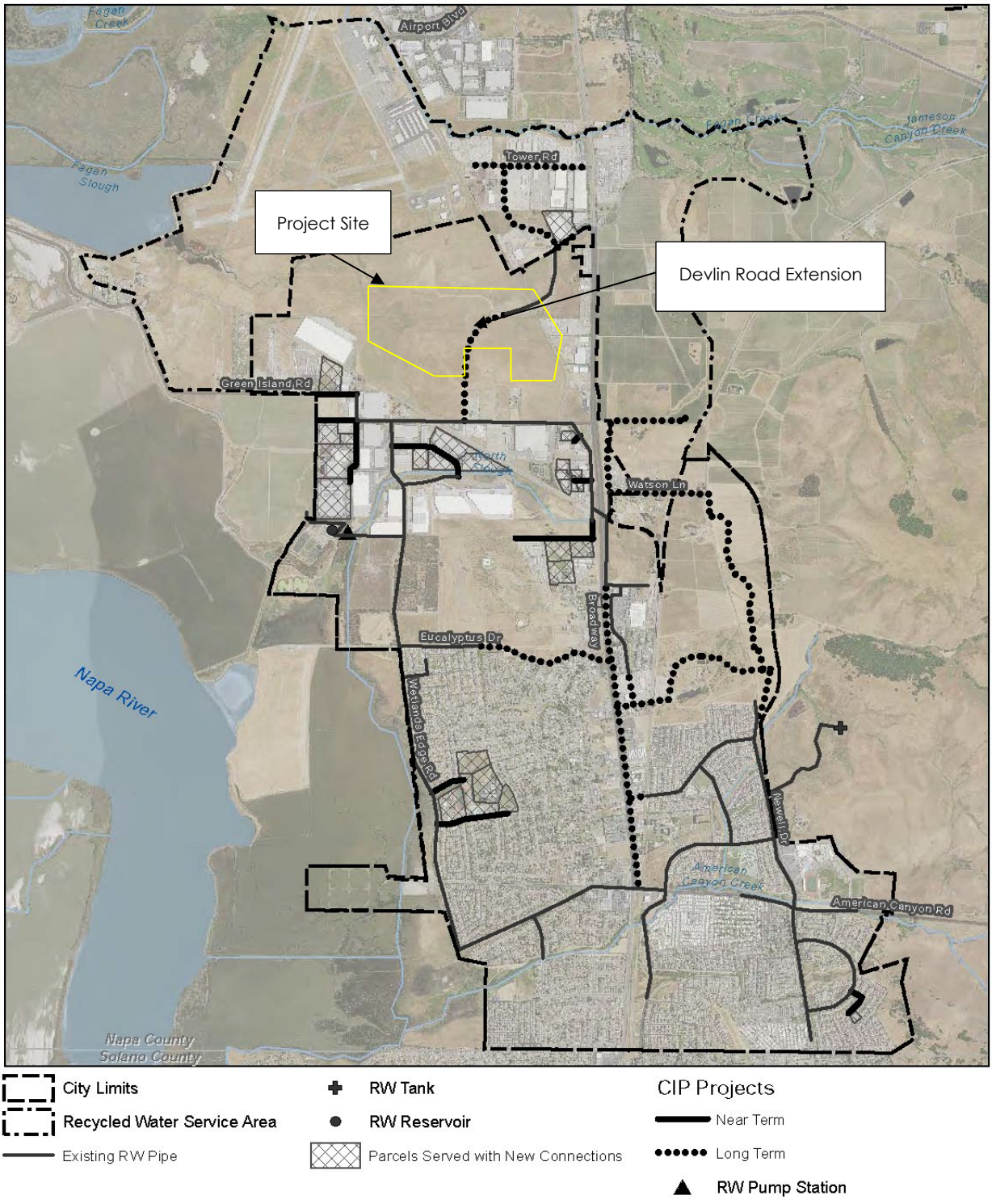

Figure 1-3 **Existing and Planned Recycled Water System for the City of American Canyon, California**. As reported in the City of American Canyon Recycled Water Master Plan, 2016.

2 WATER SUPPLY

American Canyon obtains its water supply from a variety of sources, all of which (except for recycled water) are imported from outside of the City. All of the City's imported water comes through the North Bay Aqueduct (NBA) system. The following sections summarize the various sources of water for American Canyon (see also **Table 1**). These descriptions were summarized from American Canyon 2015 Urban Water Management Plan (2015 UWMP; Kennedy Jenks, 2016).

2.1 State Water Project

A significant portion of the City's supply is obtained through various indirect contracts for water from the State Water Project (SWP). The Napa Flood Control and Water Conservation District (District) is the State Water Contractor with the California Department of Water Resources (DWR), and the City receives its water through subcontracts with the District.

2.1.1 Table A Allocation

In January 1967, the American Canyon County Water Agency [2] entered into an agreement with the District for water supply from the North Bay Aqueduct. In 2010, the agreement allowed for the delivery of up to 5,200 acre-feet of water per year[3]. This contract runs through 2035 with provisions for extension. The actual amount of SWP water available to the City under the "Table A" allocation process (the method used by DWR to allocate water in the SWP system) varies from year to year due to hydrologic conditions, water demands of other contractors, SWP facility capacity, and environmental/regulatory requirements. Deliveries have varied between 5% (in 2014) and 100% (last occurring in 2017) of the contracted amount.

2.1.2 Article 21

Article 21 is a long-term water supply contract with DWR. This contract varies each year depending on excess water in the Delta, excess water not allocated for other purposes

[2] A predecessor agency to the City of American Canyon, which wasn't incorporated until 1992.
[3] 500 AF of this water was obtained through a purchase of water, by the Napa Sanitation District, from Kern County Water Agency in 2000.

or water deliveries, and the capacity within the City's own system to store the Article 21 purchased water.

Table 1 Current Sources of water supply for American Canyon

Source	Contracted Volume/Capacity (afy)
State Water Project ('Table A' allotment)[1]	5,200
Vallejo Permit (Raw) Water[2]	500
Vallejo Treated Water	
(2011-2015)	2,074
(2016-2021)	2,640
(2021-onward)	3,206
Vallejo Emergency (Raw) Water [3]	500
Groundwater [4]	0
American Canyon Recycled Water [5]	1,271
Napa Sanitation District Recycled Water	591

Notes:

[1] *Includes allottment for American Canyon and additional supply from Kern County Water Agency.*

[2] *Non-Table A water.*

[3] *Available only in dry years.*

[4] *No groundwater is used for City-wide supply*

[5] *As reported in 2015 UWMP . Maximum capacity of City's recycled water treatment system by 2035*

2.2 Water from the City of Vallejo

In 1996, the City entered into an agreement with the City of Vallejo to allow the purchase of additional water supply. Vallejo receives its water from a variety of sources, including SWP water and an appropriative water right. Under the Vallejo Agreement, a specific source is identified for Permit Water supply (see Section 2.2.1, below), but not for Treated or Emergency Water (Sections 2.2.2 and 2.2.3).

2.2.1 Vallejo Permit Water (Raw)

Vallejo holds an appropriative right for Sacramento Bay-Delta water from the State Water Resources Control Board that pre-dates the construction of the SWP. The City has an agreement with Vallejo for delivery of up to 500 acre-feet of water under this permit. This source of water is more reliable than the City's Table A supply, but the Vallejo Agreement still allows for reductions. Addendum 2 to the 1996 Vallejo Agreement states that "In the event the State Water Resources Control Board, or any other agency, restricts Vallejo's

diversion of water [under the appropriative pre-SWP contract] for any reason whatsoever, American Canyon's diversions will be reduced in the same proportion". As such, the City may not receive its full allotment during dry years[4].

2.2.2 Vallejo Treated Water (Potable)

In 1996, the City entered into an agreement with Vallejo to purchase up to 629 acre-feet of potable treated water supply. This agreement included the option for additional (cumulative) purchases in 5-year increments through 2021. Ultimately, this results in a total of 3,206 acre-feet of treated water available for purchase each year by the City from Vallejo for 2021-2040.

A specific source for Treated Water is not identified in the Vallejo Agreement; thus, the ultimate source of this water is a blend of all of Vallejo's water sources. Under certain conditions, the maximum delivery of this supply may be "reduced in the same proportions as any reduction to Vallejo customers inside the Vallejo City limits"[5].

2.2.3 Vallejo Emergency Water (Raw)

When the City's Table A water allotment is curtailed, the City has the option to purchase up to 500 acre-feet of emergency raw water supply from Vallejo, under an agreement amended in 1996. The 2015 UWMP assumes that this water would be available under a dry-year and multiple-dry-year scenarios, but not during a normal year.

2.3 Groundwater

The City of American Canyon does not currently rely on groundwater as a source of water, though the 2015 UWMP states that the City remains open to the possibility and will consider potential supply opportunities as they present themselves. The Project will not be using groundwater sources and therefore detailed information on groundwater outlined in Section 10910(f) of the California Water Code is not required for this Water Supply Assessment.

[4] Vallejo Permit Water delivery was curtailed in both 2014 and 2015, for example. However, the City received its full allotment before the curtailment took effect.

[5] Vallejo Water Service Agreement, May 1, 1996 (Appendix E.4 in the 2005 American Canyon UWMP).

2.4 Other Sources of Potable Supply

2.4.1 Dry-Year Water Bank

In 2009, the City (along with other SWP contractors) entered into an agreement with DWR to obtain emergency supplies if rice farmers in the Sacramento Valley are willing to make their supplies available. The year-to-year availability of this supply is not known, and thus supplies are not factored into long-term planning in the 2015 UWMP.

2.4.2 Turn-back Water Pool Program

DWR has a program for interested SWP contractors called the Turn-back Water Pool Program. SWP contractors may choose to sell Table A water or purchase turn-back pool water that is available through the program. Water from this pool program was not included in the reliability assessment in the 2015 UWMP because the program operates on an as-available basis and long-term availability is not reliable. The amount of pool water available to the City is not a significant amount. For example, during 2010 the City purchased 17 acre-feet, and in 2012 it purchased 64 acre-feet. However, between 2015-2020 the City did not purchase any water from the Turn-back Pool Program.

2.4.3 Napa Treated Water

The City has an agreement with the City of Napa for the purchase of treated (potable) water under emergency conditions, or when the NBA system is offline for maintenance or other reasons. This water source is not a water supply and is not included in the reliability assessment in the 2015 UWMP since it is only available during emergencies. Napa treated water, however, does provide operational flexibility (such as providing water to customers even when the City's water treatment plant is off-line for an extended period of time). During 2010, the City purchased 306 acre-feet of treated water when the plant was off-line for maintenance-related issues. Under this informal arrangement, the Napa treated water purchase counts against the City's SWP Table A allotment and is not an additional supply (and is not included in **Table 1**).

2.4.4 Dry Year Transfer Program

During dry years, varying amounts of additional water may be made available to SWP contractors through DWR's Dry Year Transfer Program, which allows for transfers through a combination of crop idling, groundwater substitution and changes in reservoir operation. For example, in 2015 the City of American Canyon purchased 92 af of additional supply (for that year) through this program. While this option is available to the

City on a per-year authorization, the long-term reliability of this supply is not known and included only as potential supplementary supply for the analysis in this WSA.

2.4.5 Yuba Accord

In 2008, DWR adapted the Lower Yuba River Accord, an agreement to settle issues related to in-stream flows in the Yuba River and fisheries habitat. As part of that agreement, DWR is able to purchase water from the Yuba River Water Agency to, in part, offer to participating SWP contractors as a transfer during dry years. The Napa County FCWCD has authorized the execution of Yuba Accord Dry-year Water Purchase Agreement, and the City has the option to purchase water through this agreement in dry years, though at a cost that is considerably higher than under normal conditions. In 2015, the City authorized the purchase of 124 af through this program in response to cover projected water supply shortfalls during the drought. While this option is available to the City in drought conditions, the availability and reliability of such water past 2020 is unknown[6], and therefore has not been included as long-term reliable supply for the analysis in this WSA.

2.5 Recycled Water

2.5.1 American Canyon Recycled Water

In 2010, the City completed the first phase of its Recycled Water Distribution System Project, which included a one-million-gallon reservoir, distribution piping, and associated improvements at the City's water treatment plant. Initially, 13 users were connected to the system and 73 acre-feet of water was delivered in 2010. Ultimately, the Recycled Water Master Plan in 2016 projected over 1,200 acre-feet of water demand at build-out in 2035 for landscaping and agricultural irrigation. However, utilization of this supply is dependent on connection of additional users and completion of additional distribution pipe segments. Currently, the City produces recycled water to meet demand on an as-needed basis.

The City is currently taking steps to increase capacity of their system to meet this demand in the future. The analysis in this WSA uses 1,271afy as the full system capacity by 2035, as reported in the 2015 UWMP.

[6] The original term of the NCFCWCD agreement was through the end of 2015, but an amendment in 2014 authorized an extension until the end of 2020.

2.5.2 Napa Sanitation District Recycled Water

In addition to the City's recycled water supply, Napa Sanitation District (NSD) has an existing recycled water supply pipe that extends to northern portions of the Airport Industrial Area (north of Fagan Creek). In 2015, NSD provided 210 acre-feet of recycled water to the City's users. The 2015 UWMP projected that NSD will provide up to 391 acre-feet of recycled water in 2020, up to 491 acre-feet in 2025, and 591 acre-feet in 2030 and onwards.

3 WATER DEMAND

The following section summarizes the anticipated potable- and recycled-water demand for the proposed Project, and compares the anticipated demand of the Project to demand assumptions in the 2015 UWMP for those parcels. Section 3.3 discusses system-wide demand for the City.

3.1 Project Demand

As described in Section 1.4, the proposed Project contains two warehouse buildings for Phase I, and additional warehouse buildings as part of Phase II. In addition, the Project will include associated landscaping areas that will require seasonal irrigation. The wetland preservation area is not expected to require supplemental water after the establishment of mitigation wetlands.

3.1.1 Potable Water

Potable water demand for the Project was estimated by CBG Engineers (see Appendix A) based on demand factors contained in the 2016 City of American Canyon Potable Water Master plan, and is summarized in **Table 2**. These estimates were calculated using an average day demand of 0.015 gpd/sf which is the average water use across all the industrial sector and believed to be an overly high estimate of water use for this project[7]. Therefore, revised potable water use projections for the Project were calculated using averages from other similar commercial warehouse projects with more in-depth water demand estimates and/or metered water usage, as further discussed below.

The Napa Airport Corporate Center (NACC) is an industrial warehouse development just North of the Project in the City of American Canyon. Multiple industrial warehouse buildings are planned in this development (buildings B, D, E, G, and H). Details of the water demand estimates are reported in the NACC Water Supply Assessment report (Balance Hydrologics, 2015), with an estimated average day demand of 0.006 gpd/sf[8] . Similarly, Suisun Logistics Center is a planned industrial warehouse project in Fairfield, California also owned and operated by Buzz Oates. That project used water meter data from similar Buzz Oates developments in Fairfield to project anticipated potable water

[7] Warehouse space typically uses less water than most other industrial uses that often include industrial process water in addition to the water needed to supply employees (sinks, bathrooms, etc.).

[8] Building A of the NACC project is considered mix-used and was left out of the average day demand calculation for the industrial warehouse water demand estimates.

demand. Using actual water use from four industrial developments, Suisun Logistics Center average day demand is estimated at 0.01 gpd/sf (Appendix B). In order to provide a more realistic estimate of potable water demand for the Giovannoni Project, we averaged various demand rates described above (CBG, NACC, and Suisun Logistics Center), resulting in an average day demand of 0.009 gpd/sf. This revised average day demand was used to calculate a revised potable water use for the Project and is summarized in Table 2. We estimate the total potable water demand of the project at build-out to be 23.9 afy (15.9 afy less than the usage originally estimated by CBG Engineers).

For the purposes of this WSA, all indoor water demand is assumed to be from potable water. The applicant has not indicated that recycled water would be used for non-potable indoor uses, though that would remain an option to further reduce potable water demand at the site, should the applicant choose[9]. **Table 2** shows the estimated potable water demand for each building of the Project.

[9] The applicant is required to offset potable demand through implementation of the City's Zero Water Footprint policy (see Chapter 5). Use of recycled water for non-potable indoor uses would reduce the amount of the offset needed. However, because the applicant has not indicated this option, this WSA assumes all indoor water use will be from potable supply in order to provide a conservatively high estimate of potable water use.

Table 2 Estimated water demand for the Giovannoni Logistics Center Project, American Canyon, California

Project feature	Building floor area (sq. ft.)	Potable water use[1] (afy)	Revised potable water (afy)	Recycled water use[3] (afy)	Total water use (afy)
Building A - Phase 1	601,383	10.1	6.1	20.8	30.9
Building B - Phase 1	468,521	7.9	4.7	16.2	24.1
Phase 2	1,300,000	21.8	13.1	45.0	66.9
Total	**2,369,904**	**39.8**	**23.9**	**82.1**	**121.9**

Notes:

[1] cbg project estimate based on average day demand of 0.015 gpd/sf from American Canyon Potable Water Master Plan. See Appendix A for details.

[2] Revised potable water use estimates based on average day demand of 0.009 gpd/sf. This is an average generated from three commerical water demand estimates.

[3] Recycled water will be used for all landscape irrigation. Recycled water should be available to the project. Recycled demand estimated using demand factors from Table 3.13 in the 2010 UWMP.

3.1.2 Recycled Water

The Project is proposing to use recycled water for all irrigation needs. Estimated recycled water use within the project is summarized in **Table 2**. The current project plans do not have estimates for the area of irrigated landscaping. We approximated Project irrigation water demand by applying the average ratio of 0.604 between irrigated area and building footprint from the neighboring NACC project (Balance Hydrologics, 2015), with a demand factor of 2.5 acre-feet/acre (from Table 3.13 in the 2010 UWMP). These irrigation demand estimates may be high if the Project plans to landscape with xeric or native plant species that have lower-than-typical irrigation needs.

The recycled water usage estimates in **Table 2** are intended to be used for environmental planning documentation. Actual use per building may vary based on final site plans, but total use is expected to be consistent with (or less than) these assumptions. As stated above, all non-potable indoor water use is anticipated to be served by potable supply, though the option remains open to serve with recycled water, should the applicant choose.

3.2 Project Demand Comparison to UWMP

The following sections compare the current estimates of water demand for the Project to those assumed for that parcel in the 2015 UWMP.

3.2.1 POTABLE WATER

In order to project future system-wide water demand for the 2015 UWMP, the standard demand factors from the 2010 UWMP were used along with a variety of growth-rate estimates for various land-use sectors. For the commercial/industrial sector, the City analyzed the acreage of vacant land zoned for those uses, and applied a water use factor of 675 gallons/day/acre (gpd/ac) to each parcel. The project's demand has been incorporated into long-term projections under an assumption of a build-out use of 675 gpd/ac (0.76 afy per acre).

Table 3 compares the estimated project demand with the assumptions for the parcel included in the 2015 UWMP. Due to relatively low water-use of warehouse space compared to industrial-sector averages, the incorporation of recycled water for irrigation purposes, and the designation of a portion of the site for wetland preservation that will not require supplemental water supply, the Project is expected to use 133.3 afy less water than expected under the 2015 UWMP growth scenario. Implementation of the City's Zero Water Footprint Policy (see Chapter 5) would result in an additional 23.9-acre-foot reduction in potable water demand relative to the UWMP system-wide demand analysis.

Table 3 Estimated water demand compared to assumptions within the 2015 American Canyon UWMP

	Potable Water				*Recycled Water*	
	UWMP[1]	**Project[2]**	**Difference**	**ZWF offset[3]**	**UWMP[4]**	**Project[5]**
	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
Phase 1	71.6	10.8	-60.9	-10.8	...	37.1
Phase 2	85.6	13.1	-72.5	-13.1	...	45.0
Total	**157.2**	**23.9**	**-133.3**	**-23.9**		**82.1**

Notes:

[1] Commerical demand factors, 2010 UWMP, Table 3.13.

[2] From Table 2.

[3] Required project compliance with the City's Zero Water Footprint policy. The Project will offset potable water use through implentation of various items from the City's "toolbox".

[4] UWMP did not project irrigation demand on a parcel-by-parcel basis. Because Project irrigation will be supplied by recycled water, comparison against projections in the UWMP is not necessary.

[5] Irrigated landcape; from Table 2.

3.2.2 Recycled Water

The American Canyon UWMP assumes irrigation use to be 2.5 acre-feet of water per acre of landscaping, but (unlike for potable demand) did not project recycled water demand associated with particular parcels anticipated for development. Because recycled water use offsets demand for potable (or raw imported) water and it is in the City's best interest to maximize use of recycled water, the Project's recycled water demand is assessed relative to the recycled-water demand goals outlined in the UWMP.

The 2016 Recycled Water Master Plan showed a delivery of 248 acre-feet for an existing 21 users between August 2013 and July 2014. In 2019, 282 acre-feet[10] of recycled water was delivered to customers which is still below the projected 391 acre-feet of recycled water in 2020. This Project would add an estimated 82.1afy of recycled water demand (see **Table 3**, above).

3.3 System-wide Demand

3.3.1 Recent Actual System Demand

The 2015 UWMP provides a comprehensive assessment of anticipated future water demand that included projections for both potable[11] and recycled water for 2015-2040. However, actual water usage between 2015 and 2020 differed from what was projected in the UWMP, suggesting that demand patterns for 2015-2040 may be different as well.

Table 4 shows the actual water usage within the City's distribution area since the 2015 UWMP was completed, as well as the interpolated yearly demand based on the projections in the UWMP. **Figure 3-1** highlights these recent trends. Since 2015, potable water demand has been much lower than that anticipated in the UWMP.

[10] From the Napa Valley Wine Insider Digest, August 2021. Napa County recycled water was used at record levels amid the recent drought. Balance did not have access to reliable annual data since the 2015 UWMP was released.

[11] Raw water used for agricultural irrigation is included as part of potable demand in the UWMP.

Table 4 Recent potable and recycled water usage for American Canyon

	2015	2016	2017	2018	2019	2020
	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
Total potable water use[1]	2,968	2,572	2,558	2,667	2,418	2,665
Total projected potable water demand (2015 UWMP)[2]	2,976	3,062	3,148	3,233	3,319	3,405
Total City recycled water use[3]	**180**	**na**	**na**	**na**	**282**	**na**
Total projected recycled water demand (2015 UWMP)	385	509	634	758	883	1,007
Total water usage (actual)	**3,148**	**2,572**	**2,558**	**2,667**	**2,700**	**2,665**
Total projected water demand (2015 UWMP)	3,361	3,571	3,781	3,992	4,202	4,412

Notes:

[1] *Actual water usage from Napa County Flood Control and Water Conservation District SWP delivery accounting tables (provided by the City) plus agricultural raw water. Agricultural raw water use estimated to remain at 2015 level (56 AFY) through 2020, then be reduced to zero thereafter.*

[2] *Linear interpolation of 2015 usage and UWMP projected potable water demand for 2020.*

[3] *Actual recycled water usage, 2015 value obtained from the 2015 UWMP, 2019 value obtained from Napa Valley Wine Insider Digest, all other values not readily available.*

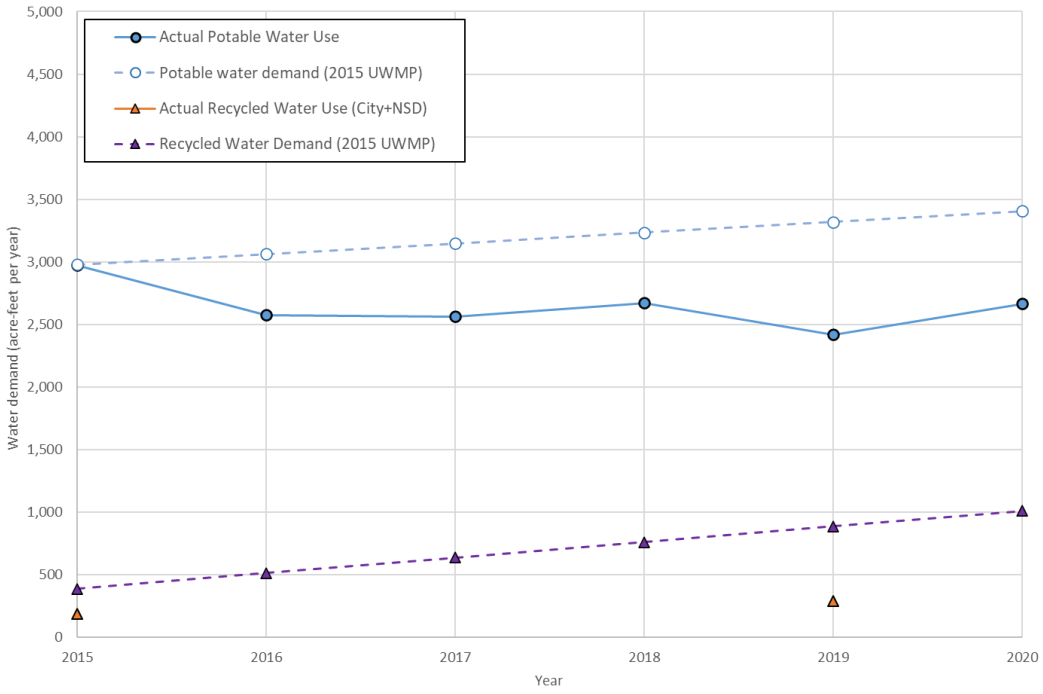

Figure 3-1 Potable and Recycled Water Demand vs. Actual Water Use

3.3.2 PROJECTED SYSTEM DEMAND

Projected Demand (2015 UWMP)

The 2015 UWMP projected future demand on a parcel-by-parcel basis relative to expected growth under the City's general plan. The analysis assumed that recycled water would be available to meet a portion of the total demand, with the remainder supplied by potable water. **Table 5** shows the water demand as presented in the 2015 UWMP.

Table 5 Projected potable, recycled, and total water demand for American Canyon through 2040, as presented in the 2015 UWMP

	2015 [5] (afy)	2020 (afy)	2025 (afy)	2030 (afy)	2035 (afy)	2040 (afy)
Projected potable water demand (UWMP) [1]	*2345*	*3,150*	*3,350*	*3,606*	*3,862*	*4,131*
Projected potable system losses (UWMP) [2]	*631*	*255*	*272*	*292*	*313*	*335*
Recycled water demand (UWMP) [3]	*385*	*1,007*	*1,146*	*1,351*	*1,862*	*1,862*
Total water demand (UWMP) [4]	**3,361**	**4,412**	**4,768**	**5,249**	**6,037**	**6,328**

Notes:

[1] *From 2015 American Canyon UWMP, Tables 4-3, excluding system losses.*

[2] *From 2015 American Canyon UWMP, Tables 4-3, system losses only*

[3] *From 2015 American Canyon UWMP, Tables 4-10*

[4] *Sum of potable demand, system losses, and recycled water demand, consistent with Table 4-10 in the 2015*

[5] *Actual values for 2015 presented in 2015 American Canyon UWMP, Tables 4-2. All other values are projected values.*

Unbilled Water Losses

The UWMP assumed that unbilled water losses[12] would be 7.5 percent for each year between 2020-2040. This is consistent with standards adopted by the California Urban Water Conservation Council (CUWCC), which provides that systems that experience greater than 10-percent losses annually undergo a water audit. In 2015, water delivery and water-use records indicate that system losses were 22 percent. The City is currently undertaking an aggressive response to the situation by replacing leaky services and water mains to reduce system loss. The City assumed it would reduce system losses to 7.5 percent of the total potable and raw water deliveries by 2020. In 2015, the City replaced more than 120 segments of residential services lines as part of its program to reduce distribution system losses.

[12] Referred to as "Unaccounted-for System Losses" in the UWMP, and "system losses" elsewhere in this WSA.

4 SUPPLY AND DEMAND COMPARISON

This section compares future City-wide water demand, to anticipated available supply under 'normal year,' 'single dry year,' and 'multiple dry year' scenarios. The scenarios presented herein have been summarized from the 2015 UWMP analysis for City-wide system planning.

The following analysis addresses potable and recycled water separately, as recycled water supply is considered reliable (and available at 100 percent of capacity) under all year-types. Reliability of potable water varies by year type as a percentage of contracted amount, as shown in **Table 6** and further described below.

Table 6 **Supply reliability for various American Canyon water sources**. Assumed percent of contracted amount for various year-type scenarios.

	2021-2040	Year Type				
Source	**Contracted or Available Volume**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**
SWP (Table A allotment)	5,200	62%	5%	22%	22%	22%
Vallejo Permit Water [1]	500	100%	100%	100%	100%	100%
Vallejo Treated Water [1]	Varies [2]	100%	80%	80%	80%	80%
Vallejo Emergency Water [1]	500	0%	100%	100%	100%	80%
Groundwater [3]	n/a	--	--	--	--	--
American Canyon Recycled Water	n/a [4]	100%	100%	100%	100%	100%

Notes:

[1] *Percentages from 2015 UWMP, Table 7-4, 7-5, 7-6*

[2] *Contracted amount is 2,074 in 2015, 2,640 in 2020, and 3,206 2021-onward.*

[3] *Groundwater is not a source for City-wide supply.*

[4] *Recycled water is produced to meet demand; ultimately, maximum production capacity of City's recycled water system is expected to be 1,000 afy.*

4.1 Potable Water

Table 7 summarizes available potable water supply under 'normal year', 'single dry year', and 'multiple dry year' scenarios. As outlined in Section 2, the City's potable water supply relies exclusively on imported water, both from the SWP and through the City of Vallejo. A percentage of the full contracted amount is assumed for each source type under each scenario (**Table 6**, above). These percentages are based on guidance by DWR, analysis in the City's UWMP and the Vallejo UWMP. Resulting supply volumes for each source

under the various scenarios through 2040 are shown in **Table 7**. The supply and demand for potable water for each of the year-types is discussed below[13].

4.1.1 Normal Year

In a 'normal year', the City's 2015 UWMP assumes 'Table A' SWP deliveries would be 62 percent of the total contracted amount. Treated water from Vallejo water and raw Vallejo Permit water are assumed to be 100 percent available in normal years, consistent with the 2015 UWMP.

The UWMP concluded that future supply is available to meet anticipated demand in normal years through build-out in 2035, as does the analysis in this WSA (**Table 8**). Excess supply in normal years ranges from a low of 2,653 in 2040 to a high of 3,497 afy in 2025.

4.1.2 Single Dry Year

Under the "single-dry-year" scenario, the 2015 UWMP assumed SWP Table A deliveries to be curtailed to 5 percent of the contracted amount (see **Table 7 and Table 8**).

As discussed in Section 2.2, all water from Vallejo is considered a more reliable source than the City's SWP supply. The 2015 UWMP assumes that raw Vallejo Permit Water is available at 100 percent and Treated Vallejo Water are available at 80 percent of the contracted amount during single dry years. In addition, the full allotment of raw Vallejo Emergency Water (500 acre-feet) would be available under dry-year conditions. The analysis herein uses these same assumptions.

The 2015 UWMP shows that single-dry-year supply is not significantly currently constrained and the City will be able to reliably meet potable demand until the year 2030[14]. Single-dry-year deficiencies are anticipated starting in 2035 (**Table 8**). The City has several options available to resolve dry-year supply deficiencies, as described in Section 4.2.

[13] The analysis does not include adjustments for reduced demand of the Project relative to the assumptions in the UWMP for that parcel. As discussed in 3.2, the Project is expected to use 133.3 afy less than anticipated for those parcels in the UWMP, and will fund ZWF demand offsets of approximately 23.9 afy. Other recently completed projects or projects currently in the planning process may also affect projected demand, but have not been included in this analysis.

[14] Slight deficiencies are shown for dry-year supply in 2020 and 2030, but only by less than 2% of the total supply.

4.1.3 Multiple Dry Years

The multiple-dry-year scenario, as described in the UWMP, consists of three consecutive years of reduced water deliveries, though none are reduced to the same degree as the single-dry-year scenario[15]. The UWMP assumed that SWP Table A water would be reduced to 22 percent of the contracted amount for each of three years (see **Table 7 and Table 8**).

Raw Permit water are assumed to be available at 100 percent, and Treated water from Vallejo are assumed to be available at 80 percent of the contracted amount for years 1, 2, and 3 of the multi-year drought following the assumptions in the 2015 UWMP. Vallejo Emergency water is assumed to be available at the full contracted amount (500 acre-feet) for each of the three years of a multi-year drought, consistent with the 2015 UWMP.

The 2015 UWMP projects that water supply will exceed demand during a three-year drought through the full 2040 planning period (**Table 8**).

[15] The reference period used for the multi-dry-year scenario in the UWMP is the drought from 1990-1992. From a planning perspective, the UWMP assumed that a three-year drought is unlikely to include the "single dry-year" scenario.

Table 7 Projected water supply for American Canyon for various year types

	2021-2040	2015	2020					2025					2030					2035					2040				
Source	**Contracted or Available Volume**	**Actual**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**	**Normal Year**	**Single Dry Year**	**Dry year 1**	**Dry year 2**	**Dry year 3**
SWP (Table A allotment)	5,200	1,953	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144	3,224	260	1,144	1,144	1,144
SWP (Article 21)	Varies	72	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124	189	0	124	124	124
Vallejo Permit Water	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Vallejo Treated Water	Varies	102	2,640	2,112	2,112	2,112	2,112	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565	3,206	2,565	2,565	2,565	2,565
Vallejo Emergency Water	500	387	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400	0	500	500	500	400
Total Potable	**6,200**	**3,014**	**6,553**	**3,372**	**4,380**	**4,380**	**4,280**	**7,119**	**3,825**	**4,833**	**4,833**	**4,733**	**7,119**	**3,825**	**4,833**	**4,833**	**4,733**	**7,119**	**3,825**	**4,833**	**4,833**	**4,733**	**7,119**	**3,825**	**4,833**	**4,833**	**4,733**
American Canyon Recycled Water	n/a[2]	180	616	616	616	616	616	655	655	655	655	655	760	760	760	760	760	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271	1,271
NSD Recycled Water	Varies[3]	210	391	391	391	391	391	491	491	491	491	491	591	591	591	591	591	591	591	591	591	591	591	591	591	591	591
Total Recycled	**-**	**390**	**1,007**	**1,007**	**1,007**	**1,007**	**1,007**	**1,146**	**1,146**	**1,146**	**1,146**	**1,146**	**1,351**	**1,351**	**1,351**	**1,351**	**1,351**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**	**1,862**
Total Supply	**-**	**3,404**	**7,560**	**4,379**	**5,387**	**5,387**	**5,287**	**8,265**	**4,971**	**5,979**	**5,979**	**5,879**	**8,470**	**5,176**	**6,184**	**6,184**	**6,084**	**8,981**	**5,687**	**6,695**	**6,695**	**6,595**	**8,981**	**5,687**	**6,695**	**6,695**	**6,595**

Notes:

[1] *Contracted amount is 2,074 in 2015, 2,640 in 2020, and 3,206 2021-onward.*

[2] *Recycled water is produced to meet demand; ultimately, maximum production capacity of City's recycled water system is expected to be 1,000 afy.*

[3] *Projected deliveries from NSD to the northern Airport Industrial Area. Does not include demand for the Montalcino Resort, as that amount will not affect City-wide demand.*

Table 8 **Comparison of potable and recycled water supply and demand under various year-type scenarios.**

See Table 15 for resolution of potable supply-demand deficiencies.

Source	2015	2020					2025					2030					2035					2040				
	Acutal	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3
	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
Total potable supply[1]	3,014	6,553	3,372	4,380	4,380	4,280	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733	7,119	3,825	4,833	4,833	4,733
Potable demand[2]	2,345	3,405	3,405	3,405	3,405	3,405	3,622	3,622	3,622	3,622	3,622	3,898	3,898	3,898	3,898	3,898	4,175	4,175	4,175	4,175	4,175	4,466	4,466	4,466	4,466	4,466
Potable supply minus demand	*669*	*3,148*	*-33*	*975*	*975*	*875*	*3,497*	*203*	*1,211*	*1,211*	*1,111*	*3,221*	*-73*	*935*	*935*	*835*	*2,944*	*-350*	*658*	*658*	*558*	*2,653*	*-641*	*367*	*367*	*267*
Recycled water supply[3]	390	1,007	1,007	1,007	1,007	1,007	1,146	1,146	1,146	1,146	1,146	1,351	1,351	1,351	1,351	1,351	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Recycled water demand[4]	385	1,007	1,007	1,007	1,007	1,007	1,146	1,146	1,146	1,146	1,146	1,351	1,351	1,351	1,351	1,351	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Recycled supply minus demand	*5*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

Notes:

[1] *From Table 7.*

[2] *Projected potable normal-year demand, from Table 5.*

[3] *From Table 7*

[4] *From Table 5*

4.2 Potable Water Deficiency Resolution

The above analysis compares potable water supply and normal-year demand, and projects supply shortages in several of the 'dry-year' and 'multi-dry-year' planning scenarios. This section describes a series of options available to the City to eliminate those shortfalls in order to provide reliable supply. Estimated SWP carryover water (see Section 4.2.1) would be sufficient to eliminate dry-year supply shortfalls, and could also be used in combination with drought demand reductions to further improve supply reliability.

4.2.1 SWP Carryover Water

If the City does not use its entire allotment of Table A water in a given year, the remaining water will carry-over to the following year, assuming there is adequate storage in SWP reservoirs to contain the excess supply[16]. Between 2015 and 2020, the City has stored between 35 and 2,600 acre-feet of carry-over water in a given year (**Table 9**), which has helped to meet demand during recent dry years. Because of the variability of carryover supply and the periodic "re-set" of the accounting when reservoirs are full, it is not considered a consistent yearly supply for planning purposes, but it does allow the City extra flexibility during droughts. As such, we have incorporated carry-over water into the analysis in this WSA.

We assume that 1,156 acre-feet of carryover water, the average over the last six years (**Table 9**), would be available at the beginning of a dry year and the first year of a multi-year drought. Projected excess normal-year supply ranges from 2,653 to 3,497 acre-feet for 2020-2040 (see **Table 8**), suggesting that the 1,156 acre-feet is a reasonable and somewhat conservative estimate for planning purposes[17]. In the second and third year of a multi-year drought, we assume that the remaining carry-over supply (assuming there is any) would continue to carry over to subsequent years to supplement supplies.

[16] In years when SWP reservoirs spill, the carry-over water is released, effectively re-setting carryover accounting to zero. Typically, however, ample storage is available in dry years.

[17] By definition, a single-dry-year would follow a normal or wet year, as would the first year of a three-year drought.

Table 9 **Recent SWP carryover water supply for the City of American Canyon.** Values from Napa County Flood Control and Water Conservation District SWP delivery accounting tables (provided by the City).

	2015	2016	2017	2018	2019	2020	Mean
Table A deliveries (% of total contract amount)[1]	25%	75%	100%	50%	85%	20%	59%
Available carryover water (remaining from previous year, in afy)[1]	876	1,087	127	2,210	35	2,600	1,156

Notes:

[1] From Napa County Flood Control and Water Conservation District SWP delivery accounting tables (provided by the City).

For example, in Single Dry Year scenario for 2035, 1,156 acre-feet would be available to meet the supply deficit of -350 acre-feet (from **Table 8**). The difference (806 af) would be available if there was another drought year. Under the above assumptions, the City would be able to meet projected supply deficiencies under all dry- and multi-dry-year scenarios within the planning period (2015-2040) through the use of available carry-over water.

4.2.2 Advanced Table A Program

A recent court settlement (Area of Origin Settlement[18], 2014), clarifies another potential mechanism for the Napa County FCWCD, the Solano County Water Agency, and Yuba City (along with subcontractors to those agencies, which includes American Canyon) to obtain water during dry periods. The Advanced Table A Program allows these agencies to 'borrow' against future SWP deliveries during times when annual deliveries are not sufficient to meet demand. The agreement requires that all Table A and Table A Carryover water be used prior to utilizing the Advanced Table A Program, but under those circumstances the City could request an advance of up to 949 af from future years' Table A allotments.

The projections in **Table 10** do not rely on the use of the Advanced Table A Program water to meet dry-year demand, as estimated Table A Carryover is enough to cover supply deficiencies for all scenarios. However, this Program provides an important tool available

[18] Superior Court of the State of California, County of Sacramento, Case No. 34-2008-00001633 8-CU BC GDS.

to the City should unforeseen circumstances result in significantly lower-than-expected carryover.

Table 10 Potable water deficiency resolution for dry- and multi-dry-year scenarios.

The table shows that all dry-year deficiencies can be met through carry-over water. In addition, the City has several other options available to help meet supply shortages during droughts.

Source	2015	2020					2025					2030					2035					2040				
	Actual	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3	Normal Year	Single Dry Year	Dry year 1	Dry year 2	Dry year 3
	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
Potable supply minus demand[1]	669	3,403	222	1,230	1,230	1,130	3,769	475	1,483	1,483	1,383	3,513	219	1,227	1,227	1,127	3,257	-37	971	971	871	2,988	-306	702	702	602
Estimated Table A carryover water[2]	--	--	1,156	1,156	2,386	3,616	--	1,156	1,156	2,639	4,122	--	1,156	1,156	2,383	3,610	--	1,156	1,156	2,127	3,098	--	1,156	1,156	1,858	2,560
"Advanced Table A" water[3]	--	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0
Demand savings through drought restrictions[4]	--	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	0	0	0	0	0
Open market water purchases[5]	--	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	--	0	0	0	0	0	0	0	0	0
Adjusted supply minus demand[6]	669	3,403	1,378	2,386	3,616	4,746	3,769	1,631	2,639	4,122	5,505	3,513	1,375	2,383	3,610	4,737	3,257	1,119	2,127	3,098	3,969	2,988	850	1,858	2,560	3,162

Notes:

[1] *From Table 8*

[2] *Table A water not used in the prior year may be used in the following year, assuming storage is available; estimated from previous six years of carryover availability (see Table 9). Assume 1,156 af of available in a dry year and the first year of a multi-year drought. Remaining carryover after the first year of a drought is available in the second year, and remaining water after the second year is available in the third year of a drought.*

[3] *When the City exhausts its supply of carryover water, the City can "borrow" against future SWP deliveries, up to 949 af. Projected water shortages can be met solely through carryover supply, so no Advanced water is projected to be needed to meet demand.*

[4] *The City may chose to offset supply deficiency through demand reduction (drought restrictions) during dry periods. All supply deficiencies are projected to be satisfied through carryover water; restrictions are not likely to be required, but remain an option for the City, if needed; see Table 11 for projected estimated volume for drought conservation savings.*

[5] *The City also has the option to purchase additional water on the open market. While not required to meet long-term supply deficiencies the City may chose to use this option during droughts,*

[6] *Supply minus demand from above, plus additional supply available through carryover, "Advanced Table A", demand savings, and open market purchases.*

4.2.3 Drought-year Demand Reductions

It is important to note that the demand projections in the 2015 UWMP (as well as for the analysis in this WSA) were not explicitly adjusted for voluntary or mandatory water-use reduction measures that may be implemented in response to drought conditions[19]. The City has a Water Shortage Contingency Plan that outlines four stages of water demand reduction measures that could be utilized when water supply is constrained due to environmental or other conditions. The City projects demand reductions of 10/20/30/50 percent corresponding to each of the tiers, beginning with voluntary actions at Tier 1, and moving to increasingly restrictive mandatory measures for Tiers 2-4.

On June 1, 2021, in response to on-going statewide drought conditions, the City declared a Stage 1 drought emergency that called for a voluntary reduction from residential and commercial customers compared to the previous year. On July 20, 2021, the City declared a Stage 2 drought emergency, enacting mandatory water-use restrictions, requiring all water customers to reduce their water use by 20%. As of the end of August, 2021, water conservation measures have resulted in an 18 percent decrease from residential customers and 13 percent decrease from commercial customers.

Because estimated carryover water was sufficient to satisfy projected shortages, the supply and demand analysis in **Table 10** does not account for drought-year demand reduction. However, the City may choose to use these measures to provide additional flexibility during droughts. Assuming drought reductions of 13 percent, similar to what was achieved in 2014, the City could be expected to reduce demand in future years ranging between 305 af in 2015 and 537 af in 2040 (**Table 11**). While these volumes would not solely eliminate projected dry-year shortages, these measures could be used in conjunction with the above measures to provide additional buffer, as needed, if other supplies are unexpectedly curtailed. Stronger restrictions (level 3 or 4), could be used to achieve greater reductions if necessary, but are not likely to be needed.

[19] For the purposes of the UWMP and this WSA, demand is assumed to be the same in normal- and dry-year scenarios for a given planning period.

Table 11 **Projected drought-year demand savings.** Estimated drought conservation volume (potable demand reduction) that could be used during future droughts to help the City manage supply shortages. Volumes based on 13% savings achieved between 2013 and 2014.

	2015 (afy)	2020 (afy)	2025 (afy)	2030 (afy)	2035 (afy)	2040 (afy)
Projected normal-year potable demand[1]	2,345	3,150	3,350	3,606	3,862	4,131
Estimated drought conservation volume[2]	305	410	436	469	502	537

Notes:
[1] *From Table 5*
[2] *13% of potable demand.*

4.2.4 Open Market Purchases

As discussed in Section 2.4 the City has the option to purchase additional water from a variety of other sources on an as-needed and as-available basis. These potential purchases were not considered as a reliable long-term supply for the purposes of this WSA, though the City could choose to purchase additional supply in dry years when normal supplies are constrained. In fact, the City chose to utilize this option in 2015, and purchased 216 af of additional supply through the Dry Year Transfer and Yuba Accord Programs. As with the above options, Open Market Purchases can provide additional operational flexibility for the City during dry periods when other supplies are reduced.

4.3 Recycled Water

As discussed in Section 2.5, the City's recycled water system has a supply capacity of up to 1,271 acre-feet per year by 2035, and NSD has agreed to provide up to 591 acre-feet to supply the northern portion of the Airport Industrial Area (which is located within the City's water service area). Practically, however, the City produces recycled water to meet demand, as shown in **Table 8** (above). Because recycled water is derived from wastewater that is: 1) less susceptible to fluctuation due to climatic conditions, and 2) available in excess of the capacity of the recycled water system, recycled water is assumed to be 100 percent available during single- and multi-year-drought scenarios.

Table 8 presents recycled water supply versus demand for the 2015-2040 planning period under various year-type scenarios. Because recycled water use offsets water that would otherwise be delivered from limited potable or imported-water supply, it is in the City's

best interest to maximize recycled water use by way of increasing the number of recycled water users tied into the system.

The projections for recycled water use in the 2015 UWMP were, in effect, operational goals to maximize recycled water use. The UWMP projected 1,862 acre-feet of recycled water use by 2035. Recent recycled water use has been much lower than projected in the UWMP. For example, in 2019 water demand was projected to be about 883 AF, but the City only used 282 AF of recycled water. The City expects a significant expansion in the recycled water delivery system by 2035, allowing full use of the system by that time. Recycled water demand by sector is shown in **Table 12.**

Table 12 Summary of potential recycled water demand, by sector

Utility land-use classification	Potable offset demand[1] (afy)	Buildout demand[2] (afy)
Single-family residential	--	22.8
Multi-family residential	--	41.8
Commercial	3.4	49.7
Industrial	4.7	209.9
Institutional/Governmental	101.9	127.4
Landscape	69.4	119.5
Open Space	--	--
Watson Ranch	--	253.2
Recreation	--	204.3
Agricultural	68.1	173.2
Total	**247.5**	**1,201.9**

Notes:

[1] Adapted from GHD, 2016, Table 14. Projected demand used in the WSA analysis (Table 6) are lower than the numbers shown here in order to provide a conservative estimate of future demand.

[2] Buildout demand for Institutional/Gonvernmental assumes the American Canyon High School will halve existing demand by fixing suspected leaks in the irrigation system.

4.4 Summary

In summary, the analysis in this WSA shows that the City's water supply is sufficient to meet projected demand, in all years and under all normal-, dry, and multi-dry-year scenarios. The analysis shows that demand will exceed supply during some dry years, but the City will still be able to meet demand through the use of carryover SWP water, or through some combination of carryover SWP water, Advanced Table A Water, demand

reductions, and/or additional purchases on the open market. In addition, recycled water supply in the City is available to meet existing and projected demand, and available in sufficient volume to support non-potable uses at the Project site. Use of recycled water at the site will increase the City's utilization of this supply.

5 ZERO WATER FOOTPRINT POLICY

In October 2007, the City adopted a policy to regulate water use for new development. Under this Zero Water Footprint (ZWF) policy, new accounts are required to offset the proposed project's potable water use through off-site water conservation measures, conversion of off-site potable irrigation to recycled water, on-site demand reduction (relative to existing use), or by acquiring additional supply. The City has provided a list of potential conservation, repair, and other projects within the service area that could be used as offsets for new service accounts. In 2011, the City adopted an additional policy that further refined the offset options available to meet the ZWF requirements.

5.1 Project ZWF Compliance

The proposed Project is required to comply with the City's ZWF policy, and will offset all of its potable water demand. The Project will offset its potable water demand by implementing several items off of the City's offset "toolbox", likely to include a combination of off-site landscape irrigation water conversion and conversion of existing potable water customers.

Anticipated potable water use for the Project, once completed, would be 23.9 afy. ZWF offset totals will be required to be at least that amount.

5.2 City-wide Compliance

On the whole, compliance with the City's ZWF policy should essentially result in no net increase in potable water demand[20] as new projects are built within the City's water distribution area. The effect of this policy was not explicitly accounted for in the long-term potable demand projections in the 2015 UWMP or for this WSA. However, two of the main ways that projects can reach compliance with the ZWF policy would be through funding conversion of irrigated landscape areas to recycled water, and improving the efficiency of the City's water distribution system (reducing system losses). The analysis in this WSA has included projections of both recycled water system expansion and reduced potable water losses that would, at least in part, be funded through implementation of the ZWF policy.

[20] Or alternatively, offset increases in demand with increased volume of reliable supply.

6 LIMITATIONS

This technical report was prepared in general accordance with the accepted standard-of-practice existing in Northern California at the time the analyses were performed. No other warranty is made or implied. Readers are asked to contact us if they have additional relevant information, or wish to propose revisions or modified descriptions of conditions, such that the best data can be applied at the earliest possible date.

7 REFERENCES

Balance Hydrologics, 2015, Water Supply Assessment for the Napa Airport Corporate Center Project, American Canyon, California. Report prepared for First Carbon Solutions.

Balance Hydrologics, 2021, Draft Stormwater Control Plan for the Giovannoni Logistics Center Project – East. Report prepared for Carlson, Barbee & Gibson, Inc.

Brown, S., and Shaw, D., 2015, Water Supply Assessment for the Napa Airport Corporate Center Project, American Canyon, California. Prepared by Balance Hydrologics, Inc. for First Carbon Solutions, 87p.

GHD, 2016, City of American Canyon Recycled Water Master Plan. Report prepared for the City of American Canyon, dated May 2016, 96p.

Kennedy Jenks Consultants, 2016, Final 2015 Urban Water Management Plan. Report prepared for the City of American Canyon, 153p.

APPENDICES

APPENDIX A

Potable water demand estimates by CBG Engineers

February 23, 2021
Job No.: 2637-030

PRELIMINARY WATER DEMAND ESTIMATE
GIOVANNONI LOGISTICS CENTER - EAST
AMERICAN CANYON, CALIFORNIA

				Proposed Flow				
Description	**Land Use**	**Building Square Footage**	**Average Day Demand (gpd/sf)**	**Average Day Demand (gpd)**	**Max Day Factor**	**Max Day Demand (gpd)**	**Peak Hour Factor**	**Peak Hour Demand (gpm)**
Building A	Industrial	601,383	0.015	9,021	2.0	18,041	1.75	22
Building B	Industrial	468,521	0.015	7,028	2.0	14,056	1.75	17

Notes:

1. *Design Criteria is based on the: City of American Canyon Potable Water Master plan dated, May 2016, and the City of American Canyon Engineering Standard Plans and Specifications for Public Improvements dated, May 1, 1995.*
2. *Average Day Demand of 0.015 gpd/sf equates to 650 gpd/acre per the American Canyon Potable Water Master plan.*

APPENDIX B

Suisun Logistics Center Potable Water Demand Estimates by RAK Engineers

RAK CIVIL ENGINEERS
ROBERT A. KARN & ASSOCIATES, INC.
707 Beck Avenue, Fairfield, California 94533 Phone: (707) 435-9999 Fax: (707) 435-9988

April 12, 2021

Mr. Paul Fuchslin
Director of Engineering
Solano Irrigation District
810 Vaca Valley Pkwy Suite 201
Vacaville, CA 95688

SUBJECT: Proposed Water Usage for the Suisun Logistics Center and Highway 12 Logistics Center Projects – Suisun City – CA.

The intent of this memo is to provide clarity as to the yearly anticipated water usage demand for both proposed Buzz Oates City of Suisun City projects (Suisun Logistics Center & Highway 12 Logistics Center).

High-Cube Warehouse and Distribution buildings are not a water-intensive use, especially when compared to other heavy industrial uses. Most of the water demand for High-Cube Warehouse and Distribution comes from landscape irrigation. Buzz Oates intends to minimize landscape irrigation, further reducing anticipated water demand.

We requested water meter data for similar buildings developed, constructed, owned, and operated by Buzz Oates from the City of Fairfield Water Department to provide accurate water usage loads.

Michael Hether, Assistant Public Works Director provided the attached usage data that spans approximately 5 years, 7 months. The annual acre-foot usage was calculated as an aggregate spanning the entire duration of building operation by utilizing the average daily usage data for domestic, irrigation, and fire suppression demands. Broken down, this equates to 0.29228 acre feet per year per developable acre of water demand.

Total water demand equals approximately +/-62 acre-feet when applied to the proposed City of Suisun City projects. See below breakdown. I have also attached the usage data provided by the City of Fairfield for reference.

ADRESS	Sq. Ft.	Acres	Yearly Acre Feet	Acre Feet Per Developable Acre
2975 Cordelia Rd.	473,136	24.25	0.840132626	
2925 Cordelia Rd.	318,402	18.73	10.05492075	
2875 Cordelia Rd.	176,760	9.32	3.022470217	
2825 Cordelia Rd.	36,950	3.99	2.534983094	
		56.29	16.45	**0.29228**

Suisun Logistics Center — 120 developable acres (x 0.29228) = 35.0736

Highway 12 Logistics Center — 93 developable (x0.29228) = 27.182

TOTAL — **62.255 ANTICIPATED YEARLY ACRE-FOOT USAGE**

RAK CIVIL ENGINEERS
ROBERT A. KARN & ASSOCIATES, INC.
707 Beck Avenue, Fairfield, California 94533 Phone (707) 435-9999 Fax (707) 435-9998

I have attached the water usage data provided by the City of Fairfield for your records. Please let me know if you have any questions or require additional data related to the proposed water usage.

Thank you,

Tony Perfetto
Project Manager
Robert A. Karn & Associates, Inc.

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I.2 - Hydrology Report

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November 12, 2020
Job No.: 2637-030

PRELIMINARY SANITARY SEWER SIZING CALCULATIONS
GIOVANNONI LOGISTICS CENTER - EAST
AMERICAN CANYON, CALIFORNIA

				Proposed Flow				
Description	**Acreage**	**Q (gal/day)**	**I/I (gal/day)**	**Q (gal/day)**	**Q (gpm)**	**Q (cfs)**	**d/D**	**Downstream Pipe Slope**
Building A	34.7	86,750	14,100	152,900	106.2	0.237	0.36	0.5%
Buildings B	26.6	66,500	17,500	123,900	86.0	0.192	0.33	0.5%

Notes:

1. *Design Criteria is based on the: City of American Canyon Sanitary Sewer Master plan dated, May 2016, and the City of American Canyon Engineering Standard Plans and Specifications for Public Improvements dated, May 1, 1995.*
2. *The minimum pipe size for a public sanitary sewer main is 6".*
3. *Sewers shall be sized to carry no greater than the design flow capacities of 75% for pipes 10" and smaller.*
4. *The n-value for new sewer pipe is 0.013.*
5. *All gravity sewers shall maintain a minimum velocity of 2.5 feet per second flowing full.*
6. *The minimum slope for 8" sewer pipe is 0.5%.*
7. *The maximum slope for gravity mains is 15%*
8. *The average acreage flow estimate for light industrial areas is 2500 Gal/Acre/Day*
9. *The peak acreage flow estimate for light industrial areas is 4000 Gal/Acre/Day*
10. *I/I is 4000 Gallons per inch diameter - mile per day*

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FIRSTCARBONSOLUTIONS™

FINAL
Environmental Impact Report
Giovannoni Logistics Center Project
City of American Canyon, Napa County, California

State Clearinghouse Number 2021010104

Prepared for:
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Contact: Mary Bean, Project Director
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Date: October 31, 2022

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SECTION 1: INTRODUCTION

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15088, the City of American Canyon (Lead Agency) has evaluated the comments received on the Giovannoni Logistics Center Project Draft Environmental Impact Report (Draft EIR). Pursuant to CEQA Guidelines Section 15132, this Final EIR includes a list of persons, organizations, and agencies that provided comments on the Draft EIR; responses to the comments received regarding the Draft EIR; and errata, or revisions to the Draft EIR; as well as a Mitigation Monitoring and Reporting Program (MMRP) for use by the City of American Canyon during its review.

This document is organized into five sections:

- **Section 1—Introduction.** Provides an introduction to the Final EIR.
- **Section 2—Master Responses.** Provides a single, comprehensive response to similar comments about a particular topic.
- **Section 3—Responses to Written Comments.** Provides a list of the agencies, organizations, and individuals who commented on the Draft EIR. Copies of all of the letters received regarding the Draft EIR and responses thereto are included in this section.
- **Section 4—Responses to June 23, 2022, Planning Commission Meeting Comments.** Provides a list of the speakers who commented on the Draft EIR, a summary of their comments, and responses thereto are included in this section.
- **Section 5—Errata.** Includes an addendum listing refinements and clarifications on the Draft EIR, which have been incorporated.

The Final EIR includes the following contents:

- Draft EIR (provided under separate cover)
- Draft EIR Appendices (provided under separate cover)
- Responses to Written Comments on the Draft EIR (Section 3), Responses to Planning Commission Meeting Comments (Section 4), and Errata (Section 5)
- Mitigation Monitoring and Reporting Program (provided under separate cover)

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SECTION 2: MASTER RESPONSES

Master responses address similar comments made by multiple public agencies, businesses, organizations, or individuals through written comments submitted to the City of American Canyon. Master responses are provided in the order in which they are referenced in the responses in Section 3. The master responses are intended to provide thorough responses to all of the individual comments that raised the same issue or very similar issues.

2.1 - List of Master Responses

- Master Response 1—Impacts to Swainson's Hawk/Golden Eagle Foraging Habitat
- Master Response 2—New "North" Fire Station
- Master Response 3—Buildout Assumptions
- Master Response 4—Vehicle Miles Traveled

2.2 - Master Responses

Master Response 1—Impacts to Swainson's Hawk/Golden Eagle Foraging Habitat

Summary of Relevant Comments

Both the California Department of Fish and Wildlife (CDFW) and Scott Cashen stated that the proposed project would result in the loss of Swainson's hawk foraging habitat and this impact should be mitigated in accordance with CDFW mitigation guidelines. Mr. Cashen also provided similar comments about the loss of golden eagle foraging habitat. The CDFW noted that the Draft Environmental Impact Report (Draft EIR) identifies that the proposed project would remove Swainson's hawk foraging habitat but does not specify the acreage. The CDFW also stated that the approximately 45 acres of wetlands that would be preserved by the proposed project may not be sufficient to mitigate for the loss of Swainson's hawk foraging habitat, and the presence of suitable Swainson's hawk foraging habitat near the site does not negate the need to mitigate for permanent removal of foraging habitat for this species.

Response

Swainson's Hawk

The development of Phase 1 would permanently impact approximately 68.8 acres of Swainson's hawk foraging habitat, and the development of Phase 2 would permanently impact approximately 85.9 acres of Swainson's hawk foraging habitat.

Draft EIR Section 3.3, Biological Resources, page 3.3-24 acknowledges that development of the proposed project would remove some foraging area for this species, but also indicated that the proposed project would also provide and preserve in perpetuity approximately 45 acres of wetlands that would include habitat currently suitable for foraging by the Swainson's hawk as indicated by the observation of a Swainson's hawk foraging in the site in spring 2021. In addition, the Draft EIR acknowledges the Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides foraging habitat for Swainson's hawk and that there are several large open

space preserves within 2 and 5 miles of the project site that, combined, provide approximately 2,000 acres of suitable foraging habitat for the Swainson's hawk within a 10-mile radius of the project site. This demonstrates that, based upon the limited number of known Swainson's hawk to occur within a 10-mile radius of the project site, and with the acreage of existing foraging habitat currently protected, there is more than sufficient foraging habitat near the project site. Accordingly, the proposed project would not result in significant impacts to foraging habitat nor affect the nesting populations of Swainson's hawk near the project site either directly, indirectly, or cumulatively. Therefore, no mitigation is warranted for Swainson's hawk foraging habitat. Importantly, the operative significance thresholds for impacts to Swainson's hawk are (i) whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications, or (ii) whether the proposed project would substantially reduce the number or restrict the range of the species. Although the proposed project would result in a net loss of foraging habitat, such a net loss occurring in the particular area in which the project site is located, the proposed project would not cause either a substantial adverse effect on the species, a substantial reduction in its numbers, or a substantial restriction of its range. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.)

CDFW's Life History Account for the Swainson's hawk indicates that this species feeds on small mammals, amphibians, reptiles, and birds, and soars and low and high levels in search of prey. The Life History Account also indicates that the Swainson's hawk can be found in riparian habitat, sparsely vegetated flatlands, open desert, grassland, or cropland containing scattered large trees or small groves. In sum, Swainson's hawk is a hardy species that can survive on a range of prey in a variety of very different habitats throughout California; it does not only occur in southern Napa County. The relatively small loss of foraging habitat on the project site would not affect the range of the species or cause the loss of substantial numbers of individual hawks.

Geoff Monk of Monk & Associates, one of the biological consulting firms that prepared the biological resources analysis, worked extensively with the Swainson's hawk over four decades, and banded many nestlings of this species. The Swainson's hawk is a California designated threatened species protected pursuant to the California Endangered Species Act (CESA). To obtain known/recorded information for the occurrence of nesting Swainson's hawk nearest the project site, Monk & Associates completed a record search in the California Natural Diversity Database (CNDDB). It should be noted that all species of *Buteo* frequently change nesting locations from year to year, and may reuse a nest site in successive years or may move to a different nest site for one year and then back to nest sites used previously. Raptor biologists generally regard nests that are currently in use to be the "active nests," while nests that are used in successive years or in alternate years are regarded as "alternate nest sites." CESA (FGC § 2050 *et seq*.) and Fish and Game Code statutes that protect nesting birds (and raptors) (FGC §§ 3503, 3503.5, 3513, and 3800) would afford protections only to those nests that are currently in use by the nesting birds. Alternate nesting sites that are not occupied are afforded no protections pursuant to CESA or the Fish and Game Codes that protect nesting birds.

In 1979, Dr. Peter Bloom published a report estimating that the historical baseline for Swainson's hawk breeding pairs in California was somewhere between 4,284 to 17,136. Dr. Bloom's 1979 report

also estimated only 375 (±50) breeding pairs remained in California, showing a rapid decline in population at the time, as compared to the historical baseline. Dr. Bloom's report noted that breeding pairs were heavily concentrated in the Central Valley, the Great Basin area of northeastern California; as well as a few concentrated Swainson's hawk territories located in Shasta Valley, the Owens Valley, and the Mohave Desert.[1] In 1988, a CDFW-led survey effort revealed no material change in Swainson's hawk distribution from the 1979 Bloom report. The 1988 effort estimated 430 pairs in the Central Valley and a Statewide estimate of 550 breeding pairs. In 2005, the CDFW conducted a Statewide survey estimating 2,081 breeding pairs.[2] The 2005 survey showed a steady increase in Swainson's hawk breeding pair population when compared to the 1979 breeding pair estimate.

In 2005, Dr. Bloom noted that the Swainson's hawk population in California (and throughout North America) was suffering from acute poisoning from grasshopper insecticide use in Argentina applied directly to Swainson's hawk's gregarious migration roosts in Argentina. Detrimental Argentinian insecticide use has largely stopped in recent years, and the Swainson's hawk nesting population in California has grown significantly. In 2007, the CDFW estimated 1,948 Swainson's hawk breeding pairs in California's Central Valley, with most of the population occurring in the area from Stanislaus County north to Butte County.

Dr. Bret Furnas' 2022 study titled "*Rapid Growth of the Swainson's Hawk Population in California Since 2005*"[3] estimated the total Statewide population of 18,810 breeding Swainson's hawk breeding pairs based on survey data collected in 2005, 2006, 2017, and 2018. The research group, which included Dr. Bloom, concluded that California's Swainson's hawk summering population grew between 2005 and 2018 at the rapid rate of 13.9 percent per year. It should also be noted that the current estimate of 18,810 breeding pairs is extraordinary given Dr. Bloom's 1979 estimate of 375 nesting pairs in the State. The 2022 estimate is within the range of the historical baseline that Dr. Bloom estimated in 1979 prior to the population decline.

The Swainson's hawk nesting distribution now occurs in many areas where the Swainson's hawk has not been known to nest for decades, if ever. Napa County, while considered within the historic distribution of the Swainson's hawk, was not known to support any nesting sites for this hawk in the 1970s or 1980s. Similarly, the nesting population now extends into east Contra Costa County where nesting previously had not been recorded for many decades. Other nesting population recovery includes Southern California in the Antelope Valley and in Kern County.

[1] Bloom, P.H. 1979. The Status of the Swainson's Hawk in California, 1979. State of California, The Resources Agency, Department of Fish and Game. United States Department of the Interior, Bureau of Land Management, California State Office, 2800 Cottage Way, Sacramento, CA 95825.

[2] California Department of Fish and Wildlife. 2007. Final Report, California Swainson's Hawk Inventory 2005-2007. UC Davis Wildlife Health Center, Department of Fish and Game Resource Assessment Program, Final Report. May 31, 2007.

[3] Furnas, Brett J., David H. Wright, Erin N. Tennant, Reagen M. O'Leary, Michael J. Kuehn, Peter H. Bloom, and Carie L. Battistone. 2022. Rapid Growth of the Swainson's Hawk population in California since 2005. Ponithological applications, Volume 124, Issue 2. May 2022.

Widespread nesting recovery documented by Furnas et al. (2022)[4] has yet to be incorporated into CDFW policy and/or in records kept within the CNDDB.[5] Accordingly, the "Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California" (Staff Report), besides being geographically inappropriate for the proposed project in Napa County, is also not relevant to current nest territory expansion of the Swainson's hawk population into Napa County and elsewhere in the State. Thus, this document is not appropriately used as a basis for determining mitigation ratios for impacts to annual grassland in Napa County. The Staff Report recommends mitigation for projects that impacts foraging habitat within 10 miles of an "active" Swainson's hawk nest (as defined by the CDFW Staff Report). For the reasons provided previously, this mitigation requirement does not reflect the current population expansion of the Swainson's hawk in California, and its use is geographically limited.

It is noteworthy that other raptors that were State and federally listed when the Swainson's hawk was State listed in 1983 such as the bald eagle (*Haliaeetus leucocephalus*) and the peregrine falcon (*Falco peregrinus*) have been delisted (i.e., removed from protections provided by both CESA and the federal Endangered Species Act). The federal government conducted routine census surveys for these species and determined that the nesting populations of these species had fully recovered, and, thus, protection pursuant to the Endangered Species Act was no longer warranted. The CDFW followed these delisting efforts. In contrast, the Swainson's hawk was never federally listed, and as the State of California does not have a recovery plan for the Swainson's hawk, there is no guideline for what constitutes recovery. In addition, the Swainson's hawk has not been counted to the extent that federal listed raptor species were. Thus, mitigation prescriptions developed more than 25 years ago are very likely outdated today.

The proposed 45-acre Wetland Preserve with its seasonal wetlands would be available to provide foraging habitat for the Swainson's hawk in perpetuity. Additionally, less than 2 miles from the project site are 620 acres of dedicated open space (Newell Open Space) that are also preserved in perpetuity. The Newell Open Spaces appears to primarily comprise annual grassland with discrete areas of oak woodland and riparian woodland. Further, the Newell Open Space abuts other dedicated open space preserves, including the 1,039-acre Lynch Canyon Open Space Park and the American Canyon 308-acre California red-legged frog preserve. Combined, these open spaces dedicate over 2,000 acres of open space that can be used for foraging by the Swainson's hawk because the open space supports the small mammals, amphibians, reptiles, and birds on which Swainson's hawks prey. This demonstrates that based on the limited number of Swainson's hawk records in Napa County, there is more than sufficient foraging habitat in the area that will be preserved in perpetuity to support actively nesting hawks and that further provide foraging habitat for other raptors of concern, specifically golden eagles and western burrowing owls. Accordingly, the proposed project would not result in significant impacts to foraging habitat either directly, indirectly, or cumulatively. The net loss of foraging habitat resulting from the proposed project will not cause either a substantial adverse effect on the species, a substantial reduction in its numbers, or a

[4] Furnas, Brett J., David H. Wright, Erin N. Tennant, Reagen M. O'Leary, Michael J. Kuehn, Peter H. Bloom, and Carie L. Battistone. 2022. Rapid Growth of the Swainson's Hawk population in California since 2005. Ponithological applications, Volume 124, Issue 2. May 2022.

[5] California Natural Diversity Database (CNDDB). 2015. RareFind 3.2. Computer printout for special-status species within a 5-mile radius of the project site. California Natural Heritage Division, California Department of Fish and Game, Sacramento, CA.

substantial restriction of its range. Construction of the proposed project would not be expected to affect the nesting population of Swainson's hawk known from Napa County. Accordingly, additional preservation over and above the 45-acre Wetland Preserve is not warranted for the proposed project. Thus, there is no potential for significant indirect or cumulative impacts associated with habitat for Swainson's hawk in this area and the proposed project would not add to any such impact.

Golden Eagle

CDFW's Life History Account indicates that the golden eagle feeds on small mammals, reptiles, and birds, as well as carrion. The Life History Account also indicates that the golden eagle forages in open terrain, including grasslands, deserts, savannas, and early successional stages of forests. Like the Swainson's hawk, the golden eagle is a hardy species that can survive on a range of prey in a variety of very different habitats throughout California; it does not only occur in southern Napa County.

Accordingly, for the same reasons the proposed project would not result in an indirect or cumulative loss of Swainson's hawk foraging habitat, it would also not result in a significant indirect or cumulative loss of golden eagle foraging habitat.

Master Response 2—New "North" Fire Station

Summary of Relevant Comments

The American Canyon Fire Protection District (ACFPD) indicated that the proposed project, along with other planned development, would trigger the need for a new "North" fire station and related apparatus. The Sentinels of Freedom, a 501(c3) nonprofit organization, indicated that it owns a 25.44-acre vacant property adjacent to Napa Logistics Park and would like to offer to sell the site to the City of American Canyon for the development of a fire station and training center.

Response

As the ACFPD letter indicates, the Giovannoni Logistics Center Project and other planned projects in the northern portion of American Canyon create a need for a new fire station. The need is not solely caused by the Giovannoni Logistics Center Project. At the time of Final EIR publication, the new "North" fire station is conceptual in nature and no facility planning has occurred. The ultimate fate of the potential facility therefore remains speculative. (See California Environmental Quality Act [CEQA] Guidelines, § 15145 [lead agencies need not address speculative impacts].)

The letter from ACFPD identified a number of possible "mitigation measures" for addressing ACFPD's "annual operating deficit." The City notes in response that "mitigation" is not the right word to describe any fair share funding that the project proponent may contribute to ACFPD's operations. Under CEQA, the proper focus of service-related impacts is on the physical effects of the construction of new or expanded facilities to provide services. Any inadequacy in the provision of actual services due to funding shortfalls is not a CEQA impact triggering mitigation. (See *City of Hayward v. Board of Trustees of the Cal. State University* (2015) 242 Cal.App.4th 833, 843 ["[t]he need for additional fire protection services is not an environmental impact that CEQA requires a project proponent to mitigate"]; *Goleta Union School Dist. v. Regents of Univ. of Cal.* (1995) 37 Cal.App.4th 1025, 1031–1034 [school overcrowding attributable to new development is not an environmental effect subject to CEQA, though the physical effects of new facility construction to

serve new students would be]; and CEQA Guidelines, Section 15131, subdivision (a) ["[e]conomic or social effects of a project shall not be treated as significant effects on the environment"]).

The Sentinels of Freedom property was evaluated as a potential alternative location for the proposed project in Chapter 5, Alternatives to the Proposed Project. As discussed in Draft EIR Chapter 5, Alternatives to the Proposed Project, page 5-17, the site was determined to be too small to support a 2.4-million-square-foot logistics center. However, the property is designated for "Industrial" use by the Napa County General Plan, zoned "Business/Industrial" by the Napa County Airport Industrial Area Specific Plan, and is within both the City of American Canyon's Sphere of Influence (SOI) and Urban Limit Line (ULL). From a preliminary perspective, the Sentinels property may be a suitable location for a new fire station but more due diligence would be required to confirm its suitability.

Regardless, at the time of Final EIR publication, no decisions had been made regarding the acquisition of the Sentinels property or any other property for a new "North" fire station. Hence, the development of a new fire station is outside the scope of the Draft EIR.

Master Response 3—Buildout Assumptions

Summary of Relevant Comments

Both Golden State Environmental Justice Alliance (GSEJA) and Napa-Solano Residents for Responsible Growth (NSRRG) alleged that the Draft EIR used inconsistent buildout assumptions. Both organizations first cited a statement in Draft EIR, Chapter 2, Project Description, page 2-9, to the effect that the Draft EIR assumes that Phase 1 would buildout first followed by Phase 2 and then noted a subsequent statement indicating that, as a practical matter, the proposed project would likely buildout over a period of years, if not decades. NSRRG alleged that a prolonged construction schedule that extends over several years (multiple nesting seasons, multiple "rainy seasons") increases the potential for construction-related impacts to aquatic resources.

Response

The Draft EIR provided the following statement on page 2-9 in Chapter 2, Project Description:

> For the purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be developed concurrently over a period of 18 months.
>
> As a practical matter, the proposed project would buildout over a period of years or decades. Phase 1 would be developed first, followed by Phase 2.

The applicant has indicated that actual buildout is expected to occur as follows:

- Phase 1 is permitted through the resource agencies.
- Phase 1 is mass graded; building pads and wetland restoration areas are created.
- Phase 1 is developed with buildings, either spec or with known end user(s).
- Phase 2 is permitted through the resource agencies.
- Phase 2 is mass graded; building pads and wetland restoration areas are created.
- Phase 2 is developed with buildings, either spec or with known end user(s).

Given the uncertainty regarding the timing of each of these stages, using a "front loaded" buildout horizon allowed the Draft EIR to disclose the maximum amount of construction and operational emissions that could be emitted. The California Emissions Estimator Model (CalEEMod) air emissions model is predicated on both the construction equipment and operational vehicle fleet getting cleaner over time. Thus, "front loading" buildout for the purposes of modeling reasonable worst-case emissions is consistent with CEQA principles, which disfavor the understatement of environmental impacts. Moreover, this was the same approach used in the Napa Logistics Park Phase 2 and Napa Airport Corporate Center EIRs. Furthermore, this statement reflects observations of how buildout of the neighboring Napa Logistics Park and the Green Island Business Park has occurred.

Likewise, if a longer buildout schedule were used (i.e., 10 years), the net effect would be to reduce the amount of construction and operational emissions attributable to the project because it would benefit from a cleaner fleet. Moreover, such an approach would also require a more complicated multi-phased analysis that would involve considerable speculation and would require a significant amount of time and effort to complete and which may not yield any more meaningful, probative information about project impacts.

NSRRG is speculating in assuming that a prolonged buildout schedule would result in greater impacts to aquatic resources. In fact, however, the approach taken in the EIR has created a more conservative, reasonable worst-case approach. As indicated previously, Phase 1 and Phase 2 would be mass graded following resource agency permitting. Building pads and wetland restoration areas would be created. Furthermore, the applicant is required by Mitigation Measure (MM) HYD-1a to implement a Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) during grading and construction. Those protections would remain in place in the interim period between mass grading and building completion. Thus, it is speculative to assume that a prolonged buildout schedule would result in greater impacts to aquatic resources.

Lastly, the statement on page 2-9 about "a period of 18 months" has been corrected to "a period of 20 to 24 months" and change is noted in Section 5, Errata. The change does not materially affect any conclusions of the air quality analysis since it used a 20-month buildout schedule.

NSRRG also alleged that a prolonged construction schedule that extends over several years increases the potential for construction-related impacts to aquatic resources and nesting birds. As stated above in the response to emissions, given the uncertainty regarding the timing of each of these stages, using a "front loaded" buildout horizon allowed the Draft EIR to disclose the maximum amount of impacts to aquatic resources wetland impacts.

Constructing Phase 1 and 2 concurrently over an 18-month period would impact 0.496-acre of wetlands for Phase 1 and 3.7 acres of wetlands for Phase 2 for a total of 4.196 acres of wetlands, which is the worst-case scenario, meaning the maximum acreage of wetland impacts would be 4.196 acres. The "worst-case scenario" assumption is not linked to the number of months it would take to complete each Phase but rather is a function of the acreage of wetland impacts. Phase 2 wetland impacts were assessed based on a full buildout with a maximum impact of 3.7 acres of wetlands. It is possible that, once Phase 2 has gone through the entitlement process, the site plan may be modified to reduce impacts to under 3.7 acres, just as Phase 1 has avoided impacts.

It should be noted that, if construction takes 18 months to complete or longer, all mitigation measures outlined in the Draft EIR would apply for the entirety of the construction period. Therefore, there is no basis to assume new impacts would occur if Phases 1 and 2 take two months to complete or 24 months. It should also be noted that the project will occur over at least two nesting periods, and if birds do nest in the project vicinity and construction has commenced, it should be assumed that the nesting bird(s) are habituated to the ambient level of noise and disturbance emanating from the project site. Therefore, a prolonged construction period that extends beyond 18 months would not increase the chance of construction-related impacts. Regardless, for consistency and to address the commenters concerns, MM BIO-4 was revised to require additional pre-construction breeding bird surveys if construction activities are discontinued for more than 7 days.

Master Response 4—Vehicle Miles Traveled

Summary of Relevant Comments

Both GSEJA and NSRRG alleged that the Vehicle Miles Traveled (VMT) analysis provided no justification for the threshold of 23 miles per employee, and improperly used the California Statewide Travel Demand Model. NSRRG referenced the VMT analysis for a 217,000-square-foot wine distribution warehouse (SDG Commerce 217 Distribution Center Project) less than 2 miles away, which employed a different methodology and thresholds. GSEJA also argued that the VMT analysis was flawed due to its failure to account for non-employee heavy-duty truck trips in the analysis.

Response

To preface this response, VMT is a relatively new area of CEQA, having only been added to the Appendix G Checklist in late 2018 and only applying to environmental documents issued on or after July 1, 2020. Similar to the early years of greenhouse gas (GHG) emissions being introduced to the environmental review process, there is a range of guidance—sometimes conflicting—as to how to evaluate VMT. Likewise, many lead agencies have not adopted their own VMT thresholds or issued any guidance regarding methodology, which is the case for the City of American Canyon. Furthermore, the Napa-Solano regional traffic model is limited in its abilities to calculate project-level VMT. Lastly, there is very little in the way of guidance for evaluating VMT for industrial or warehousing projects. With these factors in mind, W-Trans evaluated VMT with the best information available using the most relevant guidance.

Giovannoni VMT Analysis

Guidance contained in the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, 2018, California Governor's Office of Planning and Research (OPR) (OPR Technical Advisory) was used in selecting an appropriate VMT threshold of significance for the proposed project. While this publication provides no specific direction on the threshold that should be applied to warehouse-related land uses, it does indicate that office-related land uses should use a metric based on automobile commute VMT per employee, with a significance threshold tied to the regional average VMT per employee. Basing the proposed warehouse project's VMT analysis on a commute VMT per employee performance metric was deemed appropriate since the employee automobile commute characteristics of a warehouse project are similar to those produced by an office project. The term

"regional" refers to the Metropolitan Planning Organization (MPO) boundary that the site is located within; for American Canyon this is the nine-county Bay Area overseen by the Metropolitan Transportation Commission (MTC). This approach to defining "regional" is consistent with direction provided by OPR in an online document entitled, "SB 743 Frequently Asked Questions." That document defines "regional" as "the full geography within the jurisdictional borders of a Metropolitan Planning Organization or a regional transportation planning agency." Accordingly, the proposed project's VMT significance threshold was based on an automobile commute VMT per employee performance metric that that was compared to the nine-county Bay Area regional average.

With respect to the use of a significance threshold for commute VMT per employee that is equal to the regional average, rather than 15 percent below the regional average as suggested in the OPR Technical Advisory for office uses, thresholds adopted by other jurisdictions, including Sacramento County and San José, were reviewed as noted in the project's Draft EIR. As discussed in the *Transportation Analysis Guidelines*, County of Sacramento, 2020, "placing industrial land uses in less urban areas characterized by having higher VMT per employee allows land in efficient VMT areas to be more effectively utilized as high-density residential and commercial or office/business professional uses. This threshold is consistent with achieving an overall reduction in regional VMT, as it recognizes that industrial uses, which are relatively lower total VMT generating uses, are most appropriate in areas that have a lower potential to reduce VMT because it results in more available land within areas with a high potential to achieve VMT reductions available for more dense development." Note that Sacramento County applies the same significance threshold for both industrial and warehousing uses. San José applied similar logic in developing its VMT thresholds for industrial and warehousing uses, which are also equal to the regional average VMT per employee.

It is also noted that during "office hours" webinars conducted by OPR in summer 2020, OPR staff acknowledged that industrial/warehousing projects are different from traditional "office" developments, and OPR offered the opinion that jurisdictions looking to establish significance thresholds for such uses may benefit from reviewing the thresholds set by San José. The proposed project's applied VMT significance threshold was developed using the evidence provided by these sources, including the overall premise that locating industrial and warehouse projects in less VMT-efficient areas can play an important role in reducing the community's *overall* VMT, helping to achieve established GHG reduction targets.

Notwithstanding the foregoing, it is worth noting that, although the Draft EIR used a threshold of commute VMT per employee that is equal to the regional average rather than 15 percent below the regional average as suggested in the OPR Technical Advisory for office uses, the VMT for the proposed project is actually substantially more than 15 percent below regional average. As shown in Draft EIR on page 3.12-18, Table 3.12-9, Vehicle Miles Traveled Summary, the regional average VMT per employee is 23.0 miles, while the proposed project's VMT per employee is 16.24 miles, which is roughly 29 percent below the regional average. Thus, the Draft EIR would have reached the same conclusion with respect to the VMT-related impacts of the proposed project—namely, that they were less than significant—even if the City had used the OPR-recommended threshold of 15 percent below the regional average for office projects.

The California Statewide Travel Demand Model (CSTDM) was determined to be the best available source of traffic analysis zone (TAZ)-level VMT data when the proposed project's Notice of Preparation (NOP) was released (January 2021). While a model including the Napa-Solano region exists, it was deemed inappropriate for use in the proposed project's VMT analysis because it truncates vehicle trip lengths at the county line, thereby resulting in an incomplete calculation of a project's potential trip lengths.

Since the Napa-Solano travel demand model does not account for full trip lengths and is not capable of calculating a regional commute VMT per employee metric tied to the nine-county Bay Area used to establish the VMT significance threshold, it was necessary to research other appropriate sources for this value. The City of Vallejo Transportation Impact Analysis Guidelines were deemed to be an appropriate source, not only because of Vallejo's proximity to the proposed project, but because Vallejo faces the same constraints as American Canyon and Napa County in establishing VMT metrics and averages using the Napa-Solano model.

With respect to the use of a different VMT threshold of significance for a nearby distribution center, as discussed below, that project's Mitigated Negative Declaration (MND) has not been accepted by the City of American Canyon. Accordingly, it would be inappropriate to compare the proposed project's VMT methodology and thresholds to those applied in evaluating that project.

SDG Commerce 217 Distribution Center Project

The SDG Commerce 217 Distribution Center Project was initially evaluated in an MND issued in December 2020. Following receipt of comments, the City of American Canyon recirculated the MND in April 2021. Following another round of comments, the applicant requested that the City withdraw consideration of the MND in July 2021. The applicant then elected to proceed with the preparation of an EIR, which has not yet been publicly released at the time of Final EIR publication. It should be noted that neither FirstCarbon Solutions (FCS) nor W-Trans had any involvement with the SDG Commerce 217 Distribution Center Project MND and, thus, have no insights into the decision-making process concerning the VMT analysis.

The Giovannoni Logistics Center EIR did not tier from or rely upon any of the SDG Commerce 217 Distribution Center Project MND's conclusions. Furthermore, the SDG Commerce 217 Distribution Center Project MND has no legal significance given that it was withdrawn from consideration. Lastly, lead agencies have the discretion to use different methodologies and thresholds on a project-by-project basis so long as they are supported by substantial evidence. For these reasons, the VMT methodologies and thresholds used in the SDG Commerce 217 Distribution Center Project MND do not have any bearing on Giovannoni Logistics Center EIR.

Medium- and Heavy-Duty Truck Trips from Logistics operations

As explained above, the VMT analysis in the Draft EIR focused on employee trips and not on truck trips associated with the anticipated functioning of the proposed project's logistics operations. This focus on employee trips in cars and light-duty trucks rather than incoming and outgoing trips by medium- or heavy-duty trips associated with logistics operations is consistent with direction provided by OPR and with the legislation (Senate Bill [SB] 743 of 2013) that authorized OPR and the California Natural Resources Agency to promulgate what became CEQA Guidelines Section 15064.3.

As the Draft EIR explained on page 3.12-17, the OPR Technical Advisory defines "automobile," as the term is used in Section 15064. 3, as referring to "on-road passenger vehicles, specifically cars and light trucks." (Technical Advisory, page 4.) Thus, OPR understands the requirement to address transportation VMT as not reaching heavy-duty trucks. The focus on automobiles and not on heavy-duty trucks is consistent with the policy focus behind the elimination of automobile delay as a factor in assessing the significance of transportation-related impacts, as set forth in SB 743. Public Resources Code Section 21099, subdivision (b)(1), directed the OPR and California Natural Resources Agency to develop alternative significance criteria that would "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Accounting for heavy-duty trucks engaged in interstate commerce would not contribute to these policy goals, as local and State governments have little or no control over interstate commerce involving trucking.

Furthermore, as the Draft EIR explained in its discussion of environmental effects associated with greenhouse gas (GHG) emissions, "[e]missions associated with heavy-duty trucks involved in goods movements are generally controlled on the technology side and through fleet turnover of older trucks and engines to newer and cleaner trucks and engines." The following State strategies reduce GHG emissions from medium and heavy-duty trucks:

- California Air Resources Board (ARB) Mobile Source Strategy focuses on reducing GHGs by transitioning to zero and low emission vehicles and from medium- duty and heavy-duty trucks. ARB's Sustainable Freight Action Plan establishes a goal to improve freight efficiency by 25 percent by 2030, deploy over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize both zero and near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.
- ARB's Truck and Bus Regulation requires diesel-fueled trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses were required to meet particulate matter (PM) filter requirements beginning January 1, 2012. Lighter and older heavier trucks had a compliance date of January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.
- ARB's Emissions Reduction Plan for Ports and Goods Movement (Goods Movement Plan) in California focuses on reducing heavy-duty truck-related emissions and the establishment of emissions standards for trucks, fleet turnover, truck retrofits, and restriction on truck idling. While the focus of the Goods Movement Plan is to reduce criteria air pollutant and air toxic emissions, the strategies to reduce these pollutants would also generally have a beneficial effect in reducing GHG emissions.

Trucks and truck fleet owners and operators accessing the proposed project would be subject to the above trucking and freight regulations. Thus, these strategies would contribute to controlling heavy-duty truck GHG emissions associated with the proposed project, and the proposed project would not conflict with or inhibit these Statewide strategies." (Draft EIR, page 3.6-57, footnotes omitted.)

In sum, not only do local governments have little or no control over interstate trucking operations, but GHG emissions (and thus VMT as a source of such emissions) resulting from medium- and heavy-

duty truck trips are being addressed separately from GHG emissions (and thus VMT as a source of such emissions) from cars and light trucks. For these reasons, the transportation VMT analysis contained in the Draft EIR met applicable legal standards despite not accounting for medium- and heavy-duty truck trips that, if the proposed project is approved, will result from project operations as a logistics facility.

Even so, however, a recent technical study performed by a leading transportation consultant has found that the significance conclusions in the VMT analysis would not have changed if the analysis were expanded to account for medium- and heavy-duty trucks engaged in logistic operations. The conclusion would still be that VMT-related impacts are less than significant.

Appendix J to the Final EIR is a June 16, 2022, technical memorandum prepared for Joe Livaich of Buzz Oates Construction from Kevin Johnson and David Robinson of Fehr & Peers, a leading transportation consultant, on the subject of "American Canyon Industrial Warehouse Travel Behavior Data." According to its authors, "[a] primary objective of the analysis in this memorandum is to address whether VMT from such heavy-duty truck trips would be more or less than 15 percent below the regional average for the Bay Area." The authors conservatively chose to look at this particular metric because, as noted earlier, the OPR Technical Advisory proposed a significance threshold of 15 percent below the regional average for office projects (although, for reasons discussed above, that threshold was not used in the Draft EIR). The threshold of 15 percent below the regional average was thus the most conservative threshold recommended by OPR, and more conservative than the one used in the Draft EIR.

The Fehr & Peers technical memorandum "describes the travel behavior data collected for the proposed 208-acre high-cube industrial warehouse project (the Project) in American Canyon, CA. Fehr & Peers understands the uniqueness of warehousing and logistics facilities that make them extremely difficult to study with traditional data collection methods. Fehr & Peers combined traffic count data previously collected in San Joaquin County for similar warehousing uses with new mobile device origin-destination data from StreetLight for similar industrial warehouse sites around the Bay Area to provide Buzz Oates Construction, Inc. with detailed trip generation, vehicle origin-destination pattern, and average trip length data." (Fehr & Peers, page 1.)

"This data collection effort was undertaken by Fehr & Peers in June 2021 to better understand the travel behavior of existing warehousing buildings across San Joaquin County, as a review of local and regional planning studies revealed a lack of data and understanding of the travel characteristics of these types of facilities. Specifically, there was a lack of local or national trip generation data for warehousing uses, a lack of understanding of the travel patterns and demographics of warehouse users, and a lack of inclusion of these facilities in regional travel forecasting models." (Fehr & Peers, page 2.)

Fehr & Peers coordinated the collection of 72 hours of driveway vehicle classification count data at 39 warehousing buildings across San Joaquin County in June 2021. The data collection was performed by National Data and Surveying Services (NDS) using cameras to count and classify vehicles entering and exiting the individual building driveways. Fehr & Peers staff visited each of the 39 warehousing buildings on one day during the data collection to observe the following:

- Check traffic and weather conditions
- Confirm the placement of the cameras
- Observe activity levels at the surveyed buildings
- Count the number of truck bays
- Classify the buildings
- Observe general operations and travel behavior

Fehr & Peers used this data to develop average trip generation rates per thousand square feet (KSF) for warehousing uses in San Joaquin County." (Fehr & Peers, page 2.)

Fehr & Peers obtained StreetLight's GPS-based commercial vehicle data product for 23 existing industrial warehousing sites around the Bay Area, including eight sites in Napa County, of which four were located within the City of American Canyon. Fehr & Peers relied on StreetLight's "O-D to Pre-set Geography" product to analyze travel patterns to and from the land use zone system at the census block group level, which has over 23,000 zones within California.

A land use zone system was developed for the 23 existing industrial warehousing sites, each of which included a separate zone for each of the existing buildings or groupings of buildings. The analysis tracked all heavy-duty truck trips starting or ending at one of these zones. The start of trips coming to the zones and end of trips leaving the zones were tagged to the national census block group system, allowing for aggregation to any desired geography such as the city or county level.

The land use zone system consisted of eight industrial warehousing sites in Napa County, which are listed below, and include similar existing warehousing sites in full operation during the data collection period. These sites were selected to understand the potential average trip length of heavy-duty truck trips generated by the proposed project.

The "key findings" of the Fehr & Peers study, summarized on page 12, were as follows:

- The average daily trip generation per KSF of warehousing building space is 0.078 medium-duty truck trips, 0.447 heavy-duty truck trips, 0.995 auto trips, and 1.52 total vehicle trips.
- The average trip length of heavy-duty truck trips generated by the eight existing Napa County industrial warehousing sites in full operation during the data collection period is 35.6 miles.
- The average trip length of heavy-duty truck trips generated by the eight existing Napa County industrial warehousing sites is roughly 39 percent lower than the average trip length for all 23 Bay Area warehousing sites combined.

In short, if the Draft EIR had taken account of medium- and heavy-duty truck trips from logistics operations, as GSEJA suggested was necessary, the analysis would still have concluded that the proposed project would have less than significant VMT-related impacts.

This conclusion is also relevant to the analysis of GHG emissions for the proposed project, which employed a significance threshold very similar to one adopted relatively recently by the Bay Area Air Quality Management District (BAAQMD), by which one factor indicating a less than significant

operational GHG impact was VMT 15 percent below the existing VMT per employee in the Bay Area Region. (Draft EIR, pages 3.6-45 and 3.6-56.) As the preceding discussion indicates, the VMT per employee for the proposed project is roughly 30 percent below the regional average. If medium- and heavy-duty truck traffic from project operations is added to the discussion, the VMT from such traffic is roughly 39 percent below the regional average. Thus, the Fehr & Peers study reinforces and fortifies the Draft EIR's conclusion that operational GHG impacts are less than significant (Draft EIR, page 3.6-59), just as it reinforces and fortifies the Draft EIR's conclusion that VMT-related impacts are less than significant.

SECTION 3: RESPONSES TO WRITTEN COMMENTS

3.1 - List of Authors

A list of public agencies, organizations, and individuals that provided comments on the Giovannoni Logistics Center Project Draft EIR is presented below. Each comment has been assigned a code. Individual comments within each communication have been numbered so comments can be crossed-referenced with responses. Following this list, the text of the communication is reprinted and followed by the corresponding response.

Author **Author Code**

State Agencies

California Department of Transportation ..... CALTRANS
California Department of Fish and Wildlife ..... CDFW

Local Agencies

American Canyon Fire Protection District ..... ACFPD

Tribal Government

Yocha Dehe Wintun Nation ..... YD

Organizations

Golden State Environmental Justice Alliance ..... GSEJA[1]
Sentinels of Freedom ..... SENTINELS
Napa-Solano Residents For Responsible Growth ..... NSSRRG[2]

3.2 - Responses to Comments

3.2.1 - Introduction

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15088, the City of American Canyon, as the lead agency, evaluated the comments received on the Draft EIR (State Clearinghouse No. 2021010104) for the proposed Giovannoni Logistics Center Project (proposed project), and has prepared the following responses to the comments received. This Response to Comments document becomes part of the Final EIR for the proposed project in accordance with CEQA Guidelines Section 15132.

Comments on an EIR should focus on the sufficiency of the document's identification and analysis of significant environmental impacts, and the adequacy of measures designed to avoid or mitigate those impacts (CEQA Guidelines § 15204(a)). Reviewers should explain the basis for their comments

[1] Includes comments from SWAPE (SWAPE)
[2] Includes comments from Clark & Associates (CLARK), Shannon & Wilson (S&W), Scott Cashen (CASHEN) and Smart Mobility (SM)

and provide data, references, or other evidence to support their comments (CEQA Guidelines § 15204(c)).

CEQA requires that the Final Environmental Impact Report (Final EIR) address comments submitted during the public comment period that raise significant environmental issues (Public Resources Code [PRC] § 21091(d)(2)(B)). The lead agency's written responses shall describe the disposition of such significant environmental issues (e.g., revisions to the proposed project to mitigate anticipated impacts or objections) CEQA Guidelines § 15088(c)).

CEQA does not require that the lead agency respond to every comment submitted to it. While conclusory statements by the lead agency unsupported by factual information will not suffice, the level of detail in the response may correspond to the level of detail in the comment. A general response may be appropriate when a comment does not contain or specifically refer to readily available information or does not explain the relevance of evidence submitted with the comment (CEQA Guidelines § 15088(c)). Additionally, the lead agency generally has considerable leeway regarding responses to comments and need not respond to comments that do not raise a significant environmental issue. The lead agency also need not respond to general reference materials submitted in support of comments, comments that repeat those already considered, or comments that are clearly irrelevant, and the lead agency has the discretion to reject comments that are not focused as provided by the CEQA Guidelines (CEQA Guidelines § 15204(e)).

Pursuant to CEQA Guidelines, personal opinions expressing general support for, or opposition to, the proposed project are noted and will be noted in the response to comments and included within the administrative record for the proposed project, but do not require a specific written response if they do not relate to a significant environmental issue that is addressed within the Draft EIR and/or otherwise within the purview of CEQA. Likewise, opinions about the general desirability, merits, and/or purely economic, social, or political considerations of the proposed project are not within the purview of CEQA and do not require a specific written response in this Final EIR. In cases where the comment provides background information, an opinion and/or generalized concerns about the merits of the proposed project but does not challenge the sufficiency of the Draft EIR, the City will note the comment in these responses and include the opinion in this Final EIR for informational purposes. Where a commenter offers unsubstantiated assertions about a significant environmental issue or the adequacy of the Draft EIR, the City will note the assertion in these responses and include the comment in the Final EIR for informational purposes but will not alter or augment the analysis in the Draft EIR, pursuant CEQA Guidelines Section 15204. Although CEQA does not require a detailed response to each of these general comments in this Final EIR, each comment is part of the administrative record on the proposed project and will be forwarded to City decision-makers for consideration.

3.2.2 - Comment Letters and Responses

The comment letters reproduced in the following pages follow the same organization as used in the List of Authors.

CEQA REVIEW COMMENT SHEET

USDA-Rural Development Environmental Assessment

Giovannoni Logistics Center Project

LDR GTS # 04-NAP-2021-00280

PROJECT LIMITS: 04-NAP-029 PM 3.05

REVIEWED BY: Wichai Hanittinan (510)-286-6431

Office of Highway Operations June 17, 2022

For: Yunshen Luo

Comments:

1) Suggest being specific on a period of time for the VMT mentioned in this report. Is the VMT reported for one year, one month, or one day? 1

2) In Appendix H Transportation Supporting Information, suggest clarifying the following sentence: "The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute." 2

   According to its Appendix B Traffic Count Data, the peak hour at each intersection varies, especially during the AM peak period, suggest explain/describe this information in the report.

3) For the traffic count results at the Devlin Rd and S Kelly Rd intersection (intersection 2 as referred in the report) in Appendix B Traffic Count Data of Appendix H Transportation Supporting Information, why are the truck volumes more than the total traffic volumes for the same movement?

   Are the truck volumes reported separately from the traffic volumes for regular vehicles? If this is the case, there are additional 36 trucks on NB Devlin Rd marking the left turn to EB S Kelly Rd during the 8-9 AM peak hour, why are they not accounted/included in the left turn traffic volumes from NB Devlin Rd to EB S Kelly Rd reported in Exhibit 3.12-4 Existing Plus Project Traffic Volumes in the Transportation section of the Draft EIR and Figure 6 – Existing Plus Project Traffic Volumes of Appendix H Transportation Supporting Information? 3

   The same question can also be applied to the 11 trucks on NB Devlin Rd marking the left turn to EB S Kelly Rd during the 4-5 PM peak hour.

4) In Exhibit 3.12-3 Project Traffic Volumes in the Transportation section of the Draft EIR and in Figure 5 – Project Traffic Volumes of Appendix H Transportation Supporting 4

Information, are the traffic volumes reported here additionally generated and reported separately as the results of the project?

And what year of these Project traffic volumes are for, are they for the existing year (2019) or the future year (2040)? 4 CONT

5) If the traffic volumes show in Exhibit 3.12-3 Project Traffic Volumes in the Transportation section of the Draft EIR and in Figure 5 – Project Traffic Volumes of Appendix H Transportation Supporting Information are for the future year (2040), please verify the 2458 (veh) traffic volumes for the northbound through traffic on SR 29. Should it be 2464 (veh) traffic volumes? 5

6) In Exhibit 3.12-3 Project Traffic Volumes in the Transportation section of the Draft EIR and in Figure 5 – Project Traffic Volumes of Appendix H Transportation Supporting Information,

6.1) Why isn't there any EB traffic on Green Island Rd making a left turn to the NB of the future Devlin Rd? Will the intersection between Green Island Rd and the future Devlin Rd prohibit the left-turn movement from the EB Green Island Rd to the NB of the future Devlin Rd? If that is the case, please document and specify it in the report. 6

6.2) Why isn't there any SB traffic on the future Devlin Rd making a right turn to the WB of Green Island Rd . Will the intersection between Green Island Rd and the future Devlin Rd prohibit the right-turn movement from the SB of the future Devlin Rd to the WB Green Island Rd? If that is the case, please document and specify it in the report.

7) For Exhibit 3.12-4 Existing Plus Project Traffic Volumes in the Transportation section of the Draft EIR and Figure 6 – Existing Plus Project Traffic Volumes of Appendix H Transportation Supporting Information,

If these added-on traffic volumes as the results of the project are for the future year (2040), why are they directly added to the traffic volumes for the existing year (2019) to obtain the results for Existing Plus Project Traffic Volumes as shown in the Exhibit 3.12-4 and Figure 6 mentioned above? 7

8) In Exhibit 3.12-5 Future Traffic Volumes in the Transportation section of the Draft EIR and in Figure 3 – Future Traffic Volumes of Appendix H Transportation Supporting Information, are these future traffic volumes for the future year (2040) under the existing conditions without the project? 8

9) For Exhibit 3.12-6 Future Plus Project Traffic Volumes in the Transportation section of the Draft EIR and Figure 7 – Future Plus Project Traffic Volumes of Appendix H Transportation Supporting Information,

If these added-on traffic volumes as the results of the project are for the existing year (2019), why are they directly added to the traffic volumes for the future year (2040) to obtain the results for Future Plus Project Traffic Volumes as shown in the Exhibit 3.12-4 and Figure 6 mentioned above? Are they expected to increase in the future year (2040) to get the traffic volumes for the Future Plus Project Traffic Volumes? 9

10) Since the traffic data presented in Appendix B Traffic Count Data of Appendix H Transportation Supporting Information were collected from a few samples, suggest also 10

presenting and discussing/comparing with the historical traffic data and census, such as those obtained by Caltrans or from other sources.

For an example, the traffic volumes for the Ahead Peak Hour and Back Peak Hour at NAP 29 PM 3.601 (at the S Kelly Rd and SR-29 intersection) were 3,700 and 3,100 respectively. In addition, the average historical traffic volumes during the AM and PM peak hour(s) in weekdays at nearby SR-29 PM 3.601 can be obtained and compared with the traffic data presented in this report.

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State Agencies

California Department of Transportation (CALTRANS)

Response to CALTRANS-1
The agency inquired about the time period for the Vehicle Miles Traveled (VMT) analysis (e.g., one year, one month, or one day?).

As described on page 20 of the Traffic Impact Study for the Giovannoni Logistics Center (Appendix H, Transportation Supporting Information), the VMT reported is measured in VMT per capita, or the number of daily miles driven per employee. See also Master Response 4—Vehicle Miles Traveled.

Response to CALTRANS-2
The agency requested a clarification about the description of the AM and PM peak-hours and suggested that an explanation be provided about the variation in the peak-hour at each study intersection.

The peak-hour varies from intersection to intersection, and all were evaluated based on the highest-volume hour at that location to provide a conservative analysis.

Response to CALTRANS-3
The agency inquired about discrepancies in the traffic volumes for various turn movements at Devlin Road/South Kelly Road shown on Draft EIR Section 3.12, Transportation Exhibit 3.12-4.

The reported truck values in Appendix B Traffic Count Data of Draft EIR Appendix H summarize the percentage of vehicles that are trucks at each turning movement, and do not report the number (or volume) which are trucks.

Response to CALTRANS-4
The agency inquired whether the traffic volumes shown on Draft EIR Exhibit 3.12-3 are additionally generated or reported separately. The agency inquired about the year the volumes shown on Draft EIR Exhibit 3.12-3.

The number of newly-generated vehicle trips is summarized in Draft EIR Exhibit 3.12-3. The number of trips does not change between the existing and future conditions. Therefore, these project-generated trips are applicable to both the Existing Plus Project and Future Plus Project conditions evaluated.

Response to CALTRANS-5
The agency requested clarification about the northbound through volumes on State Route (SR) 29 shown in Draft EIR Exhibit 3.12-3.

The value of 2,458 shown at Intersection No. 1 on Draft EIR Exhibit 3.12-6 is correct. However, the value 2,458 shown at Intersection No. 1 on Draft EIR Exhibit 3.12-5 is a typo and should be 2,451 instead. The proposed project is expected to add seven vehicles to the existing 2,451 trips without the proposed project, resulting in a volume of 2,458 when project trips are added (as depicted on Draft EIR Exhibit 3.12-6). The analysis was based on the correct number and is unaffected by this typo. The corrected Draft EIR Exhibit 3.12-5 is provided in Final EIR Section 5, Errata.

Response to CALTRANS-6
The agency inquired about the traffic volumes at Green Island Road/Devlin Road shown in Draft EIR Exhibit 3.12-3 and requested clarification about various turn movements.

The trip distribution, summarized on Table 7 (Appendix H Transportation Supporting Information), shows all project-related traffic would solely use SR-29 to access the project site. This means there are assumed to be no trips heading to or arriving from Green Island Road west of the project site, as this route does not have a direct connection with SR-29.

Turn prohibitions are not proposed at the future intersection of Devlin Road/Green Island Road.

Response to CALTRANS-7
The agency inquired about the volumes shown in Draft EIR Exhibit 3.12-4.

The number of new trips attributable to the proposed project is constant and not anticipated to change from year to year. Therefore, the proposed project is expected to contribute the same number of vehicle trips to the roadway network during both the existing and future years.

Response to CALTRANS-8
The agency requested clarification about the traffic volumes shown on Draft EIR Exhibit 3.12-5.

As described on pages 9 through 11 of Appendix H, Transportation Supporting Information, the volumes shown in Figure 3 represent the anticipated volumes for the year 2040 without the proposed project.

Response to CALTRANS-9
The agency requested clarification about traffic volumes shown on Draft EIR Exhibit 3.12-6.

Refer to Response to CALTRANS-4 and Response to CALTRANS-7.

Response to CALTRANS-10
The agency requested the traffic volumes provided in Appendix H on SR-29 at Post Mile 3.601 be compared to historical traffic data and census.

Traffic volumes provided in Appendix H were based on actual counts taken at the study intersections. Comparing traffic volumes in Appendix H to historical traffic data along SR-29 would not provide further insight into assessing traffic effects attributable to the proposed project.

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

July 18, 2022

Brent Cooper
Community Development Director
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
bcooper@cityofamericancanyon.org

Subject: Giovannoni Logistics Center Project, Draft Environmental Impact Report, SCH No. 2021010104, City of American Canyon, Napa County

Dear Mr. Cooper:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a draft Environmental Impact Report (DEIR) from the City of American Canyon (City) for the Giovannoni Logistics Center Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] CDFW previously submitted comments in response to the Notice of Preparation of the DEIR.

CDFW is submitting comments on the DEIR to inform the City, as the Lead Agency, of potentially significant impacts to biological resources associated with the Project.

CDFW ROLE 1

CDFW is a **Trustee Agency** with responsibility under CEQA pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), the Lake and Streambed Alteration Program, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

PROJECT DESCRIPTION SUMMARY

Proponent: Buzz Oates

Objective: Develop a 2.4-million square-foot logistics center on an approximately 208-acre site; 163 acres would be developed, and 45 acres would be preserved as wetlands. In conjunction with the Project, the City would extend Devlin Road through the 2

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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Project site. The Project is proposed to occur in two phases. During Phase 1, the 94.7-acre area east of the Devlin Road extension would be developed. During Phase 2, the 113.1-acre area west of Devlin Road would be developed.

Location: The Project site is in the City of American Canyon, approximately one mile southeast of the Napa County Airport and directly west of State Route 29, in southern Napa County. The Project site is bounded by the Napa Logistics Park and Devlin Road to the north and Green Island Business Park (i.e., industrial development) to the southwest, and centered at approximately Latitude 38.198921°N, Longitude 122.268598°W. 2

REGULATORY REQUIREMENTS

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project**. The Project has the potential to impact Swainson's hawk (*Buteo swainsoni*) and tricolored blackbird (*Agelaius tricolor*), both of which are CESA listed as threatened species, as further described below.** Issuance of an ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species. (Pub. Resources Code, §§ 21001, subd. (c) & 21083; CEQA Guidelines, §§ 15380, 15064, & 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the project proponent's obligation to comply with CESA. 3

Fully Protected Species

Fully Protected species, such as golden eagle (*Aquila chrysaetos*), may not be taken or possessed at any time (Fish & G. Code, §§ 3511, 4700, 5050, & 5515) except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan.

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COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the City in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the potential for the Project to have a significant impact on biological resources, CDFW concludes that an environmental impact report is appropriate for the Project. 4

Mandatory Findings of Significance: Does the Project have the potential to substantially reduce the number or restrict the range of an endangered, rare, or threatened species?

Environmental Setting and Mitigation Measures

COMMENT 1: Swainson's Hawk MM BIO-1a (Section 3.3, Pages 24-27)

Issue: Mitigation measure (MM) BIO-1a identifies a 1,000-foot no disturbance buffer shall be established for any Swainson's hawk nest, which may be insufficient to reduce impacts to Swainson's hawk to less-than-significant and comply with CESA. 5a

Furthermore, the language of MM BIO-1a regarding when surveys will occur should be revised for clarity to ensure any nesting Swainson's hawks that could be disturbed by the Project are detected. In the first paragraph it states that surveys will be completed for at least two survey periods prior to commencement of construction. In the second paragraph it inconsistently states that construction may commence if no nesting Swainson's hawks are found during the first non-optional survey period.

Additionally, the DEIR identifies the Project will remove Swainson's hawk foraging habitat, but it does not specify the number of acres that the Project will remove. Therefore, the approximately 45 acres of wetlands that will be preserved by the Project may not be sufficient to mitigate for the loss of Swainson's hawk foraging habitat. 5b Additionally, please note that the presence of suitable Swainson's hawk foraging habitat near the Project site does not negate the need to mitigate for the permanent removal of foraging habitat for this species.

Specific impacts and why they may occur and be significant: If active Swainson's hawk nests are not detected by the proposed surveys or appropriate buffer zones are not established, Swainson's hawks could be disturbed by Project activities resulting in nest abandonment and loss of eggs or reduced health and vigor and loss of young, thereby substantially reducing the number of the species. 5c Additionally, loss of foraging habitat is the primary threat to Swainson's hawk populations in California (CDFW 2016). Swainson's hawk is CESA listed as a threatened species and therefore is considered to be a threatened species pursuant to CEQA Guidelines section 15380. Therefore, if an

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active Swainson's hawk nest is disturbed by the Project, the Project may result in a substantial reduction in the number of a threatened species, which is considered a Mandatory Finding of Significance pursuant to CEQA Guidelines section 15065, subdivision (a)(1). 5c

Recommendation: For an adequate environmental setting, to reduce impacts to Swainson's hawk to less-than-significant, and to comply with CESA, CDFW recommends revising MM BIO-1a to require that Swainson's hawk surveys be conducted by a qualified biologist with experience surveying for and detecting the species pursuant to the *Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley Swainson's Hawk* (2000) survey protocol, within 0.5 mile of the Project site each year that Project activities occur. Pursuant to the above survey protocol, surveys shall be completed for at least the two survey periods immediately prior to a Project's initiation. For example, if the project is scheduled to begin on June 20, the qualified biologist shall complete three surveys in Period III and three surveys in Period V. It is recommended that surveys be completed in Periods II, III and V. Surveys in Period I may be required if the Project will commence by April 5. The Project shall obtain CDFW's written acceptance of the qualified biologist and survey report prior to Project construction occurring between March 1 and August 31 each year. If the qualified biologist identifies nesting Swainson's hawks, the Project shall implement a 0.5 mile no disturbance buffer zone around the nest, unless otherwise approved in writing by CDFW. Project activities shall be prohibited within the buffer zone between March 1 and August 31, unless otherwise approved in writing by CDFW. If take of Swainson's hawk cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP. 5d

Additionally, to mitigate for the loss of foraging habitat, CDFW recommends including a mitigation measure that requires the preservation through a conservation easement of Swainson's hawk foraging habitat, of equal or greater habitat value than that which will be impacted by the Project, in perpetuity at a minimum 1:1 mitigation to impact ratio. CDFW must provide written approval of the habitat proposed for preservation prior to the start of Project activities. 5e

COMMENT 2: Tricolored Blackbird (Section 3.3, Page 26)

Issue: The DEIR identifies there will be no impact on tricolored blackbird because there is no suitable nesting habitat within the Project site. However, the Project may impact tricolored blackbird that occur within 500 feet of the Project site. 6a

Specific impacts and why they may occur and be significant: If active tricolored blackbird nests are not detected by the proposed surveys or appropriate buffer zones are not established, tricolored blackbird could be disturbed by Project activities resulting in nest abandonment and loss of eggs or reduced health and vigor and loss of young,

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thereby substantially reducing the number of the species. Tricolored blackbird is CESA listed as a threatened species and therefore is considered to be a threatened species pursuant to CEQA Guidelines section 15380. Therefore, if an active tricolored blackbird nest is disturbed by the Project, the Project may result in a substantial reduction in the number of a threatened species, which is considered a Mandatory Finding of Significance pursuant to CEQA Guidelines section 15065, subdivision (a)(1). 6a

Recommendation: For an adequate environmental setting, to reduce impacts to tricolored blackbird to less-than-significant, and to comply with CESA, CDFW recommends revising MM BIO-4 to require that a survey for active tricolored blackbird nests shall be conducted by a qualified biologist within seven days prior to the beginning of Project activities, and within a minimum 500-foot distance of the Project. If nesting bird surveys, per MM BIO-4, detect nesting tricolored blackbird or evidence of their presence, CDFW shall be notified immediately, and Project activities shall not occur without written approval from CDFW allowing the Project to proceed. Presence of nesting tricolored blackbird may require CESA consultation and an Incidental Take Permit before Project activities may commence. If a lapse in Project construction of seven days or more occurs during nesting season, another survey shall be conducted. Please note, this also addresses impacts to nesting birds, which are protected under Fish and Game Code sections 3503, 3503.5, and 3513. Migratory birds are also protected under the federal Migratory Bird Treaty Act. 6b

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or U.S. Fish and Wildlife Service?

Mitigation Measures

COMMENT 3: Golden Eagle MM-BIO 1b (Section 3.3, Pages 27)

Issue: MM-BIO 1b identifies a 1,000-foot no disturbance buffer shall be established for any golden eagle nests within 1,000 feet of construction activities, which may be insufficient to reduce impacts to golden eagle to less-than-significant. Additionally, the measure allows for modification of the buffer zone depending on behavioral factors and acclimation of nesting golden eagles. CDFW should be consulted before implementation of a reduced buffer zone to ensure protection of any nesting golden eagle. 7a

Specific impacts and why they may occur and be significant: Golden eagle is a fully protected species and may not be taken or possessed at any time, except as described above (Fish & G. Code, §§ 3511), and is also protected under the federal Bald and Golden Eagle Protection Act. Golden eagle is highly sensitive to human disturbance which can result in lower brood size (Steenhof et al. 2014), lower nest

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attendance (Spaul and Heath 2016), and increased time spent away from the nest (Spaul and Heath 2017). If appropriate buffer zones are not established around active golden eagle nests, Project impacts to golden eagle would be potentially significant. 7a

Recommendation: For an adequate environmental setting and to reduce impacts to golden eagle to less-than-significant, CDFW recommends revising MM BIO-1b to require that the survey area for golden eagle shall be determined by a qualified Raptor Biologist in consultation with CDFW, and if any golden eagle nest is identified during pre-construction golden eagle nesting surveys, a biological based justification for the buffer zone, as determined by a qualified Raptor Biologist, shall be submitted to CDFW for review. Project activities shall not proceed between March 1 and August 31 unless CDFW provides written approval of the buffer zone around any golden eagle nest. 7b

COMMENT 4: Northern Harrier MM-BIO 1c (Section 3.3, Pages 27)

Issue: It appears that surveys for nesting northern harrier (*Circus hudsonius*) would only occur within the Project site. However, nesting northern harrier may be impacted if they occur off-site within a minimum 500-foot radius around the Project site.

Additionally, MM-BIO 1c allows for modification of the buffer zone depending on behavioral factors and acclimation of northern harrier. CDFW should be consulted before implementation of a reduced buffer zone.

Specific impact and why they may occur and be significant: If an active northern harrier nest is present within a minimum of 500 feet of the Project and is not detected by the proposed surveys, or appropriate no disturbance buffer zones are not implemented, nesting northern harriers could be disturbed by Project activities resulting in nest abandonment and loss of eggs or reduced health and vigor and loss of young. Northern harrier is a California Species of Special Concern (SSC). An SSC is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: is extirpated from the State or, in the case of birds, is extirpated in its primary season or breeding role; is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed; is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions that, if continued or resumed, could qualify it for State threatened or endangered status; or has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status. Therefore, if nesting northern harriers are present and would be disturbed by the Project, impacts to northern harrier would be potentially significant. 8a

Recommendation: For an adequate environmental setting and to reduce impacts to northern harrier to less-than-significant, CDFW recommends revising MM BIO-1c to 8b

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require submission of a biological based justification for reducing the buffer zone, as determined by the qualified Raptor Biologist, to CDFW for review. Project activities shall not commence until CDFW provides written approval for the reduction of the no disturbance buffer zone around any northern harrier nest.

8b

Additionally, MM BIO-1c should be revised to state that surveys shall be conducted to determine the presence of nesting northern harrier within a minimum 500-foot radius around the Project site.

COMMENT 5: Burrowing Owl MM BIO-1d (Section 3.3, Page 28)

Issue: MM BIO-1d indicates that surveys for burrowing owl (*Athena cunicularia*) would occur within two weeks prior to Project construction and a 100-foot no disturbance buffer would be implemented around refugia occupied by non-nesting wintering owls. However, the aforementioned survey and buffer distance may not be adequate to detect and avoid Project impacts to burrowing owls. The Project may result in the loss of burrowing owl breeding and non-breeding habitat and would likely result in the loss of foraging habitat.

Specific impacts and why they may occur and be significant: The Project could result in burrowing owl nest abandonment, loss of young, reduced health and vigor of owlets, or injury or mortality of adults, and a permanent reduction of burrowing owl habitat in Napa County.

Burrowing owl is an SSC because the species' population viability and survival are adversely affected by risk factors such as precipitous declines from habitat loss, fragmentation, and degradation; evictions from nesting sites without habitat mitigation; wind turbine mortality; human disturbance; and eradication of California ground squirrels (*Spermophilus beecheyi*) resulting in a loss of suitable burrows required by burrowing owls for nesting, protection from predators, and shelter (Shuford and Gardali 2008; CDFW 2012 Staff Report; personal communication, CDFW Statewide Burrowing Owl Coordinator Esther Burkett, May 13, 2022). Preliminary analyses of regional patterns for breeding populations of burrowing owls have detected declines both locally in their central and southern coastal breeding areas, and statewide where the species has experienced breeding range retraction (CDFW 2012 Staff Report; personal communication, Esther Burkett, May 13, 2022).

9a

Historically, the most abundant populations of burrowing owl within the San Francisco Bay Area were in Alameda, Contra Costa, and Santa Clara counties and populations were locally abundant within portions of Solano and San Mateo counties. Burrowing owls are no longer abundant and may be disappearing entirely from western Contra Costa, western Alameda, and Santa Clara counties. Breeding burrowing owls may be extirpated in Marin County, and only use the region on a limited basis in winter

(Townsend and Lenihan 2007 as cited in Sheffield 2021). Habitat loss caused by development is the most immediate threat to burrowing owls in high growth areas of the San Francisco Bay Area, and loss of burrowing owl habitat will likely continue well into the future (Townsend and Lenihan 2007). As urbanization increases and local burrowing owl populations decline, they become vulnerable to stochastic events (demographic, genetic, and environmental) associated with small population size, creating the potential for an extinction "vortex" (Gilpin and Soulé 1986 as cited in Townsend and Lenihan 2007). 9a

Based on the above, if the Project would result in impacts to burrowing owl, Project impacts to burrowing owls would be potentially significant.

Recommendation: For an adequate environmental setting and to reduce impacts to burrowing owl to less-than-significant, CDFW recommends that MM BIO-1d be revised to require that a habitat assessment, and if warranted based on the habitat assessment breeding and non-breeding surveys, be conducted in conformance with the CDFW 2012 Staff Report on Burrowing Owl Mitigation (2012 Staff Report), which states: A) breeding season surveys should include four survey visits: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June; and B) non-breeding season surveys shall be conducted according to the methods described for breeding season surveys (i.e., a minimum of three survey visits, at least three weeks apart), but conduct at least four visits, spread evenly throughout the non-breeding season. The habitat assessment and surveys shall be conducted within 500 meters (1,640 feet) of the Project site for breeding or non-breeding burrowing owls and the no disturbance buffer distance of 500 meters outlined in the 2012 Staff Report shall be implemented, unless otherwise approved in writing by CDFW. 9b

Additionally, pursuant to the 2012 Staff Report, CDFW does not consider eviction of western burrowing owl (i.e., passive removal of an owl from its burrow or other shelter) as a "take" avoidance, minimization, or mitigation measure. Therefore, to reduce impacts to burrowing owl to less-than-significant, off-site habitat compensation shall be included in the eviction plan. Habitat compensation acreages shall be approved by CDFW, as the amount depends on site-specific conditions, and completed before Project construction. It shall also include placement of a conservation easement and preparation and implementation of a long-term management plan.

If the Project would impact an unoccupied nesting burrowing owl burrow or burrow surrogate (i.e., a burrow known to have been used in the past three years for nesting), or an occupied burrow (where a non-nesting owl would be evicted as described above), the following habitat mitigation shall be implemented prior to Project construction:

Impacts to each nesting site shall be mitigated by permanent preservation of two occupied nesting sites with appropriate foraging habitat within Solano County, unless otherwise approved by CDFW, through a conservation easement and implementing and funding a long-term management plan in perpetuity. The same requirements shall apply for impacts to non-nesting evicted owl sites.

Impacts to burrowing owl foraging habitat shall be mitigated by permanent preservation through a conservation easement of foraging habitat at a 1:1 mitigation to impact ratio, in the same manner described above, and accepted by CDFW in writing. The CDFW 2012 Staff Report states, “current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal…” 9b

EDITORIAL SUGGESTIONS

Clarify the development footprint for the Project component compared to the Program component. It is unclear if the 208-acre Project site will be used for both Phase 1 and Phase 2, or if a different site will be used for Phase 2. 10

The Project Summary (Section 2.3.1) indicates 163-acres will be developed. However, it also states that the Phase 1 will develop 94.7 acres and Phase 2 will develop 113.1 acres, for a total of approximately 208 acres. If the 208-acre Project site is specific to Phase 1, and only 94.7 acres will be developed during Phase 1, it is unclear what is occurring on the remaining 68.3 acres of the 163 acres planned for development. 11

CDFW recommends providing an aerial image outlining where both Phase 1 and Phase 2 development will occur, as well as the 44.8 acres that will be preserved as open space. 12

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals. 13

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). 14

CONCLUSION

CDFW appreciates the opportunity to comment on the DEIR to assist the City in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Alicia Bird, Environmental Scientist, at (707) 980-5154 or alicia.bird@wildlife.ca.gov; or Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or melanie.day@wildlife.ca.gov. 15

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

ec: Office of Planning and Research, State Clearinghouse (SCH No. 2021010104)

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California Department of Fish and Wildlife (CDFW)

Response to CDFW-1
The agency provided introductory remarks. No response is necessary.

Response to CDFW-2
The agency summarized the proposed project. No response is necessary.

Response to CDFW-3
The agency noted the proposed project may require an Incidental Take Permit for plants or animals including the Swainson's hawk and tricolored blackbird. The agency also noted CEQA requires a mandatory finding of a significance if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species.

Mitigation Measure (MM) BIO-1a indicates an Incidental Take Permit shall be required if there is a valid concern the project activities would result in the "take" of an adult Swainson's hawk or nestlings. As such, the Draft EIR disclosed this possibility. No Incidental Take Permit will be necessary solely due to the loss of foraging habitat, as such an outcome does not directly or foreseeably result in the mortality of individual hawks or nestlings.

The Draft EIR included, as a significance threshold, whether the proposed project would substantially reduce the number or restrict the range of an endangered, rare or threatened species. (Draft EIR, page 3.3-22.) Applying this threshold, the Draft EIR found all impacts on special-status species could be mitigated to a level of less than significant. The proposed project, as mitigated, therefore would not substantially reduce or restrict the range or reduce the population of the Swainson's hawk. See also Master Response 1—Impacts to Swainson's Hawk/Golden Eagle Foraging Habitat.

Response to CDFW-4
The agency indicated an EIR is the appropriate level of CEQA documentation for the proposed project.

The City of American Canyon concurs an EIR is the appropriate level of CEQA documentation for the proposed project.

Response to CDFW-5a
The agency stated a 1,000-foot non-disturbance buffer from an active Swainson's hawk nest identified in MM BIO-1a may not be sufficient to reduce impacts to less than significant and comply with the California Endangered Species Act (CESA).

MM BIO-1a identifies a "minimum" 1,000-foot non-disturbance buffer to be established from an active Swainson's hawk nest, and if Swainson's hawk are found to be nesting within 1,000 feet of the project site, MM BIO-1a requires the Biologist to consult with the CDFW regarding the adequacy of the buffer. As explained in the Draft EIR, all Swainson's hawk surveys would be conducted within 0.5 mile of proposed work areas. If the CDFW determines a larger buffer may be warranted to comply with CESA, the buffer may be increased.

The agency also requested the language in MM BIO-1a regarding when surveys would occur should be revised for clarity. The CDFW noted in the first paragraph of MM BIO-1a in the Draft EIR states surveys would be completed for at least two survey periods prior to the commencement of construction but the second paragraph states construction may commence if no nesting Swainson's hawk are found during the first "non-optional" survey period.

The Swainson's Hawk Technical Guidelines state the first survey is "optional." The first "non-optional" survey period stated in the second paragraph of MM BIO-1a is the second survey. Although the language in MM BIO-1a is technically consistent it may not be clear to all readers. In response to CDFWs comment, the first sentence of the second paragraph should be amended for clarity as follows:

> "If no nesting Swainson's hawk are found during the ~~first non-optional~~ second survey period starting March 20, then project construction may commence."

Response to CDFW-5b

The CDFW noted the Draft EIR identifies the proposed project would remove Swainson's hawk foraging habitat but does not specify the acreage.

Swainson's hawk foraging habitat is addressed in Master Response 1.

Response to CDFW-5c

The agency stated if active Swainson's hawk nests are not detected by the proposed surveys, or if appropriate buffer zones are not established, Swainson's hawk could be disturbed by project activities resulting in nest abandonment and loss of eggs or reduced health and vigor and loss of young, thereby substantially reducing the number of Swainson's hawks. The agency also stated the loss of foraging habitat is the primary threat to Swainson's hawk populations in California. The agency concludes that if an active Swainson's hawk nest is disturbed by the proposed project, the proposed project may result in a substantial reduction in the number of a threatened species, which is considered a Mandatory Finding of Significance pursuant to CEQA Guidelines Section 15065, subdivision (a)(1).

The Draft EIR acknowledges in Section 3.3, Biological Resources, page 3.3-24, that if Swainson's hawk was found nesting within a zone of influence (which is generally considered within 1,000 feet) during the construction period, potential impacts to this species could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Draft EIR Section 3.3, Biological Resources, page 3.3-26 also acknowledges the level of impact to a nesting Swainson's hawk is potentially significant. To avoid impacting an active Swainson's hawk nest, MM BIO-1a requires implementing pre-construction surveys for Swainson's hawk following CDFW guidelines for conducting surveys for Swainson's hawk were developed by the Swainson's Hawk Technical Advisory Committee specifically to maximize locating nesting Swainson's hawk and reduce nest failures due to project activities and/or disturbances. These pre-construction surveys would be conducted at all locations within 0.5 mile of work areas. Implementation of MM BIO-1a would reduce potential impacts to this impact to less than significant and ensure the proposed project would not result in a substantial reduction in the number of this threatened species.

Refer to Master Response 1 for discussion of Swainson's hawk foraging habitat.

Response to CDFW-5d
To reduce impacts to Swainson's hawk to less than significant and comply with CESA, CDFW recommends revising MM BIO-1a to require a Swainson's hawk survey be conducted by a qualified Biologist with experience surveying for and detecting the species pursuant to the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* survey protocol within 0.5 mile of the project site each year proposed project activities occur.

Conducting surveys each year project activities occur is not warranted when construction is continuous. As stated in Draft EIR MM BIO-1a, if Swainson's hawk are found nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If project activities have commenced, but are delayed prior to the second survey period (March 20 to April 5), and scheduled to recommence during the second survey period but before August 1, then surveys should be repeated to avoid impacting nesting Swainson's hawk that may have started nesting during this period of delayed construction.

In response to CDFWs comment, the MM BIO-1a shall be revised to include additional survey language if construction is delayed and minimum requirements for the qualified Raptor Biologist. MM BIO-1a shall be revised as follows:

> Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities, and each year following initiation of construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with the California Department of Fish and Wildlife (CDFW) *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* ~~follow California Department of Fish and Wildlife (CDFW) guidelines for conducting surveys for Swainson's hawk that were developed by the Swainson's Hawk Technical Advisory Committee~~ to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.
>
> If no nesting Swainson's hawk are found during the ~~first non-optional~~ second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's

hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist the young have fledged or the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

The CDFW recommended the project obtain CDFW's written acceptance of the qualified Biologist and survey report prior to the project construction occurring between March 1 and August 31 each year.

Conducting Swainson's hawk surveys and establishing buffers do not require obtaining an Incidental Take Permit or coordination with the CDFW, and coordination with the CDFW is not required to reduce impacts to less than significant. Revisions to MM BIO-1a defining the minimum qualifications of the "qualified Raptor Biologist" would ensure surveys are conducted pursuant to *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* survey protocol and would ensure potential impacts to active Swainson's hawk are less than significant.

The CDFW also recommended the project implement a 0.5-mile non-disturbance buffer zone around a nest and prohibit work between March 1 and August 31, unless otherwise approved in writing by the CDFW.

Draft EIR Section 3.3, Biological Resources, page 3.3-24 acknowledged if Swainson's hawk was found nesting within a zone of influence (which is generally considered within 1,000 feet) during the construction period, potential impacts to this species could occur, including disturbance to nesting birds and possible mortality of adults and/or young. To avoid impacting an active Swainson's hawk nest, Draft EIR MM BIO-1a requires a non-disturbance buffer be established to keep all construction activities a minimum of 1,000 feet from a Swainson's hawk nest meaning the Biologist could require a larger buffer. In addition, although not required by law, MM BIO-1a additionally requires the CDFW be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. If the CDFW determines a larger buffer may be warranted to comply with CESA, the buffer may be increased. Based on the ambient noise and visual disturbance surrounding the project site being

adjacent to large commercial developments, major highway, and residential communities, construction of the proposed project would not be expected to affect a nesting Swainson's hawk 0.5 mile from the project site. Thus, implementation of a minimum 1,000-foot buffer from a Swainson's hawk nest and consultation with the CDFW on the adequacy of the buffer would ensure impacts are less than significant.

Response to CDFW-5e
The agency recommended mitigation measures for loss of Swainson's hawk foraging habitat of equal to or greater than would be impacted by the proposed project, in perpetuity at a minimum of 1:1. In addition, the CDFW states it must provide written approval of the preserved habitat prior to the start of project activities.

Swainson's hawk foraging habitat is addressed in Master Response 1, which explains why impacts relating to the loss of foraging habitat are less than significant and therefore do not require mitigation under CEQA.

Response to CDFW-6a
The CDFW stated correctly the Draft EIR identified no impacts on tricolored blackbird because there is no suitable nesting habitat on the project site. The CDFW states the project may impact tricolored blackbird within 500 feet of the project site, and if nests are detected and appropriate buffer zones are not established, tricolored blackbird could be disturbed by the project activities resulting in a nest abandonment and loss of egg or reduced health and vigor and loss of young.

The Draft EIR includes MM BIO-4 requiring nesting bird surveys. To clarify the applicability to tricolored blackbirds and in response to CDFW's comment, MM BIO-4 has been revised as follows:

> If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within ~~15~~ 7 days prior to the onset of construction activity. ~~Nesting bird surveys shall cover the proposed project footprint and adjacent areas.~~ Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters, 500 feet for special-status passerine species (e.g., tricolored blackbird), and 1,000 feet from the construction limits for nesting raptors. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if project activities are delayed by more than 7 days, an additional nesting bird survey shall be performed. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on-site

conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50- foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

Response to CDFW-6b
The CDFW recommended revising MM BIO-4 to include surveys and buffers specific to tricolored blackbird.

CDFW's recommendations have been incorporated into minor revisions to MM BIO-4 to better clarify the mitigation. No changes are proposed or needed to the analysis or impact conclusions. Refer to Response to CDFW-6a.

Response to CDFW-7a
The agency stated a 1,000-foot non-disturbance buffer from an active golden eagle nest identified in MM BIO-1a may not be sufficient to reduce impacts to less than significant, and if appropriate buffer zones are not established around an active golden eagle nest, project impacts to golden eagles would be potentially significant. The agency noted MM BIO-1b also allows modification of the buffer and requested the CDFW be consulted before implementation of a reduced buffer zone to ensure protection of any nesting golden eagles.

MM BIO-1b requires a minimum 1,000-foot non-disturbance buffer from golden eagle nest. The qualified Raptor Biologist can modify (i.e., increase) the size of the buffer to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality, but the buffer cannot be reduced below 1,000 feet. MM BIO-1b has been clarified to avoid any ambiguity regarding the manner in which modifications to the default buffer of 1,000 feet could be made:

MM BIO-1b No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project ~~site~~ vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Pre-construction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. ~~survey area for golden eagle be determined by the qualified Raptor Biologist.~~ If active golden eagle nests are identified within any trees within the survey areas ~~a 0.5-mile radius~~ of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as

> some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased ~~modified~~ by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist. ~~Surveys shall be conducted by a qualified Raptor Biologist.~~

Response to CDFW-7b
The agency recommended MM BIO-1b be revised to (1) require the survey area for golden eagle be determined by a qualified Raptor Biologist; (2) in consultation with the CDFW; and (3) if any golden eagle nest is identified during pre-construction golden eagle nesting surveys, a biological-based justification for the buffer zone, as determined by the qualified Raptor Biologist, shall be submitted to the CDFW for review, and project activities shall not proceed between March 1 and August 31 unless the CDFW provides written approval of the buffer zone.

Conducting golden eagle surveys does not require obtaining any kind of permit or coordination with the CDFW, and coordination is not warranted to reduce impacts to less than significant. Therefore, requesting written acceptance of the qualified Raptor Biologist conducting the golden eagle survey and providing the survey report to the CDFW for written approval prior to the start of construction is not required under MM BIO-1b.

To address CDFW's comment requiring the survey area for golden eagle be determined by the qualified Raptor Biologist, and to clarify the buffer zone cannot be reduced to less than 1,000 feet, MM BIO-1b shall be revised as shown in CDFW-7a above.

Response to CDFW-8a
The CDFW correctly stated MM BIO-1c requires nesting surveys for northern harrier only within the project site, and the size of the buffer could be modified depending on behavioral factors and acclimation of northern harrier. The CDFW is concerned northern harriers nesting off-site but within 500 feet of the project site may be impacted, and CDFW recommends the CDFW should be consulted before implementing a reduced buffer zone. Additional comments were received suggesting short-eared owl, with habitat requirements and foraging habits similar to northern harrier, should also be included, and the wording of MM BIO 1c has been revised to account for this species as well.

To address CDFW's concern, MM BIO-1c shall be revised as follows:

> Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor

Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and within a minimum 500-foot radius from the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be ~~modified~~ increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Raptor Biologist.

Response to CDFW-8b

The CDFW provided recommendations to reduce impacts to northern harrier to less than significant. Recommendations included revisions to MM BIO-1c to require submission of biological-based justification for reducing the buffer zone, as determined by the qualified Raptor Biologist, to the CDFW for review. The CDFW also stated work activities could not commence until the CDFW provides written approval for the reduction of the non-disturbance buffer zone. Additionally, the CDFW recommended revising MM BIO-1c to state surveys shall be conducted within a minimum 500-foot radius of the project site.

As indicated in Response to CDFW-8a, MM BIO-1c has been revised to clarify the "minimum" buffer requirement and ensure surveys are conducted a minimum 500-foot radius from the construction limits project.

Response to CDFW-9a

The CDFW states MM BIO-1d requirements to conduct burrowing owl surveys 2 weeks prior to project construction and a 100-foot non-disturbance buffer may not be adequate to detect burrowing owls and avoid project impacts to burrowing owls, including permanent reduction of burrowing owl habitat in Napa County.

MM BIO-1d requires a minimum 100-foot buffer zone, which means the qualified Raptor Biologist could require a larger buffer if it is determined, by the Raptor Biologist, that a larger buffer is warranted to avoid project impacts that could result in nest abandonment, loss of young, and/or injury or mortality of burrowing owls.

As discussed in Draft EIR Section 3.3, Biological Resources, page 3.3-17, pre-construction surveys, referred to as "take avoidance surveys" in the CDFW 2012 Staff Report on Burrowing Owl Mitigation

(2012 Staff Report), are intended to detect presence of burrowing owl on a project site at a fixed period in time and inform necessary take avoidance actions. Take avoidance surveys may detect changes in owl presence such as colonizing burrowing owl that have recently moved onto the site, migrating owl, resident burrowing owl changing burrow use, or young of the year that are still present and have not dispersed. In summary, survey methodology for pre-construction surveys should be conducted no less than 14 days prior to initiating ground disturbance activities according to the CDFW Staff Report. Consistent with the 2012 Staff Report, MM BIO-1d requires that pre-construction surveys shall be conducted within 2 weeks prior to onset of any ground-disturbing activities. Implementation of pre-construction surveys conducted within 2 weeks prior to onset of any ground-disturbing activities would detect whether burrowing owls were present on-site, allowing avoidance measures, such as a minimum 100-foot buffer, to be implemented thus ensuring no burrowing owl would be impacted by construction activities.

Response to CDFW-9b
The CDFW recommends MM BIO-1d be revised to require a habitat assessment be conducted within 500 meters of the project site, and if warranted based on the habitat assessment breeding and nonbreeding surveys be conducted within 500 meters of the project site in conformance with the 2012 Staff Report.

The biological resource report referenced in the Draft EIR made an assessment that the project site did not support suitable habitat for burrowing owl. This assessment demonstrated that, based on the absence of suitable habitat on the project site due to general lack of California ground squirrel and ground squirrel colonies, and the fact no burrowing owl were observed during several biological field surveys conducted by Huffman-Broadway Group (HBG) Biologists between December 2020 and April 2021, Helm Biological Consulting in December 2020 and April and May 2021, or during previous biological studies conducted by Monk & Associates, LSA Associates, or Rana Resources, and that the nearest burrowing owl recorded in the California Natural Diversity Database (CNDDB) is 1.7 miles from the project site, breeding and nonbreeding surveys are not warranted.

It should be noted the 2012 Staff Report recommends conducting surveys and habitat assessments within 150 meters of the project site, not 500 meters as referenced by the CDFW. To address CDFW's concern, and ensure any burrowing owl that may be within the project site or adjacent to the project site are not impacted by project activities, the first paragraph of MM BIO-1d shall be revised as follows:

> Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted <u>within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope.</u> The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 Staff

Report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

- If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.
- If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.
- If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.

The CDFW indicates that habitat compensation mitigation would be required for evictions of a burrowing owl from its shelter, impacting an unoccupied nesting burrowing owl burrow or burrow surrogate or an occupied burrow, and that habitat mitigation shall be approved by CDFW prior to the start of construction. The CDFW provides mitigation ratios for impacts to each nest site and burrowing owl foraging habitat.

The Draft EIR acknowledged the proposed project would preserve in perpetuity, using a deed restriction or conservation easement, approximately 45 acres of open space abutting the project site. This 45-acre open space area would provide similar habitat as the project site for burrowing owl. In addition the Draft EIR acknowledges the Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides similar habitat as what is found on the project site, and there are several large open space preserves including the 620-acre Newell Open Space less than 2 miles from the project site, the 1,039-acre Lynch Canyon Open Space Park, and the 308-acre American Canyon red-legged frog preserve, all within 2-5 miles of the project site. A small number of burrowing owl have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the project site and about 2.5 miles to the south. This demonstrates that, based upon the limited number of known burrowing owls to occur within a 2.5-mile radius of the project site and the acreage of existing foraging habitat currently protected, there is more than sufficient foraging and nesting habitat near the project site. Accordingly, the proposed project would not result in significant impacts to foraging or nesting habitat nor affect the nesting populations of burrowing owl near the project site either directly, indirectly, or cumulatively,

nor require habitat compensation for evictions of a burrowing owl from its shelter, impacting an unoccupied nesting burrowing owl burrow or burrow surrogate or an occupied burrow, or foraging habitat should a burrowing owl be located on or adjacent to the project site.

It should be noted that, if burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant will coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl, as indicated by the third bullet in the modified MM BIO-1d shown above.

The operative significance threshold for impacts to burrowing owls, an unlisted species, is whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications. Although the proposed project would result in a net loss of potential burrowing owl foraging habitat, such a net loss occurring in the particular area in which the project site is located will not cause a substantial adverse effect on the species. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.)

Response to CDFW-10
The agency requested clarification about the development footprint for the project-level component and the program-level component.

Phase 1, the project-level component, totals 94.7 acres. The applicant proposes to develop 1,097,488 square feet of high-cube warehouse on 70.2 acres and preserve the remaining 24.5 acres as open space.

Phase 2, the program-level component, totals 113.1 acres. The applicant proposes to develop up to 1.3 million square feet of high-cube warehouse on this site on approximately 92 acres and preserve the remaining approximately 21 acres. Because wetlands are located throughout Phase 2, the layout will be dependent on the outcome of the permitting process with the resource agencies. Hence, those acreage values are subject to change.

Response to CDFW-11
The agency requested clarification about how much of the project site would be developed.

As indicated in Response to CDFW-10, 70.2 acres would be developed in Phase 1 and approximately 92 acres would be developed in Phase 2, for a combined total of approximately 163 acres.

Response to CDFW-12
The agency requested that a site plan be provided.

The site plan is provided in Draft EIR Chapter 2, Project Description, Exhibit 2-4. As shown in the exhibit, the layout for Phase 1 is shown but no layout is shown for Phase 2 because it will depend on the aforementioned permitting process.

Response to CDFW-13
The agency provided standard language about environmental data. No response is necessary.

Response to CDFW-14
The agency provided standard language about Notice of Determination filing fees. No response is necessary.

Response to CDFW-15
The agency provided closing remarks. No response is necessary.

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AMERICAN CANYON FIRE PROTECTION DISTRICT

Michael P. Cahill
Fire Chief

911 DONALDSON WAY, EAST
AMERICAN CANYON, CA. 94503
Phone 707-551-0650 Fax 707-642-0201

Geoff Belyea
Assistant Fire Chief

June 28, 2022

Brent Cooper, Director
American Canyon Community Development Department
4381 Broadway, Suite 201
American Canyon, CA 95403

Subject: **Draft Environmental Impact Report (DEIR) (SCH # 2021010104)**
Giovannoni Logistics Center Project Fiscal Impact Analysis

Dear Mr. Cooper,

The American Canyon Fire Protection District appreciates the opportunity to provide comment on the fiscal impacts of the proposed 2.4 million square foot Giovannoni Logistics Center Project on District operations and capital facility needs. The project calls for a high cube warehouse on a 208-acre site.

Based upon a fiscal analysis prepared by the developer's consultant, and reviewed by the District, the annual cost of providing fire suppression and EMS services to the Project is expected to exceed the property tax and fire service fee revenue generated from the Project by approximately $158,000; and this annual operating deficit will continue to increase over time as the growth in the cost of providing fire and EMS services is projected to outpace the growth in revenue due to the 2% cap on property tax increases imposed by Proposition 13.

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A potential mitigation measure discussed with the developer to address the annual operating deficit involved the formation of a benefit assessment district that would provide the District with a source of additional, ongoing revenue. The developer suggested that the funds from this benefit assessment district could be used to negotiate down a portion of the fire mitigation fees and other related development fees that would be payable to the Fire District prior to construction of this project. The operational impacts of a project of this magnitude will be significant to the Fire District. It is imperative that the gap between the annual cost of providing fire and ems services to this proposed project and the estimated property tax it is expected to generate be bridged as a condition of approval prior to construction.

This Project, along with other current and planned development within the District's service area will trigger the need for a new "north" fire station and related apparatus. The District has adopted fire mitigation fees to address the cumulative impact of new development on need for new and expanded capital facilities. Based on the Fiscal Year 2021-22 per square foot mitigation

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fee, the Project would contribute a "fair share" amount of $2.5 million in revenue toward the cost of new facilities.

The Fire District looks forward to working both with the developer and the City as this project progresses through the current development approval process.

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CONT

Sincerely,

DocuSigned by:
Geoff Belyea
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Fire Chief

Local Government

American Canyon Fire Protection District–ACFPD

Response to ACFPD-1

ACFPD provided introductory remarks and indicated that the proposed project's revenues would not be enough to offset its demand, which would result in an annual operating deficit. ACFPD identified the establishment of benefit assessment district as a potential solution for this issue. In addition, the Fire Protection District indicated that the proposed project, along with other planned development, would trigger the need for a "North" fire station and related apparatus. The ACFPD noted that the proposed project would contribute $2.5 million in one-time fees toward the cost of new facilities.

Fiscal impacts are outside the scope of the Draft EIR as they do not have physical impacts on the environment.

The new "North" fire station is addressed in Master Response 2.

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YOCHA DEHE
CULTURAL RESOURCES

June 27, 2022

City of American Canyon
Attn: Brent Cooper, AICP, Community Development Director
4381 Broadway Street, Suite 201
American Canyon, CA 94503

RE: Giovannoni Logistics Center Project YD-02052021-03

Dear Mr. Cooper:

Thank you for your project notification letter dated, May 20, 2022, regarding cultural information on or near the proposed Giovannoni Logistics Center Project. We appreciate your effort to contact us and wish to respond.

The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area and would like to continue to receive updates on the project. In addition, please see the attached document with our suggested edits to the Draft EIR.

Should you have any questions, please contact:

CRD Administrative Staff
Yocha Dehe Wintun Nation
Office: (530) 796-3400
Email: THPO@yochadehe-nsn.gov

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Please refer to identification number YD – 02052021-03 in any correspondence concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

DocuSigned by:
5ED632FDB9C34EA...
Tribal Historic Preservation Officer

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact CUL-2: The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	**MM CUL-2a:** No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place. **MM CUL-2b:** An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, site documentation, ~~and historical research~~, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results	Less than significant impact.

1

Tribal Government

Yocha Dehe Wintun Nation (YD)

Response to YD-1

The Tribe provided introductory remarks and referenced an attachment with proposed edits to MM CUL-2b. The Tribe provided concluded remarks.

Refer to Response to YD-2.

Response to YD-2

The Tribe provided its proposed edits to MM CUL-2b, which consist of striking the phrase 'and historical research.' That change is noted in Final EIR Section 5, Errata.

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BLUM COLLINS & HO, LLP
ATTORNEYS AT LAW
AON CENTER
707 WILSHIRE BOULEVARD, SUTIE 4880
LOS ANGELES, CA 90017
(213) 572-0400

June 17, 2022

Nicolle Jones
Community Development Department
City of American Canyon
4381 Broadway, Suite 201
American Canyon, CA 94503

VIA EMAIL TO:
njones@cityofamericancanyon.org

Subject: Comments on Giovannoni Logistics Center EIR (SCH No. 2021010104)

Dear Ms. Jones,

Thank you for the opportunity to comment on the Environmental Impact Report (EIR) for the proposed Giovannoni Logistics Center Project. Please accept and consider these comments on behalf of Golden State Environmental Justice Alliance (GSEJA). Also, GSEJA formally requests to be added to the public interest list regarding any subsequent environmental documents, public notices, public hearings, and notices of determination for this project. Send all communications to Golden State Environmental Justice Alliance P.O. Box 79222 Corona, CA 92877.

1.0 Summary

1

The project proposes the construction and operation of a 2.4 million square foot logistics center on approximately 163 acres of the approximately 208-acre project site. The remaining 44.8 acres would be preserved as open space/wetland preserve. Phase 1 consists of approximately 1.1 million square feet on the eastern portion of the project site. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. One of the buildings would be rail-served by the adjacent Napa Branch Line.
Phase 2 consists of approximately 1.3 million square feet industrial uses on the western portion of the project. Approximately 45 acres of the project site would be preserved as wetlands. The project would extend the Napa Valley Vine Trail along the project frontage with Devlin Road and Green Island Road.

3.2 Air Quality and 3.6 Greenhouse Gas Emissions and Energy

Please refer to attachments from SWAPE for a complete technical commentary and analysis.

The EIR does not include for analysis relevant environmental justice issues in reviewing potential impacts, including cumulative impacts from the proposed project. This is especially significant as the surrounding community is highly burdened by pollution. According to CalEnviroScreen 4.0[1], CalEPA's screening tool that ranks each census tract in the state for pollution and socioeconomic vulnerability. The proposed project's census tract (6055201005) and surrounding community, including residences to the east and south, bears the impact of multiple sources of pollution and is more polluted than average on several pollution indicators measured by CalEnviroScreen. For example, the project census tract ranks in the 83rd percentile for traffic impacts, which are typically attributed to heavy truck activity in the area. 2a

The census tract also ranks in the 84th percentile for solid waste facility impacts, which can expose people to hazardous chemicals, release toxic gases into the air (even after these facilites are closed), and chemicals can leach into soil around the facility and pose a health risk to nearby populations[2]. The census tract also ranks in the 61st percentile for toxic releases and 83rd percentile for hazardous waste impacts. People living near facilities that emit toxic releases may breathe contaminated air regularly or if contaminants are released during an accident[3]. Hazardous waste generators and facilities contribute to the contamination of air, water and soil near waste generators and facilities can harm the environment as well as people[4]. 2b

Further, the census tract is a diverse community including 31% Asian-American, 30% Hispanic, and 3% African-American residents, which are especially vulnerable to the impacts of pollution. The community is also economically disadvantaged. The community has a high rate of low educational attainment, meaning 62% of the census tract over age 25 has not attained a high school diploma, which is an indication that they may lack health insurance or access to medical care. Medical care is vital for this census tract as it ranks in the 72nd percentile for incidence of asthma and 67th percentile for incidence of cardiovascular disease. 2c

[1] CalEnviroScreen 4.0 https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40
[2] OEHHA Solid Waste Facilities https://oehha.ca.gov/calenviroscreen/indicator/solid-waste-sites-and-facilities
[3] OEHHA Toxic Releases https://oehha.ca.gov/calenviroscreen/indicator/toxic-releases-facilities
[4] OEHHA Hazardous Waste Generators and Facilities https://oehha.ca.gov/calenviroscreen/indicator/hazardous-waste-generators-and-facilities

The State of California lists three approved energy compliance modeling softwares[5] for non-residential buildings: CBECC-Com, EnergyPro, and IES VE. CalEEMod is not listed as an approved software. The spreadsheet-based modeling energy calculations in Appendix B do not comply with the 2019 Building Energy Efficiency Standards and under reports the project's potentially significant GHG and Energy impacts to the public and decision makers. Since the EIR did not accurately or adequately model the energy impacts in compliance with Title 24, a finding of significance must be made. A revised EIR with modeling in one of the approved software types must be circulated for public review in order to adequately analyze the project's potentially significant environmental impacts. This is vital as the EIR utilizes CalEEMod as a source in its methodology and analysis, which is clearly not one of the approved softwares. 2d

The EIR concludes that the project will not result in significant GHG impacts because it incorporates design and operational features listed within the BAAQMD's 2022 GHG significance thresholds[6][7]. To achieve less-than-significant status with BAAQMD's threshold, the EIR states that the project complies with the requirement to "Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average." However, the Transportation analysis has not analyzed all project-generated VMT. The VMT analysis excludes medium and heavy duty trucks. As stated below in the Transportation discussion, the VMT analysis must be revised to include medium and heavy duty trucks in order to adequately and accurately analyze all project-generated VMT. The operational nature of industrial/warehouse uses involves high rates of medium and heavy duty truck/trailer/freight VMT due to traveling from large regional distribution centers to smaller industrial parks and then to their final delivery destinations. The project's medium and heavy duty truck/trailer/freight activity is unable to utilize public transit or active transportation 2e

[5] 2019 Building Energy Efficiency Standards Approved Computer Compliance Programs, California Energy Commission. https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency-2

[6] Bay Area Air Quality Management District Proposed CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans https://civicclerk.blob.core.windows.net/stream/BAAQMDCA/1af1b756-8b30-4ae3-944c-1e6b0e8aff57.pdf?sv=2015-12-11&sr=b&sig=YmFQ4LihGdULeofmf1l0zKrDbLtORYvh4uBi5crXdhQ%3D&st=2022-06-07T19%3A45%3A42Z&se=2023-06-07T19%3A50%3A42Z&sp=r&rscc=no-cache&rsct=application%2Fpdf

[7] Bay Area Air Quality Management District Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans https://civicclerk.blob.core.windows.net/stream/BAAQMDCA/d1ba3e75-3e5f-428b-8f16-f5d5a84d651c.pdf?sv=2015-12-11&sr=b&sig=d%2FWhTNJXu9oSDOoyP8Jgml%2FwPOzGx4iZ%2FRq9BOqJNy0%3D&st=2022-06-07T19%3A36%3A50Z&se=2023-06-07T19%3A41%3A50Z&sp=r&rscc=no-cache&rsct=application%2Fpdf

and it is misleading to the public and decision makers to exclude this activity from VMT analysis. A revised EIR must be prepared to reflect a quantified VMT analysis that includes all medium and heavy duty truck/trailer/freight activity to adequately and accurately analyze the potentially significant project transportation impacts. The revised VMT analysis must be utilized to revise the GHG analysis to determine if the project-generated VMT is 15% below the prescribed threshold. 2e

Additionally, as discussed throughout this comment letter, the EIR relies upon the combined workforce of Napa and Solano Counties to fill the project's operational jobs. Relying upon the entire labor force of Napa and Solano Counties greatly exceeds the 16.24 miles of VMT per employee utilized by the Transportation analysis to determine the project will not have a significant impact on VMT. Napa County is 789 square miles in area and Solano County is 906 square miles in area. Relying on the entire labor force of Napa and Solano Counties to fill the project's construction and operational jobs will increase VMT and GHG emissions during all phases of construction and operations and the GHG analysis must be revised to account for longer worker trip distances. 2f

3.9 Land Use

Table 3.9-2: General Plan Consistency Analysis provides misleading consistency analysis with General Plan goals, policies and objectives adopted with the purpose of avoiding or mitigating an environmental effect, including the following:

Objective 1.2 Promote a rate of growth that is consistent with the ability of the City to provide adequate infrastructure and services and does not adversely impact the distinctive character and quality of life in American Canyon. 3a

EIR Analysis
Consistent: The proposed project would develop 2.4 million square feet of new industrial uses on a site designated for such use located within the American Canyon city limits. The project site is located within the Green Island Business Park and is surrounded by urban uses and infrastructure on three sides. Thus, the proposed project would occur in an area where adequate infrastructure and services exist such that it would not exceed the City's ability to serve it.

Comments: See discussion below regarding Land Use Element Page 1-12: Development Capacity Table.

Objective 3.4 Increase the number of firms within the industries now represented in the City and capture new, clean, nonpolluting industries that are stable and compatible with City needs in terms of traffic, air quality, and employment. 3b

EIR Analysis
Consistent: The proposed project would develop 2.4 million square feet of high-cube warehouse on an approximately 208-acre site in the Green Island Business Park. These types of uses currently exist within the Airport Industrial Area. Additionally, the proposed project is estimated to create 3,643 new jobs. The proposed project would implement traffic improvements to mitigate for impacts on traffic operations.

3b

Comments: The EIR concludes the project will result in significant and unavoidable cumulatively considerable impacts to Air Quality. The EIR must be revised to include this fact for consistency analysis and including a finding of significance due to inconsistency with this objective.

Circulation Element Policy 1.11 Reduce Vehicle Miles Traveled. Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce the total vehicle miles traveled by City residents.

EIR Analysis
Consistent: The project site is located within the Napa County Airport Industrial Area, which has convenient access to SR-12 and SR-29. The development of the proposed project's 2.4 million square feet of high-cube warehouse is within the North Bay Region and would contribute to reducing trip length by locating these facilities closer to customers within this region. Finally, the development of up to 3,643 new jobs in a housing-rich part of the Bay Area region would allow employees to work closer to where they live, thereby reducing vehicle miles traveled.

Comments: As stated below in the Transportation analysis, the VMT analysis does not analyze all project-generated VMT. The VMT must be revised to include medium and heavy duty trucks in order to adequately and accurately analyze <u>all project-generated</u> VMT. The operational nature of industrial/warehouse uses involves high rates of medium and heavy duty truck/trailer/freight VMT due to traveling from large regional distribution centers to smaller industrial parks and then to their final delivery destinations. The project's medium and heavy duty truck/trailer/freight activity is unable to utilize public transit or active transportation and it is misleading to the public and decision makers to exclude this activity from VMT analysis. A revised EIR must be prepared to reflect a quantified VMT analysis that includes all medium and heavy duty truck/trailer/freight activity to adequately and accurately analyze the potentially significant project transportation impacts. The revised VMT analysis must be utilized to revise the GHG analysis to determine if the project-generated VMT is 15% below the prescribed threshold.

3c

Additionally, the EIR excludes analysis of the following General Plan goals, policies and objectives adopted with the purpose of avoiding or mitigating an environmental effect, including the following:

3d

Land Use Policy 1.3.4 Limit the total additional new development that can be accommodated in the City and its Urban Limit Line to the following provided that the highway improvements stipulated by the Circulation Element are implemented.

Land Use Element Page 1-12: Development Capacity Table

3d

Industrial Development

City: 1,560,195 square feet

City Urban Limit Line: 4,218,305 square feet

Total: 5,778,500 square feet

Land Use Goal 1T Establish a City Urban Limit Line for the City of American Canyon which describes its future geographic boundary until January 1, 2030.

3e

Land Use Policy 1.22.9 Control, through the permit process, the development of industrial uses that use, store, produce, or transport hazardous materials in threshold planning quantities, generate unacceptable levels of noise or air emissions, or result in other impacts that adversely impact American Canyon.

3f

Economic Development Objective 3.2 Promote growth that generates net positive fiscal impacts to the City to ensure that municipal services keep up with growing demand.

3g

Economic Development Policy 3.2.1 Evaluate the need for, and implement as necessary, a fiscal impact analysis as part of the Project Development Review process for certain types of projects. The purpose is to provide input into assessment of Citywide impact of development activities and to determine what costs to the City, if any, may be subject to mitigation.

3h

Due to the project's proposal to construct 2.4 million square feet of industrial warehousing that results in significant and unavoidable Air Quality impacts (including inconsistency with the Bay Area AQMD Air Quality Plan), and errors in modeling and modeling without supporting evidence, as noted throughout this comment letter and attachments, the proposed project is directly inconsistent with the goals, policies and objectives listed above adopted with the purpose of avoiding or mitigating an environmental effect. The EIR must be revised to include a consistency analysis with all General Plan goals, policies and objectives in order to provide an adequate and accurate environmental analysis.

3i

Particularly of note is the General Plan Land Use Element Page 1-12: Development Capacity Table. According to Figure 3: Planning Area of the General Plan Introduction Section, the project site is located in the City Urban Limit area. The project proposes 2.4 million square feet of industrial development, which is approximately 56% of the industrial development capacity in the

3j

City Urban Limit area and approximately 41.5% of all industrial development capacity in both the City Limit and City Urban Limit area. The EIR does not provide a list of cumulative industrial projects approved since the 1994 approval of the General Plan within the City Limits and City Urban Limit areas. The General Plan industrial development capacity is not discussed or presented for analysis in the EIR and must be included as part of a revised and recirculated EIR for public review. A finding of significance must be made if it is determined that the proposed project exceeds the General Plan development capacity for industrial uses. 3j

3.12 Transportation

Appendix H: Transportation sources the Governor's Office of Planning and Research (OPR) 2018 CEQA Guidelines Update and Technical Advisory as contributing to the methodology for VMT analysis. The VMT analysis does not state if medium and heavy duty truck/trailer trips were included for analysis. The EIR does not provide a statutory source of exemption for medium/heavy trucks. The EIR sources the OPR's 2018 Technical Advisory[8] which states that "here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks." However, the purpose of the OPR Technical Advisory document is purely advisory, stating in its introduction:

"The purpose of this document is to provide advice and recommendations, which agencies and other entities may use at their discretion. This document does not alter lead agency discretion in preparing environmental documents subject to CEQA. This document should not be construed as legal advice." 4

The OPR document is not a legal interpretation, court decision, or amendment to the CEQA statute that clarifies the definition of automobile. The term "automobile" is not defined in the CEQA statute and application of the OPR interpretation is speculative and does not provide an analysis of the "worst-case scenario" for environmental impacts. Widespread public understanding and perception indicates that trucks, including medium/heavy-duty truck/trailer trips associated with the industrial nature of warehouse operations, are automobiles. The EIR must be revised to include all truck/trailer activity for quantified VMT analysis. The operational nature of industrial/warehouse uses involves high rates of truck/trailer VMT due to traveling from large regional distribution centers to smaller industrial parks and then to their final delivery destinations. The project's truck/trailer activity is unable to utilize public transit or active transportation and it

[8] Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA https://opr.ca.gov/ceqa/docs/20190122-743_Technical_Advisory.pdf

is misleading to the public and decision makers to exclude this activity from VMT analysis. A revised EIR must be prepared to reflect a quantified VMT analysis that includes all truck/trailer activity to adequately and accurately analyze the potentially significant project transportation impacts. 4a

Further, the EIR states that "According to Statewide Travel Demand Model estimates, this project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles." However, the Statewide TDM software utilized is not included as a reference. The EIR must be revised to state the name of the Statewide TDM utilized and also provide a weblink to the software in order to comply with CEQA's requirements for meaningful disclosure and incorporation by reference because the Statewide TDM contributes directly to analysis of the problem at hand (CEQA § 15150 (f)). 4b

Notably, the EIR concludes that the project will not have significant VMT impacts because the project is located within a TAZ with a projected VMT per employee of 16.24 miles. However, Section 6.2: Growth Inducing Impacts relies upon the combined Napa County and Solano County labor force of 273,500 people to conclude that "unplanned growth would not occur." Relying upon the entire labor force of Napa and Solano Counties greatly exceeds the 16.24 miles of VMT per employee utilized by the Transportation analysis to determine the project will not have a significant impact on VMT. Napa County is 789 square miles in area and Solano County is 906 square miles in area. Relying on the entire labor force of Napa and Solano Counties to fill the project's construction and operational jobs will increase VMT and emissions during all phases of construction and operations and the EIR must be revised to account for longer worker trip distances. 4c

Further, because the "City of American Canyon has not yet established thresholds of significance related to VMT," the EIR utilizes "established policies currently used by OPR, Sacramento County and the City of San Jose" in order to invent the threshold that "a VMT impact would be identified at an industrial project if the project VMT per employee is higher than the regional average VMT per employee." However, the specific policies and associated documents from OPR, Sacramento County and the City of San Jose are not included in the EIR. This does not comply with CEQA's requirements for meaningful disclosure and incorporation by reference. The EIR must be revised to attach the specific policies and associated documents from OPR, Sacramento County and the City of San Jose in order to comply with CEQA's requirements for meaningful disclosure and incorporation by reference because the policies and documents contribute directly to analysis of 4d

the problem at hand (CEQA § 15150 (f)). Without these items, the public is unable to verify the accuracy of the VMT analysis and the EIR cannot conclude the VMT impacts are not significant. 4d

4.0 Cumulative Effects

4.2 Cumulative Impact Analysis

The EIR has not adequately or accurately provided a cumulative impact analysis. For example, the EIR has not analyzed the project in accordance with General Plan Land Use Element Page 1-12: Development Capacity Table. According to Figure 3: Planning Area of the General Plan Introduction Section, the project site is located in the City Urban Limit area. The project proposes 2.4 million square feet of industrial development, which is approximately 56% of the industrial development capacity in the City Urban Limit area and approximately 41.5% of all industrial development capacity in both the City Limit and City Urban Limit area. The EIR does not provide a list of cumulative industrial projects approved since the 1994 approval of the General Plan within the City Limits and City Urban Limit areas. The General Plan industrial development capacity is not discussed or presented for analysis in the EIR and must be included as part of a revised and recirculated EIR for public review. A finding of significance must be made if it is determined that the proposed project exceeds the General Plan development capacity for industrial uses. 5a

Additionally, the EIR does not discuss the cumulative growth impacts of the proposed project on the Bay Area. The Association of Bay Area Governments (ABAG) Plan Bay Area 2050's Growth Pattern[9] notes that the South Napa County area (Napa City and American Canyon City combined) will add 19,000 jobs between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the project represents 19% of South Napa County's employment growth from 2015 - 2050. Plan Bay Area 2050's Growth Pattern notes that the South Napa County's population will increase by 5,000 residents between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the project represents 72% of South Napa County's population growth from 2015 - 2050. A single project accounting for this amount of the projected employment and/or population over 35 years represents a significant amount of growth. The EIR must be revised to include this analysis, and also provide a cumulative analysis discussion of projects approved since 2015 and projects "in the pipeline" in American Canyon and City of Napa to determine if the project will exceed Plan Bay Area 2050's employment and/or population growth forecast for South Napa County. 5b

5.0 Alternatives

[9] Plan Bay Area 2050 Growth Pattern
https://www.planbayarea.org/sites/default/files/FinalBlueprintRelease_December2020_GrowthPattern_Jan2021Update.pdf 6

The EIR is required to evaluate a reasonable range of alternatives to the proposed project which will avoid or substantially lessen any of the significant effects of the project (CEQA § 15126.6.)

The EIR does not evaluate a reasonable range of alternatives as it does not include an alternative that meets the project objectives and also eliminates all of the project's significant and unavoidable impacts. The EIR must be revised to include analysis of a reasonable range of alternatives and 6

foster informed decision making (CEQA § 15126.6). This must include alternatives such as development of the site with a project that reduces all of the proposed project's significant and unavoidable impacts to less than significant levels.

6.0 Other CEQA Considerations

6.2 Growth Inducing Impacts

The EIR does not discuss General Plan Land Use Element Page 1-12: Development Capacity Table. According to Figure 3: Planning Area of the General Plan Introduction Section, the project site is located in the City Urban Limit area. The project proposes 2.4 million square feet of industrial development, which is approximately 56% of the industrial development capacity in the City Urban Limit area and approximately 41.5% of all industrial development capacity in both the City Limit and City Urban Limit area. The EIR does not provide a list of cumulative industrial projects approved since the 1994 approval of the General Plan within the City Limits and City Urban Limit areas. The General Plan industrial development capacity is not discussed or presented for analysis in the EIR and must be included as part of a revised and recirculated EIR for public review. A finding of significance must be made if it is determined that the proposed project exceeds the General Plan development capacity for industrial uses. 7a

Additionally, the EIR does not discuss the cumulative growth impacts of the proposed project on the Bay Area. The Association of Bay Area Governments (ABAG) Plan Bay Area 2050's Growth Pattern[10] notes that the South Napa County area (Napa City and American Canyon City combined) will add 19,000 jobs between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the project represents 19% of South Napa County's employment growth from 2015 - 2050. Plan Bay Area 2050's Growth Pattern notes that the South Napa County's population will increase by 5,000 residents between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the 7b

[10] Plan Bay Area 2050 Growth Pattern
https://www.planbayarea.org/sites/default/files/FinalBlueprintRelease_December2020_GrowthPattern_Jan2021Update.pdf

project represents 72% of South Napa County's population growth from 2015 - 2050. A single project accounting for this amount of the projected employment and/or population over 35 years represents a significant amount of growth. The EIR must be revised to include this analysis, and also provide a cumulative analysis discussion of projects approved since 2015 and projects "in the pipeline" in American Canyon and City of Napa to determine if the project will exceed Plan Bay Area 2050's employment and/or population growth forecast for South Napa County. 7b

The EIR relies upon the notion that project's buildings "*likely* be built incrementally over a period of years and, thus, jobs would be added in blocks as the project builds out. As such, there would not be an "overnight" influx of new employment opportunities." However, utilizing an incremental construction schedule is not internally consistent with the EIR's other areas of analysis. For example, the Air Quality analysis models a construction schedule in which construction of Phase 1 is anticipated to begin in early 2022 and be completed 10 months later; construction of Phase 2 is expected to begin *immediately* following the completion of Phase 1 construction and be completed 10 months later. Section 2.3.13 - Buildout Horizon of the EIR states that "For the purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be developed concurrently over a period of 18 months." The EIR must be revised to utilize immediate construction and operation of both phases of development in order to be internally consistent and provide an adequate and accurate environmental analysis. Utilizing "incremental" construction of the project's buildings serves to artificially skew the growth-inducing impacts of the project downward. This analysis is erroneous and the EIR must be revised and recirculated for public review. 7c

7.0 Effects Found not to be Significant

7.2.9 Population and Housing

The EIR does not provide any analysis of the project's impacts to population and housing. The only discussion refers the reader to Section 6.2 - Growth Inducing Impacts. The EIR states that the project will employ "an estimated 1,200 workers during construction and 3,643 workers when fully operational at buildout." However, the EIR does not provide a methodology or source of calculation that was utilized to determine the project would generate 1,200 construction jobs and 3,643 operational jobs. The EIR must be revised to include the methodology for employment generation in order to comply with CEQA's requirements for meaningful disclosure. 8a

Further, the EIR relies upon the combined Napa-Solano labor force of 273,500 people to conclude that "the local labor force is sufficiently large enough to allow the project's employment 8b

opportunities to be filled locally such that unplanned growth would not occur." However, the EIR has not provided any meaningful evidence to support this conclusion. The size of labor market does not equate to number of available workers, number of workers qualified work in the industrial sector, or number of workers interested in work in the industrial sector. Relying upon the entire labor force of Napa and Solano Counties greatly exceeds the 16.24 miles of VMT per employee utilized by the Transportation analysis to determine the project will not have a significant impact 8b

on VMT. Napa County is 789 square miles in area and Solano County is 906 square miles in area. Relying on the entire labor force of Napa and Solano Counties to fill the project's construction and operational jobs will increase VMT and emissions during all phases of construction and operations and the EIR must be revised to account for longer worker trip distances.

The EIR does not discuss the project's compliance with the Association of Bay Area Governments (ABAG) RTP/SCS (Plan Bay Area 2050). Plan Bay Area 2050's Growth Pattern[11] notes that the South Napa County area (Napa City and American Canyon City combined) will add 19,000 jobs between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the project represents 19% of South Napa County's employment growth from 2015 - 2050. Plan Bay Area 2050's Growth Pattern notes that the South Napa County's population will increase by 5,000 residents between 2015 - 2050. Utilizing the EIR's calculation of 3,643 employees, the project represents 72% of South Napa County's population growth from 2015 - 2050. A single project accounting for this amount of the projected employment and/or population over 35 years represents a significant amount of growth. The EIR must be revised to include this analysis, and also provide a cumulative analysis discussion of projects approved since 2015 and projects "in the pipeline" in American Canyon and City of Napa to determine if the project will exceed Plan Bay Area 2050's employment and/or population growth forecast for South Napa County. Additionally, the EIR must also provide demographic and geographic information on the location of qualified workers to fill these positions in order to provide an accurate environmental analysis. 8c

Conclusion

For the foregoing reasons, GSEJA believes the EIR is flawed and a revised EIR must be prepared for the proposed project and circulated for public review. Golden State Environmental Justice Alliance requests to be added to the public interest list regarding any subsequent environmental 9

[11] Plan Bay Area 2050 Growth Pattern
https://www.planbayarea.org/sites/default/files/FinalBlueprintRelease_December2020_GrowthPattern_Jan2021Update.pdf

documents, public notices, public hearings, and notices of determination for this project. Send all communications to Golden State Environmental Justice Alliance P.O. Box 79222 Corona, CA 92877.

9

Sincerely,

Gary Ho
Blum Collins & Ho, LLP

Attachments:

1. SWAPE Comment Letter

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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June 16, 2022

Gary Ho
Blum Collins LLP
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Subject: Comments on the Giovannoni Logistics Center Project (SCH No. 2021010104)

Dear Mr. Ho,

We have reviewed the May 2022 Draft Environmental Impact Report ("DEIR") for the Giovannoni Logistics Center Project ("Project") located in the City of American Canyon ("City"). The Project proposes the development of up to 2,400,000-square-feet ("SF") of high-cube warehouse space on the 208-acre site throughout two phases. Phase 1 proposes to construct two high-cube warehouse buildings totaling 1,069,904-SF and 860 parking spaces on a 94.7-acre site, while Phase 2 conceptually proposes to construct the remaining 1,300,000-SF of high-cube warehouse space on a 113.1-acre site after Phase 1 is completed. 1

Our review concludes that the DEIR fails to adequately evaluate the Project's air quality and health risk impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated EIR should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the project may have on the environment.

Air Quality

Failure to Implement All Feasible Mitigation to Reduce Emissions

The DEIR concludes that the Project would result in a significant-and-unavoidable operational air quality impact. Specifically, the DEIR estimates that the ROG and NO_x emissions associated with operation of both the Dry Storage and Cold Storage Project Scenarios would exceed the applicable Bay Area Air Quality Management District ("BAAQMD") annual threshold of 10 tons per year ("tons/year"), as well as the BAAQMD daily threshold of 54 pounds per day ("lbs/day") (see excerpt below) (p. 3.2-52 – 3.2-54, Table 3.2-13). 2a

Table 3.2-13: Mitigated Operational Emissions

Emissions Source	ROG	NO_x	PM_{10} Total	$PM_{2.5}$ Total
	Tons per Year			
Dry Storage Project Scenario				
Area	10.18	<0.01	<0.01	<0.01
Energy	0.04	0.40	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.67	31.93	1.13	0.56
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	–	–	–	–
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	*11.74*	*34.95*	*4.28*	*1.46*
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*64*	*192*	*23*	*8*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Cold Storage Project Scenario				
Area	10.18	<0.01	<0.01	<0.01
Energy	0.05	0.44	0.03	0.03
Mobile–Passenger Vehicles	0.83	0.90	3.07	0.83
Mobile–Trucks	0.67	31.93	1.13	0.56
Mobile–Locomotives	ND	1.68	0.04	0.04
Mobile–TRUs	3.71	31.15	0.43	0.40
Stationary	0.01	0.04	<0.01	<0.01
Total (tons/year)	15.46	66.14	4.71	1.86
Significance Threshold (Tons/Year)	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**
Total Average (pounds/day)	*85*	*362*	*26*	*10*
Significance Threshold (Tons/Year)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**Yes**	**Yes**	**No**	**No**

Notes:
[1] Totals may not add up due to rounding. Calculations use unrounded results. 365 working days per year is assumed to estimate average daily emission rates.
lb. = pounds ROG = reactive organic gases NO_x = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ND = No Data
Source: CalEEMod Output (see Appendix B).

2a

As a result, the DEIR concludes that the impacts associated with Project operation would be significant-and-unavoidable (p. 3.2-59). However, while we agree that the Project's criteria air pollutant emissions would result in a significant air quality impact, the DEIR's conclusion that these impacts are "significant and unavoidable" is incorrect. According to CEQA Guidelines § 15096(g)(2):

> "When an EIR has been prepared for a project, the Responsible Agency shall not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment."

As stated above, an impact can only be labeled as significant and unavoidable after all available, feasible mitigation is considered. Here, while the DEIR includes Mitigation Measure ("MM") AQ-2a through AQ-2d, the DEIR fails to implement *all* feasible mitigation (p. 3.2-58 – 3.2-59). Therefore, the DEIR's conclusion that the Project's air quality impacts are significant-and-unavoidable is unsubstantiated. To reduce the Project's air quality impacts to the maximum extent possible, additional feasible mitigation measures should be incorporated, such as those suggested in the section of this letter titled "Feasible Mitigation Measures Available to Reduce Emissions." Thus, the Project should not be approved until an updated EIR is prepared, incorporating all feasible mitigation to reduce emissions to less-than-significant levels. 2a

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with the California Emissions Estimator Model ("CalEEMod") Version 2020.4.0 (p. 3.2-1).[1] CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence. Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters are utilized in calculating the Project's air pollutant emissions and make known which default values are changed as well as provide justification for the values selected. 2b

When reviewing the Project's CalEEMod output files, provided in the Air Quality, Energy, Greenhouse Gas Supporting Information ("AQ & GHG Analysis") as Appendix B to the DEIR, we found that the following model input is not consistent with information disclosed in the DEIR. As a result, the Project's operational emissions are underestimated. An updated EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that Project operation will have on local and regional air quality.

Failure to Model Operational Daily Truck Trips

The AQ & GHG Analysis provides the Giovannoni Logistics Project CalEEMod Notes ("CalEEMod Notes") to justify and provide additional explanation regarding the changes to the default values included in the Project's air models. Specifically, regarding the Project's expected number of operational vehicle trips and associated trip lengths, CalEEMod Note #9 states: 2c

[1] "CalEEMod Version 2020.4.0." California Air Pollution Control Officers Association (CAPCOA), May 2021, *available at:* https://www.aqmd.gov/caleemod/download-model.

> "W-Trans prepared a Traffic Impact Study (TIS) for the proposed project that analyzes the trip generation rates for the proposed project. The TIS illustrates that at full buildout (Phases 1 and 2), the proposed project would generate an estimated 528 daily truck trips and 2,832 daily passenger vehicle trips. According to the TIS, passenger vehicles would travel an average of 16.24 VMT per person per day. As this VMT would represent all travel to and from the project site for employees, an average of 8.12 miles per vehicle trip was utilized in this analysis. According to correspondence with the Project Applicant, the anticipated port of product origin for truck trips would be the Port of Oakland, approximately 32.8 miles away. Therefore, trip distances and trip generation rates were adjusted in the project operation models to reflect this information" (p. 3).

As demonstrated above, the proposed Project expects to generate 528 daily truck trips (with a trip length of approximately 32.8 miles) and 2,832 daily passenger car trips (with a trip length of approximately 8.12 miles). Furthermore, regarding the Project's expected passenger car and truck fleet mix percentages, CalEEMod Note #9 continues, stating:

> "According to telephone correspondence with the Project Applicant, trucks to serve the project upon operation are anticipated to have an average gross vehicle weight rating (GVWR) of 35,000 pounds. Therefore, the fleet mix for the proposed project was adjusted to reflect 100 percent of truck trips as classified under the Heavy Heavy-Duty (HHD) vehicle class and 100 percent of passenger vehicle trips as classified under the Light-Duty Auto (LDA), Light-Duty Truck Type 1 (LDT1), Light-Duty Truck Type 2 (LDT2), and Medium-Duty Vehicle (MDV) vehicle classes, according to their respective fleet proportions found in the California Air Resources Board's (ARB) EMFAC2017 database for the first year of full buildout (2023). Please refer to the Fleet Mix Adjustment sheet found in this Appendix for more information" (p. 3).

2c

As demonstrated above, the Project's truck fleet mix was adjusted to be 100% Heavy Heavy-Duty ("HHD") vehicles, while the Project's passenger car fleet mix was adjusted to be a mixture of Light-Duty Auto ("LDA"), Light-Duty Truck Type 1 ("LDT1"), Light-Duty Truck Type 2 ("LDT2"), and Medium-Duty Vehicle ("MDV") vehicles.

Review of the CalEEMod output files demonstrates that the operational models include a total of 2,832 daily operational vehicle trips (see excerpts below) (Appendix B, pp. 101, 109, 117, 126, 154, 166, 176, 186, 215, 226, 236, 246).[2]

[2] Calculated: (1,263.66 Phase 1 vehicle trips) + (1,568.34 Phase 2 vehicle trips) = 2,832 total vehicle trips.

Phase 1 models: "Giovanni Logistics Phase 1 DRY Op," "Giovanni Logistics Phase 1 COLD Op," "Giovannoni Logistics Phase 1 COLD Op – AIR-2c," "Giovannoni Logistics Phase 1 DRY Op – AIR-2c," "Giovannoni Logistics Phase 1 COLD 2030 Op – AIR-2c," and "Giovannoni Logistics Phase 1 DRY 2030 Op – AIR-2c"

	Average Daily Trip Rate		
Land Use	Weekday	Saturday	Sunday
City Park	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	554.03	554.03	554.03
Refrigerated Warehouse-Rail	709.63	709.63	709.63
Total	1,263.66	1,263.66	1,263.66

Phase 2 models: "Giovannoni Logistics Phase 2 COLD Op," "Giovannoni Logistics Phase 2 DRY Op," "Giovannoni Logistics Phase 2 COLD Op - AIR-2c," "Giovannoni Logistics Phase 2 DRY Op - AIR-2c," "Giovanni Logistics Phase 2 COLD 2030 Op - AIR-2c," and "Giovannoni Logistics Phase 2 DRY 2030 Op - AIR-2c"

	Average Daily Trip Rate		
Land Use	Weekday	Saturday	Sunday
City Park	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00
Refrigerated Warehouse-Rail	1,568.34	1,568.34	1568.34
Total	1,568.34	1,568.34	1,568.34

2c

Furthermore, all of the 2,832 vehicle trips are modeled with a trip length of 8.12 miles and fleet mix accounting for Light-Duty Auto ("LDA"), Light-Duty Truck Type 1 ("LDT1"), Light-Duty Truck Type 2 ("LDT2"), and Medium-Duty Vehicle ("MDV") vehicles (see excerpts below) (Appendix B, pp. 101, 109, 117, 126, 154, 166, 176, 186, 215, 226, 236, 246).

Phase 1 models: "Giovanni Logistics Phase 1 DRY Op," "Giovanni Logistics Phase 1 COLD Op," "Giovannoni Logistics Phase 1 COLD Op – AIR-2c," "Giovannoni Logistics Phase 1 DRY Op – AIR-2c," "Giovannoni Logistics Phase 1 COLD 2030 Op – AIR-2c," and "Giovannoni Logistics Phase 1 DRY 2030 Op – AIR-2c"

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00
Refrigerated Warehouse-No Rail	8.12	7.30	8.12	59.00	0.00	41.00
Refrigerated Warehouse-Rail	8.12	7.30	8.12	59.00	0.00	41.00

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Parking Lot	0.519131	0.057850	0.178660	0.140619	0.035215	0.008345	0.013447	0.010718	0.001815	0.000640	0.027064	0.001973	0.004523
Refrigerated Warehouse-No Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Refrigerated Warehouse-Rail	0.579219	0.064546	0.199339	0.156895	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Phase 2 models: "Giovannoni Logistics Phase 2 COLD Op," "Giovannoni Logistics Phase 2 DRY Op," "Giovannoni Logistics Phase 2 COLD Op - AIR-2c," "Giovannoni Logistics Phase 2 DRY Op - AIR-2c," "Giovanni Logistics Phase 2 COLD 2030 Op - AIR-2c," and "Giovannoni Logistics Phase 2 DRY 2030 Op - AIR-2c"

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00
Unrefrigerated Warehouse-No	8.12	7.30	8.12	59.00	0.00	41.00

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Parking Lot	0.571798	0.054112	0.166960	0.117788	0.026174	0.006933	0.012719	0.011244	0.001662	0.000589	0.025057	0.001733	0.003231
Unrefrigerated Warehouse-No Rail	0.627895	0.059421	0.183340	0.129344	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

2c

As demonstrated in the excerpts above, all 2,832 operational vehicle trips included in the models reflect passenger car trips, consistent with the information provided by the CalEEMod Notes. ***However, the operational models fail to include the proposed 528 daily truck trips.***

This presents an issue, as CalEEMod uses the operational vehicle trips to calculate the emissions associated with the operational on-road vehicles.[3] Furthermore, trucks are a major source of diesel particulate matter ("DPM") emissions, which have health effects including cardiovascular and respiratory hospitalizations, as well as premature death.[4] Thus, by failing to include the proposed daily truck trips, the models underestimate the Project's mobile-source operational emissions and potential health risk impacts, and should not be relied upon to determine Project significance.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR concludes that the proposed Project would result in a less-than-significant health risk impact based on a quantified construction and operational health risk assessment ("HRA"). Specifically, the DEIR estimates that the maximum incremental cancer risk posed to nearby, existing residential sensitive receptors associated with exposure to diesel particulate matter ("DPM") emissions during Project construction and operation would be 2.10 in one million, which would not exceed the BAAQMD significance threshold of 10 in one million (see excerpt below) (p. 3.2-60 – 3.2-61, Table 3.2-14).

2d

[3] "CalEEMod User's Guide." California Air Pollution Control Officers Association (CAPCOA), May 2021, *available at:* https://www.aqmd.gov/caleemod/user's-guide, p. 36.
[4] "Overview: Diesel Exhaust & Health." California Air Resources Board (CARB), *available at:* https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.

Table 3.2-14: Summary of Construction Health Risks at the Maximum Impacted Receptor

Impact Scenario	Cancer Risk[1] (risk per million)	Chronic Non-Cancer Hazard Index[2]	TAC Concentration[3] (µg/m³)
Residential MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.44	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	1.44	<0.01	0.01
Scenario 3 (Phase 1, Phase 2 Operation)	0.22	0.01	0.04
Total (30 Year Duration)	*2.10*	*0.01*	*0.05*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**
School MIR Impact (Cold Storage Scenario)			
Scenario 1 (Phase 1 Construction)	0.01	<0.01	<0.01
Scenario 2 (Phase 2 Construction, Phase 1 Operation)	0.03	<0.01	<0.01
Scenario 3 (Phase 1, Phase 2 Operation)	<0.20	<0.01	<0.01
Total (30 Year Duration)	*0.24*	*<0.01*	*<0.01*
Thresholds of Significance	**10**	**1**	**0.3**
Exceeds Individual Source Threshold?	**No**	**No**	**No**

Notes:
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
REL = reference exposure level DPM = diesel particulate matter TAC = toxic air contaminants
MIR = Maximally Impacted Sensitive Receptor µg/m³ = micrograms per cubic meter
[1] Cancer risk is identified by multiplying the risk sum from HARP2 by 1,000,000.
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the DPM REL of 5 µg/m³.
[3] TAC concentration taken from AERMOD is always at the MIR identified from the project air dispersion models. The residential MIR was located at 38.20613°N -122.25739°E and the school MIR was identified as the Calvary Baptist Christian Academy.
Emissions Source: Appendix B.
Thresholds Source: Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 15, 2021.

2d

However, the DEIR's evaluation of the Project's potential health risk impacts, as well as the subsequent less-than-significant impact conclusion, is incorrect for two reasons.

First, the DEIR's HRA is incorrect, as it relies upon emissions estimates from a flawed air model (see excerpt below) (p. 3.2-61, Table 3.2-14).

Notes:
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
REL = reference exposure level DPM = diesel particulate matter TAC = toxic air contaminants
MIR = Maximally Impacted Sensitive Receptor µg/m³ = micrograms per cubic meter
[1] Cancer risk is identified by multiplying the risk sum from HARP2 by 1,000,000.
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as $PM_{2.5}$ exhaust) by the DPM REL of 5 µg/m³.
[3] TAC concentration taken from AERMOD is always at the MIR identified from the project air dispersion models. The residential MIR was located at 38.20613°N -122.25739°E and the school MIR was identified as the Calvary Baptist Christian Academy.
Emissions Source: Appendix B.
Thresholds Source: Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 15, 2021.

As previously discussed, when we reviewed the Project's CalEEMod output files, provided in the AQ & GHG Analysis as Appendix B to the DEIR, we found that the model fails to include the Project's expected number of daily truck trips. This poses a significant problem, as trucks emit high levels of diesel exhaust that the Project's air modeling does not account for. As such, the HRA utilizes an underestimated DPM concentration to calculate the health risk associated with Project construction and operation. As such, the DEIR's HRA and resulting cancer risk are underestimated and should not be relied upon to determine Project significance. 2d

Second, the DEIR's HRA is unsubstantiated, as the DEIR fails to provide the input parameters and modeling assumptions. Specifically, upon review of the HRA, we found that the exposure parameters, such as the daily breathing rates ("BR/BW"), exposure duration ("ED"), age sensitivity factors ("ASF"), fraction of time at home ("FAH"), and exposure frequency ("EF") are not disclosed. As such, we cannot verify the calculation of the Project's cancer risk is accurate. As a result, the Project's cancer risk may be underestimated and should not be relied upon to determine Project significance.

Mitigation

Feasible Mitigation Measures Available to Reduce Emissions

Our analysis demonstrates that the Project results in significant operational air quality impacts that should be mitigated further. As such, in an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project. Feasible mitigation measures can be found in the Department of Justice Warehouse Project Best Practices document.[5] Therefore, to reduce the Project's emissions, consideration of the following measures should be made: 2e

- Prohibiting off-road diesel-powered equipment from being in the "on" position for more than 10 hours per day.
- Forbidding idling of heavy equipment for more than two minutes.
- Keeping onsite and furnishing to the lead agency or other regulators upon request, all equipment maintenance records and data sheets, including design specifications and emission control tier classifications.

[5] "Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act." State of California Department of Justice.

- Using paints, architectural coatings, and industrial maintenance coatings that have volatile organic compound levels of less than 10 g/L.
- Providing information on transit and ridesharing programs and services to construction employees.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations for construction employees.
- Requiring that all facility-owned and operated fleet equipment with a gross vehicle weight rating greater than 14,000 pounds accessing the site meet or exceed 2010 model-year emissions equivalent engine standards as currently defined in California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.5, Section 2025. Facility operators shall maintain records on-site demonstrating compliance with this requirement and shall make records available for inspection by the local jurisdiction, air district, and state upon request.
- Requiring all heavy-duty vehicles entering or operated on the project site to be zero-emission beginning in 2030.
- Requiring on-site equipment, such as forklifts and yard trucks, to be electric with the necessary electrical charging stations provided.
- Requiring tenants to use zero-emission light- and medium-duty vehicles as part of business operations.
- Forbidding trucks from idling for more than two minutes and requiring operators to turn off engines when not in use.
- Posting both interior- and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to CARB, the air district, and the building manager. 2e
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, air filtration systems at sensitive receptors within a certain radius of facility for the life of the project.
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, an air monitoring station proximate to sensitive receptors and the facility for the life of the project, and making the resulting data publicly available in real time. While air monitoring does not mitigate the air quality or greenhouse gas impacts of a facility, it nonetheless benefits the affected community by providing information that can be used to improve air quality or avoid exposure to unhealthy air.
- Constructing electric truck charging stations proportional to the number of dock doors at the project.
- Constructing electric plugs for electric transport refrigeration units at every dock door, if the warehouse use could include refrigeration.
- Constructing electric light-duty vehicle charging stations proportional to the number of parking spaces at the project.
- Installing solar photovoltaic systems on the project site of a specified electrical generation capacity, such as equal to the building's projected energy needs.
- Requiring all stand-by emergency generators to be powered by a non-diesel fuel.

- Requiring facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks.
- Requiring operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.
- Meeting CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- Achieving certification of compliance with LEED green building standards.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations.
- Posting signs at every truck exit driveway providing directional information to the truck route.
- Improving and maintaining vegetation and tree canopy for residents in and around the project area.
- Requiring that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with CARB regulations, by attending CARB approved courses. Also require facility operators to maintain records on-site demonstrating compliance and make records available for inspection by the local jurisdiction, air district, and state upon request. 2e
- Requiring tenants to enroll in the United States Environmental Protection Agency's SmartWay program, and requiring tenants to use carriers that are SmartWay carriers.
- Providing tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Incentive Program, to upgrade their fleets.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce emissions released during Project operation. An updated EIR should be prepared to include all feasible mitigation measures, as well as include an updated air quality analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The updated EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

Disclaimer

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties. 3

Sincerely,

Matt Hagemann, P.G., C.Hg.

3

Paul E. Rosenfeld, Ph.D.

Attachment A: Matt Hagemann CV
Attachment B: Paul Rosenfeld CV

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

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- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at more than 100 industrial facilities.
- Expert witness on numerous cases including, for example, perfluorooctanoic acid (PFOA) contamination of groundwater, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

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With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows: 4

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted

public hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:
- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:
- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

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Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9.

Activities included the following:
- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific

principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

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Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

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Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

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Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examinations, 2009-2011.

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, industrial, military and agricultural sources, unconventional oil drilling operations, and locomotive and construction engines. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities. Dr. Rosenfeld has also successfully modeled exposure to contaminants distributed by water systems and via vapor intrusion.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, creosote, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at sites and has testified as an expert witness on numerous cases involving exposure to soil, water and air contaminants from industrial, railroad, agricultural, and military sources.

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Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

5

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

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Presentations:

Rosenfeld, P.E., "The science for Perfluorinated Chemicals (PFAS): What makes remediation so hard?" Law Seminars International, (May 9-10, 2018) 800 Fifth Avenue, Suite 101 Seattle, WA.

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Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

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Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

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Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

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Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

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Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation. 5

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 5-14-2021
Trial, October 8-4-2021

In the Circuit Court of Cook County Illinois
Joseph Rafferty, Plaintiff vs. Consolidated Rail Corporation and National Railroad Passenger Corporation d/b/a AMTRAK,
Case No.: No. 18-L-6845
Rosenfeld Deposition, 6-28-2021

In the United States District Court For the Northern District of Illinois
Theresa Romcoe, Plaintiff vs. Northeast Illinois Regional Commuter Railroad Corporation d/b/a METRA Rail, Defendants
Case No.: No. 17-cv-8517
Rosenfeld Deposition, 5-25-2021

In the Superior Court of the State of Arizona In and For the Cunty of Maricopa
Mary Tryon et al., Plaintiff vs. The City of Pheonix v. Cox Cactus Farm, L.L.C., Utah Shelter Systems, Inc.
Case Number CV20127-094749
Rosenfeld Deposition: 5-7-2021

In the United States District Court for the Eastern District of Texas Beaumont Division
Robinson, Jeremy et al *Plaintiffs*, vs. CNA Insurance Company et al.
Case Number 1:17-cv-000508
Rosenfeld Deposition: 3-25-2021

In the Superior Court of the State of California, County of San Bernardino
Gary Garner, Personal Representative for the Estate of Melvin Garner vs. BNSF Railway Company.
Case No. 1720288
Rosenfeld Deposition 2-23-2021

In the Superior Court of the State of California, County of Los Angeles, Spring Street Courthouse
Benny M Rodriguez vs. Union Pacific Railroad, A Corporation, et al.
Case No. 18STCV01162
Rosenfeld Deposition 12-23-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, *Plaintiff,* vs. Marathon Petroleum, LP, *Defendant.*
Case No.: 1716-CV10006
Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

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In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case No.: 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No.: 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case: No 1:19-cv-00315-RHW
Rosenfeld Deposition, 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

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In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

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Organizations

Note to Reader: This letter includes the attachment from SWAPE

Golden State Environmental Justice Alliance (GSEJA)

Note to reader: GSEJA submitted a letter with an attachment prepared by SWAPE. Each organization's comments will be addressed separately.

Response to GSEJA-1
The organization provided introductory remarks and summarized the project. No environmental issues related to the proposed project were identified in this comment and no further response is necessary.

Response to GSEJA-2a
The organization opined the Draft EIR does not include relevant environmental justice issues for analysis in review of potential impacts from the proposed project. The organization notes this is significant given that communities surrounding the proposed project are more polluted than average on several pollution indicators measured by CalEnviroScreen.

Nothing in CEQA requires EIRs to consider environmental justice as part of the environmental impact analysis required under CEQA. CEQA Guidelines Section 15360 defines "the environment" as "the *physical conditions* which exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance." (Italics added.) These components of the physical environment are represented in the categories of environmental impacts included within the sample initial study checklist found in Appendix G to the CEQA Guidelines. That checklist does not include any questions focused on "environmental justice."

Effects that are solely social or economic in nature do not constitute an effect on the physical environment. Neither the California Air Resources Board (ARB) nor the Bay Area Air Quality Management District (BAAQMD) have recommended significance thresholds adjusted for environmental justice considerations; therefore, the Draft EIR utilized the currently recommended BAAQMD significance thresholds to determine health risk impacts resulting from the proposed project. The Draft EIR evaluated potential impacts to the local community in Section 3.2, Air Quality, through the analysis of cumulatively considerable criteria pollutant emissions and health risks under Impacts AIR-2 and AIR-3. The project site is near the existing sensitive receptors the organization mentions, and the Draft EIR identifies the cumulative health impacts that would occur from project construction and operation combined with existing permitted stationary sources, local roadway traffic, freeway traffic, and rail traffic.

Response to GSEJA-2b
The organization generally describes the environmental and health impacts of hazardous waste and toxic releases on surrounding communities. The organization points out the proposed project's census tract ranks 84th percentile for solid waste facility impacts, 61st percentile for toxic releases, and 83rd percentile for hazardous waste impacts.

No project-specific comments were provided and, thus, no further response is required.

Response to GSEJA-2c
The organization generally describes the racial, economic, educational demographics of the proposed project's census tract. The comment states that due to high incidences of cardiovascular disease and asthma in this census tract, access to medical care is vital.

No project-specific comments were provided and, thus, no further response is required.

Response to GSEJA-2d
The organization stated the Draft EIR did not accurately or adequately model the energy impacts of the proposed project in compliance with Title 24 and a finding of significance must be made. The organization recommends circulating a revised EIR in which one of the State of California approved energy compliance modeling software for nonresidential buildings (CBECC-Com, EnergyPro, or IES VE), rather than CalEEMod, is used.

The Draft EIR's air quality analysis utilized an approved emissions estimating model in CalEEMod based on the BAAQMD guidance. The comment's assertion regarding use of the CalEEMod is incorrect. The BAAQMD identifies CalEEMod as a CEQA resource that can be used to assess air quality and its impact on communities and public health. The use of CBECC-Com, EnergyPro, and IES VE are not recommended for CEQA analyses within the BAAQMD and would not be appropriate to estimate greenhouse gas (GHG) emissions or energy impacts. The Draft EIR accurately and adequately modeled energy impacts in compliance with Title 24. The lead agency's decision-makers will review the entire Final EIR and other documents in the administrative record prior to making findings regarding the decision to certify the Final EIR and render a decision on the proposed project.

Response to GSEJA-2e
The organization states the Draft EIR's Transportation analysis does not consider medium and heavy-duty trucks in its VMT analysis. The organization notes the operation of the proposed project would involve high rates of medium and heavy-duty truck/trailer VMT and thus recommends a revised EIR be prepared to reflect these factors in the VMT analysis. The organization states a revised VMT analysis must be used to revise the GHG analysis to determine whether the project-generated VMT is 15 percent below the prescribed threshold.

VMT is addressed in Master Response 4.

Response to GSEJA-2f
The organization stated that relying on the combined workforce of Napa and Solano County to fill the proposed project's operational jobs would increase VMT and GHG emissions during construction and operation of the proposed project and exceeds the 26.24 miles of VMT per employee used by the Transportation Analysis to determine the proposed project's impact on VMT. The organization recommends the GHG analysis be revised to account for longer work trip distances.

VMT is addressed in Master Response 4. See Response to Comment GSEJA-8b for a discussion of the likely pool of workers for the proposed project.

The comment does not raise any issues that require a revision of the Draft EIR.

Response to GSEJA-3a
The organization alleged that Draft EIR, Section 3.9, Land Use, Table 3.9-2, provided a misleading consistency analysis with the City of American Canyon General Plan. The agency cited the consistency analysis with Land Use Element Objective 1.2 and claimed it is inconsistent with the Development Capacity Table on Land Use Element Page 1-12.

The Draft EIR introduced Table 3.9-2, on pages 3.9-6 and 3.9-7, by stating:

> "[t]he conclusions expressed in Table 3. 9-2 reflect the best judgment of City staff. The ultimate question of the meaning of particular General Plan policies, and thus the proposed project' s consistency with them, lies with the City Council. The language found in general plans is sometimes susceptible to varying interpretations. Case law interpreting the Planning and Zoning Law (Government Code, § 65000 *et seq*.) makes it clear that: (i) the ultimate meaning of such policies is to be determined by the elected city council or a lower tier decision- making body such as a planning commission, as opposed to city staff and EIR consultants, applicants, or members of the public; and (ii) the decision- making body' s interpretations of such policies will prevail if they are "reasonable," even though other reasonable interpretations are also possible (See *No Oil, Inc. v. City of Los Angeles* (1987) 196 Cal.App.3d 223, 245-246, 249). Courts also have recognized that, because general plans often contain numerous policies adopted to effect differing or competing legislative goals, a development project may be "consistent" with a general plan, taken as a whole, even though the project appears to be inconsistent or arguably inconsistent with some specific policies within a given general plan (*Sequoyah Hills Homeowners Association v. City of Oakland* (1993) 23 Cal.App.4th 704, 719). Furthermore, courts strive to "reconcile" or harmonize" seemingly disparate general plan policies to the extent reasonably possible (*No Oil*, *supra*, 196 Cal.App.3d at p. 244)."

As these principles make clear, reasonable minds may differ with respect to both the meaning of a particular General Plan policy and whether a proposed project is or is not consistent with such a policy. Thus, GSEJA may sincerely believe the proposed project is inconsistent with certain General Plan objectives and policies. But its opinions are in no way binding on City decision-makers, which have broad discretion to reach different conclusions.

The draft EIR's Objective 1.2 consistency analysis provides a through and comprehensive review of General Plan policies, goals and objectives and is reproduced and discussed below:

Objective 1.2	Promote a rate of growth that is consistent with the ability of the City to provide adequate infrastructure and services and does not adversely impact the distinctive character and quality of life in American Canyon.	**Consistent:** The proposed project would develop 2.4 million square feet of new industrial uses on a site designated for such use located within the American Canyon city limits. The project site is located within the Green Island Business Park and is surrounded by urban uses and infrastructure on three sides. Thus, the proposed project would occur in an area where adequate infrastructure and services exist such that it would not exceed the City's ability to serve it.

The Draft EIR's consistency analysis identifies how the project (1) would develop high-cube warehouse uses on a site designated Industrial by the General Plan; (2) would be compatible with surrounding land uses; and (3) is located in an area served with adequate infrastructure. Moreover, Objective 1.2 makes no reference to the Development Capacity Table on Land Use Element Page 1-12. Hence, there is no basis to assess Objectively 1.2 using the Development Capacity Table.

The Development Capacity Table is further addressed in Response to GSEJA-3d.

Response to GSEJA-3b
The organization alleged the consistency analysis with Economic Development Element Objective 3.4 and claimed it is inconsistent with the objective because the Draft EIR identifies a significant unavoidable impact associated with air quality.

The Draft EIR's Objective 3.4 consistency analysis is reproduced and discussed below:

Objective 3.4	Increase the number of firms within the industries now represented in the City and capture new, clean, nonpolluting industries that are stable and compatible with City needs in terms of traffic, air quality, and employment.	**Consistent:** The proposed project would develop 2.4 million square feet of high-cube warehouse on an approximately 208-acre site in the Green Island Business Park. These types of uses currently exist within the Airport Industrial Area. Additionally, the proposed project is estimated to create 3,643 new jobs. The proposed project would implement traffic improvements to mitigate for impacts on traffic operations.

Economic Development Element Objective 3.4 expresses the City's general desire to attract new businesses to the City that minimize traffic and air quality impacts while also providing stable employment opportunities and land use compatibility. The Draft EIR's consistency analysis identifies how the project (1) would create new jobs; (2) represents the continued development of the Green Island Business Park; (3) is compatible with the Napa County Airport; and (4) would implement traffic improvements. Objective 3.4 is silent about what CEQA conclusions are acceptable in order to achieve consistency with this objective. Moreover, both Napa Logistics Park Phase II and Napa

Airport Corporate Center were found consistent with Objective 3.4 for the same reasons as Giovannoni Logistics Center despite also having significant unavoidable air quality impacts. Thus, the City has established a precedent for interpretation of Objective 3.4. Hence, there is no basis to evaluate project consistency with Objective 3.4 based on CEQA conclusions. Notably, a local general plan policy that precluded all industrial development with even one significant unavoidable effect would likely frustrate the local government's economic development objectives, as such significant unavoidable effects are very common, particularly in air basins that are not in attainment for all pollutants regulated under federal and State air quality laws. The question whether a particular industry is "clean" and "nonpolluting" is a relative one. Certainly, logistics centers are clean and nonpolluting in comparison with traditional heavy industries involving, for example, petroleum refining or chemical manufacturing.

Response to GSEJA-3c

The organization alleged the consistency analysis with Circulation Element Policy 1.11 is inconsistent with the policy because of the omission of medium and heavy-duty trucks from the VMT analysis.

The Draft EIR's Guiding Policy 1.11 consistency analysis is reproduced and discussed below:

Guiding Policy 1.11	Reduce Vehicle Miles Traveled. Through layout of land uses, improved alternate modes, and provision of more direct routes, strive to reduce the total vehicle miles traveled by City residents.	**Consistent:** The project site is located within the Napa County Airport Industrial Area, which has convenient access to SR-12 and SR-29. The development of the proposed project's 2.4 million square feet of high-cube warehouse is within the North Bay Region and would contribute to reducing trip length by locating these facilities closer to customers within this region. Finally, the development of up to 3,643 new jobs in a housing-rich part of the Bay Area region would allow employees to work closer to where they live, thereby reducing vehicle miles traveled.

Guiding Policy 1.11 expresses a general desire to reduce VMT through various planning techniques. The Draft EIR's consistency analysis identifies proximity to regional highways and residential uses as project attributes consistent with Guiding Policy 1.11. Moreover, Guiding Policy 1.11 is silent how a CEQA VMT analysis would inform a consistency finding, much less the methodology of such an analysis. Hence, there is no basis to use the conclusions of a CEQA VMT analysis as the basis for assessing consistency with Guiding Policy 1.11.

The organization's specific comments about the Draft EIR's VMT analysis, including the contention the analysis is deficient for failing to account for medium- and heavy-duty truck traffic, are addressed in Response to GSEJA-4a through GSEJA-4d, as well as Master Response 4.

Response to GSEJA-3d

The organization alleged the Draft EIR omitted a consistency analysis with Land Use Policy 1.3.4's Development Capacity Table, which identifies up to 5,778,500 square feet of additional industrial development provided the circulation improvements in the General Plan are implemented.

No EIR can be legally inadequate for failing to address a proposed project's consistency with a General Plan policy with which the project is *consistent*. Rather, CEQA Guidelines Section 15125, subdivision (d), requires that "[t]he EIR shall discuss any *in*consistencies between the proposed project and applicable general plans, specific plans, and regional plans." (Italics added; see also, *City of Long Beach v. Los Angeles Unified School Dist.* (2009) 176 Cal.App.4th 889, 918-919 [EIRs need not address policies with which proposed projects are consistent].)

City staff concludes the proposed project is consistent with the Development Capacity Table found in Land Use Policy 1.3.4, the introductory text of which states the City should "[l]imit the total additional new development that can be accommodated in the City and its Urban Limit to the following *provided that the highway improvements stipulated by the Circulation Element are implemented*." (Italics added.) One key term in that policy is "additional new development." The Land Use Element is silent as to what is the baseline value that the additional new development can be compared to. Underscoring this issue, the California Department of Finance indicates the City of American Canyon has 5,050 single-family dwelling units as of January 1, 2022, which exceeds the total value of 4,882 in the Development Capacity Table.

Another key element of Land Use Policy 1.3.4 is the obvious linkage between "additional new development" and "highway improvements stipulated by the Circulation Element[.]" This linkage shows the additional new development beyond the levels shown in the table following Policy 1.3.4 would be allowed provided highway improvements at issue were implemented. Thus, new development should not get out ahead of transportation infrastructure needed to support it.

Hence, it is clear the City never intended Development Capacity Table to be used as a hard and fast limit on General Plan buildout but rather intended the table to inform how much growth can occur until all of the contemplated circulation improvements were put in place.

This understanding of Land Use Policy 1.3.4 and its capacity table is evident from past land use and development decisions made by the City of American Canyon. The City annexed a substantial amount of acreage in the northern portion of the City in 2005 (including the Giovannoni property), thereby increasing buildout potential for nonresidential uses. The City completed the first segment of the Devlin Road extension from South Kelly Road to Napa Logistics Park in 2012, enabling this area to be developed. The City subsequently approved Napa Logistics Park Phase 2 in 2015, Napa Airport Corporate Center in 2018, and the Broadway District Specific Plan in 2019. Also, the City approved the Watson Ranch Specific Plan in 2019, which includes an extension of Newell Drive. The annexation, approval, or development of all of these projects suggests that the Development Capacity Table was never intended to be interpreted as a hard limit on growth.

Furthermore, the General Plan makes clear elsewhere the project site is within the (1) city limits and (2) is designated for "Industrial" use. Thus, when one considers to the totality of all Land Use

Element goals, objectives, and policies that pertain to growth management, it is clear the City's intention is to prioritize development of infill sites within the city limits served with existing infrastructure. Moreover, completion of Devlin Road between Green Island Road and Middleton Way is a General Plan-identified circulation improvement that provides a parallel route to SR-29 improves circulation in the project vicinity.

In sum, GSEJA's suggestion that the Development Capacity Table represents a hard cap on new development in American Canyon is inconsistent with the plain language of the policy, the General Plan's policy direction viewed as a whole, and the manner in which City decision-makers have historically interpreted Land Use Policy 1.3.4.

Response to GSEJA-3e
The organization alleged the Draft EIR omitted a consistency analysis with Land Use Goal 1T, which calls for the establishment of an Urban Limit Line through January 1, 2030.

Goal 1T applies to the American Canyon policy makers (i.e., the City Council) and not individual development projects. Regardless, as shown on the General Plan Land Use Map, the project site is within both the American Canyon city limits and Urban Limit Line.

Response to GSEJA-3f
The organization alleged the Draft EIR omitted a consistency analysis with Land Use Policy 1.22.9, which requires permitting and regulation of industrial land uses that handle hazardous materials.

The City of American Canyon General Plan allows a range of end users within the Industrial land use category, many of which do not handle large quantities of hazardous materials. Regardless, because no end users have been identified, it would be speculative to further discuss a potential end users consistency with Policy 1.22.9.

Furthermore, the Draft EIR evaluated hazardous materials impacts in Section 3.7, Hazards and Hazardous Materials, and found all impacts would be less than significant and did not require mitigation.

Response to GSEJA-3g
The organization alleged the Draft EIR omitted a consistency analysis with Economic Development Element Objective 3.2, which calls for growth that generates net positive fiscal impacts for the City.

Fiscal impacts are outside the scope of environmental review because they do not have physical impacts on the environment. Nothing in CEQA requires the City to consider the proposed project's consistency with this objective. (See, CEQA Guidelines, § 15131, subd. (a) ["[e]conomic or social effects of a project shall not be treated as significant effects on the environment"]).

Response to GSEJA-3h
The organization alleged the Draft EIR omitted a consistency analysis with Economic Development Policy 3.2.1, which calls for a fiscal impact analysis for certain types of projects.

Fiscal impacts are outside the scope of environmental review because they do not have physical impacts on the environment. Regardless, a fiscal impact analysis, entitled American Canyon

Giovannoni Logistics Center Fire Services Fiscal Analysis and prepared by Economic and Planning Systems, Inc. dated May 6, 2022, was prepared in accordance with this policy. This analysis is included as Appendix K of this Final EIR.

Response to GSEJA-3i
The organization alleged the proposed project is inconsistent with the General Plan's goals, objectives, and policies due to aforementioned comments about significant unavoidable air quality impacts and VMT.

Refer to Responses to GSEJA-3b and GSEJA-3c.

Response to GSEJA-3j
The organization reiterated prior comments about the proposed project's inconsistency with the Development Capacity Table.

Please refer to Response to GSEJA-3d for a discussion regarding potential industrial development. As detailed in the Draft EIR and these responses to comments, the proposed project would not be inconsistent with the General Plan and no revisions or recirculation of the Draft EIR is required.

Response to GSEJA-4a
The organization alleged the VMT analysis omitted medium- and heavy-duty truck trips from the VMT analysis and, thus, it does not accurately reflect all project-related VMT.

VMT is addressed in Master Response 4.

Response to GSEJA-4b
The organization alleged the Statewide Travel Demand Model utilized in the VMT analysis was cited as a technical reference but not incorporated by reference pursuant to CEQA Guidelines Section 15150, subdivision (f). Therefore, the City was not required, under subdivision (b) of that section, to make the data available to the public for inspection at a public place or public building.

VMT is addressed in Master Response 4.

Response to GSEJA-4c
The organization referenced the VMT per employee number of 16.24 miles and alleged it was in conflict with a statement in the growth inducement analysis that the project labor force would come from Napa and Solano Counties.

Refer to Response to GSEJA-8b.

Response to GSEJA-4d
The organization alleged the Draft EIR's VMT analysis referenced policies used by the Governor's Office of Planning and Research (OPR), Sacramento County, and the City of San José but failed to incorporate them by reference in the Draft EIR.

The Draft EIR complies with CEQA's requirements for technical detail and citation of information outlined in CEQA Guidelines Sections 15147 and 15148. Incorporation by reference is not required, or appropriate for all documents. See Section 15150(f). VMT is addressed in Master Response 4.

Response to GSEJA-5a
The organization alleged the Draft EIR's Cumulative Effects analysis did not account for the Development Capacity Table and reiterated prior comments about the project's square footage exceeding that allowed by the table.

As indicated in Response to GSEJA-3d, the organization's interpretation of the Development Capacity Table materially differs from how the City of American Canyon interprets the table. Thus, there is no deficiency with the cumulative effects analysis as it relates to the Development Capacity Table. As is evident from Draft EIR, Section 4, Cumulative Effects, Table 4-1, Cumulative Projects, page 4-1 and in the cumulative analysis that follows, the City primarily relied on the so-called "list method" for identifying probable future projects that would create impacts that would compound those of past and present projects, along with the proposed project itself. This method is authorized by CEQA Guidelines Section 15130, subdivision (b)(1)(A). Table 4-1 includes probable future projects that are either awaiting approval, approved but not yet constructed, or under construction. This approach fully satisfied CEQA. Nothing in the law required the City to use the Development Capacity Table from General Plan Land Use Policy 1.3.4 as the basis for conducting cumulative impact analysis.

Response to GSEJA-5b
The organization alleged the Draft EIR's Cumulative Effects analysis did not discuss the Association of Bay Area Government (ABAG) Plan Bay Area growth projections for South Napa County. The organization claimed the proposed project's 3,643 employees would represent 19 percent of South Napa County's employment growth between 2015 and 2050. The organization noted that 3,643 employees would represent 72 percent of South Napa County population growth between 2015-2050.

As indicated in Response to GSEJA-7b, the organization's claims about project consistency with Plan Bay Area growth projections are not supported by substantial evidence. Thus, there is no deficiency with the cumulative effects analysis as it relates to Plan Bay Area growth projections. As noted in the Response to GSEJA-5a, the City primarily relied on the so-called "list method" authorized by CEQA Guidelines Section 15130, subdivision (b)(1)(A), for identifying probable future projects that would create impacts that would compound those of past and present projects, along with the proposed project itself. In doing so, the City fully complied with applicable CEQA requirements.

Response to GSEJA-6
The organization alleged the Draft EIR's Alternative's analysis failed to evaluate a reasonable range of alternatives that meet the project objectives and eliminates all proposed project's significant and unavoidable impacts. The organization asserted the Draft EIR must be revised to include such an alternative.

"There is no ironclad rule governing the nature or scope of alternatives to be discussed other than the rule of reason." (CEQA Guidelines, § 15126.6, subd. (a), citing *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 and *Laurel Heights Improvement Association v. Regents of the*

University of California (1988) 47 Cal.3d 376).) "An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation." (CEQA Guidelines, § 15126.6, subd. (a); see also *Mount Shasta Bioregional Ecology Center v. County of Siskiyou* (2012) 210 Cal.App.4th 184, 196 [same].) A court must uphold an agency's selection of alternatives "unless the challenger demonstrates that the alternatives are manifestly unreasonable and that they do not contribute to a reasonable range of alternatives." (*Cal. Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 988.)

Here, the Draft EIR includes a reasonable range of alternatives that need not be supplemented by additional alternatives to be legally adequate. The Draft EIR evaluated four alternatives in detail (No Project/No Development, No Project/Existing General Plan, Reduced Density, and Phase 1 Only) and considered two alternatives initially considered but ultimately rejected from further consideration (Phase 2 Only and Alternative Location). By any objective standard, this is clearly a "reasonable range" of alternatives, particularly given the characteristics of the proposed project.

As for the organization's suggestion the Draft EIR must be revised to identify an alternative that meets all of the project objectives and eliminates all of the significant unavoidable impacts, this is not required by the CEQA Guidelines. Rather, CEQA Guidelines Section 15126.6 requires evaluation of alternatives "which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In this case, the Phase 1 Only Alternative was identified as the Environmentally Superior Alternative because it met the most project objectives while achieving the greatest reduction in the severity of project impacts.

Response to GSEJA-7a

The organization referenced the growth inducement analysis in Chapter 6, Other CEQA Considerations, and noted it does not reference the General Plan Land Use Element's Development Capacity Table. The organization reiterated previous comments about the lack of analysis of this issue.

As discussed on Draft EIR Chapter 6, Other CEQA Considerations, pages 6-1 and 6-2, growth inducement concerns facilitating substantial direct or indirect growth (e.g., new housing or new employment opportunities) or removal of a physical barrier to growth (e.g., extension of sewer into an unserved area). In the case of the proposed project, it is entirely nonresidential and located within an area served by urban infrastructure. The analysis explained the proposed project would employ an estimated 1,200 workers during construction and 3,643 workers when fully operational at buildout, but would likely be built incrementally over a period of years, with the result that jobs would be added in blocks as the project builds out. Thus, there would not be an "overnight" influx of new employment opportunities. The analysis also noted that in October 2021 the California Employment Development Department estimated the combined Napa- Solano labor force at 273,500, making the local labor force is sufficiently large to allow the project' s employment opportunities to be filled locally. Nor would the proposed project require construction of additional housing in American Canyon to shelter its workers. As the Draft EIR explained, the City of American Canyon has more than 2,400 dwelling units in the pipeline. For comparison purposes, American Canyon' s population was estimated to be 20,837. The addition of more than 2,400 dwelling units to

the City' s housing inventory would more than offset the employment growth attributable to the proposed project. Furthermore, the proposed project would pay the City's Affordable Housing Nexus Fee (Ordinance 2016-05) which funds affordable housing projects generated by the need for additional housing caused by new employment.

In sum, the Draft EIR's analysis appropriately focused on the potential for the proposed project's new employment opportunities to cause unplanned growth. No such unplanned growth will occur. Nor will the local housing market be strained. Regardless, the Development Capacity Table would provide no insight into any of these issues and, thus, the Draft EIR appropriately did not reference it.

Refer to Response to GSEJA-3d for further discussion of the Development Capacity Table.

Response to GSEJA-7b
The organization stated the growth inducement analysis in Chapter 6, Other CEQA Considerations, did not address the cumulative growth impacts and noted the proposed project's 3,643 employees would represent 19 percent of South Napa County's employment growth between 2015 and 2050. The organization noted that 3,643 employees would represent 72 percent of South Napa County population growth between 2015-2050.

The proposed project is the single largest industrial project in terms of square footage in American Canyon history. For its buildout employment to represent 19 percent of South Napa County's employment growth between 2015 and 2050 would not be unexpected nor represent an inconsistency with regional growth projections.

The organization's claim the proposed project's employment growth would correlate 1:1 to population growth in South Napa County is unsupported by evidence. No end users have been identified and no hiring has occurred. Thus, it is unknown where project employees reside. Given that American Canyon is within 10 miles of population centers in Solano County (e.g., Vallejo, Benicia, and Fairfield) that are not within the South Napa County subregion, project employees would have numerous options of places to live. For these reasons, the organization's claims in this regard are speculative.

Response to GSEJA-7c
The organization referenced a statement in growth inducement analysis in Chapter 6, Other CEQA Considerations, that the proposed project would "likely be built incremental over a period of years" and alleged it was inconsistent with how the air quality analysis evaluated buildout over a 20-month period. The organization asserted the Draft EIR must be revised to reconcile this inconsistency.

The Draft EIR's buildout assumptions are addressed in Master Response 3.

As for the statement in Chapter 6, Other CEQA Considerations, that the proposed project would "likely be built incremental over a period of years," is simply a statement to provide perspective to the reader regarding how buildout is anticipated to occur. Moreover, it is based on observations of actual buildout of neighboring Napa Logistics Park and Green Island Business Park. At the time of Final EIR publication, no end users had been identified, no resource agency permitting had been completed, and no design-level architectural plans or engineering studies had been completed for

project structures. All of these items can take months, if not years, to complete, which serves to reinforce the Draft EIR's basis that a 20-month buildout schedule is conservative. Regardless, the analysis in Chapter 6, Other CEQA Considerations, Section 6.2, Growth-Inducing Impacts, is based on whether the proposed project would result in direct or indirect growth-inducing impacts resulting, in part, from unplanned growth. The Draft EIR concludes the proposed project would be consistent with growth projections. Accordingly, even if the proposed project were to build out in 20 months, such a pace of development would not conflict with the conclusions of the growth inducement analysis.

Lastly, the statement in Draft EIR Chapter 2, Project Description, page 2-9 about "a period of 18 months" has been corrected to "a period of 20 to 24 months" and the change is noted in Final EIR Section 5, Errata. The change does not materially affect any conclusions of the air quality analysis since it used a 20-month buildout schedule.

Response to GSEJA-8a

The organization referenced discussion of population and housing in Draft EIR Section 7, Effects Found Not To Be Significant, and asserted the Draft EIR did not provide methodology for construction or operational employment estimates. The organization asserted the methodology must be disclosed.

The applicant submitted an Economic Impact Analysis prepared by Economic & Planning Systems, Inc. (EPS) to the City of American Canyon in December 2020. EPS estimated construction and buildout employment in Table 1, which were referenced in the Draft EIR in Chapter 2, Project Description on page 2-8, and Chapter 6, Other CEQA Consideration on page 6-1 and 6-2. The methodology used by EPS is described as follows:

Construction Employment

The referenced 1,200-job year figure was estimated using an Input/Output model using the IMPLAN software, which is a commonly used and industry standard application for this type of modeling. EPS used the estimated construction costs for the project as input for the Input/Output analysis.

This 1,200-job figure includes both direct (on-site) jobs and indirect (jobs at other businesses supported by construction). If the intention is to just capture on-site job years of project construction, the more relevant figure would be 1,030-job years shown on Table 2 of the Economic Impact Analysis as the direct effect. The additional 170 employees are at other businesses supporting the construction, such as local lumber or equipment suppliers.

Additionally, this figure represents job years and not necessarily employee estimates. If project construction lasts for more than a year, this number may double count some employee as one employee who is employed for 2 years would count as 2 job years.

Buildout Employment:

Similar to construction impacts, the 3,643-job estimate was estimated using the Input/Output model provided by IMPLAN. This estimate represents the total job economic impact of the proposed project, including direct, indirect, and induced employment as the economic activity from the

project ripples through the local economy. The proposed project itself is not anticipated to directly employ all these jobs on-site.

EPS estimated direct on-site employment at buildout of the project on Table A-1 of the Economic Impact Analysis by applying a standard 1,000 square feet per employee assumption (a commonly used assumption for projects of this type) to the total square footage of the proposed project to arrive at an on-site employment estimate of 2,399 employees. This was used as the input for the IMPLAN analysis.

On a broader note, the applicant's representative noted at the June 23, 2022, American Canyon Planning Commission Meeting (refer to Final EIR Section 4, Responses to June 23, 2022, Planning Commission Meeting Comments) that his firm has observed a trend of tenants consolidating separate, smaller spaces into single, larger spaces. Should this phenomenon play out at the proposed project, little to no change in overall net employment would occur.

In sum, it is possible the Draft EIR overestimated employment. However, more employment causes more impacts and, thus, even if 3,643 jobs overstates the actual buildout employment, it is consistent with providing a conservative analysis of reasonably foreseeable potential adverse impacts.

Response to GSEJA-8b

The organization referenced a statement in Draft EIR Chapter 6, Other CEQA Considerations, page 6-2 about the Napa-Solano labor force being sufficiently large enough to allow for the proposed project's employment opportunities to be filled locally and alleged that there is no meaningful evidence to support this conclusion. The organization alleged the size of the labor force does not equate to the number of available workers, the number of workers qualified to work in the industrial sector, or the number of workers interested in working in the industrial sector. The organization claimed that relying upon the entire labor force of Napa and Solano Counties greatly exceeds the 16.24 VMT per employee utilized in the Transportation analysis. The organization alleged that using the Napa-Solano labor force will increase VMT during all phases of construction and operations and, therefore, the Draft EIR must be revised to account for longer distances.

As previously noted in Response to GSEJA-7b, no end users have been identified and no hiring has occurred. Thus, it is unknown what types of qualifications would be required, who would be interested in the proposed project's employment opportunities, or where employees would reside. In the absence of this information, the Draft EIR used official State employment data to assess regional labor force characteristics at a macro level and determine whether the proposed project's employment opportunities could foreseeably cause substantial unplanned population growth. The Draft EIR noted the combined labor force of Napa and Solano Counties was 273,500 as of October 2021. The proposed project's estimated buildout employment of 3,643 would represent 1.3 percent of the October 2021 labor force estimate. The Draft EIR concluded the Napa-Solano labor force was sufficiently large to fill the jobs locally and, thus, substantial unplanned population growth would not occur. Without specific information about end users, any further analysis in this regard would be speculative. It is reasonable to assume, however, that very few workers would live in those areas of Napa and Solano Counties that are most distant from the project site. Rather, most workers are likely

to live within a reasonable commute distance. The commenter implies that the VMT calculations for the proposed project should assume appreciable numbers of workers would be traveling from the farthest reaches of the two counties. There is no evidentiary basis for such an assumption.

As previously noted in Response GSEJA-8a, it is possible the Draft EIR overestimated employment. Furthermore, as disclosed in the Draft EIR in Chapter 2, Project Description on page 2-9, and Chapter 6, Other CEQA Consideration on page 6-2, and 6-3, the buildout period may take years, if not decades. Thus, it would be expected that the Napa-Solano labor force would be substantially larger than 273,500 and even more capable of filling the proposed project's employment opportunities locally. Should either one of these things actually occur, it would reinforce the conservative, worst-case scenario nature of the analysis.

Lastly, the growth inducement analysis and VMT analysis employed separate methodologies. The growth inducement analysis as it relates to employment was based on the aforementioned regional assessment of the Napa-Solano labor force. The VMT analysis is based on a traffic model; refer to Draft EIR Section 3.12, Transportation, pages 3.12-16 and 3.12-17. Neither methodology relies upon the same data inputs nor is intended to address provide insight into both issues. Both analyses are conservative, though in different ways. Hence, attempting to commingle the conclusions misrepresents the analyses and the purposes for which they were prepared.

Regardless, the entire City of American Canyon and portions of the City of Napa, the City of Vallejo, and the City of Fairfield–the latter two are located in Solano County–are within 8 miles of the project site and, thus, the VMT per employee rate of 16.24 miles is readily attainable.

Response to GSEJA-8c

The organization alleged he Draft EIR did not discuss project consistency with ABAG's Regional Transportation Plan/Sustainable Communities Strategy (Plan Bay Area 2050). The organization reiterated previous comments about employment and population growth in the South Napa County subregion between 2015 and 2050. The organization reiterated prior comments about the Draft EIR omitting information about the location or qualifications of project employees.

The Draft EIR evaluated project consistency with the City of American Canyon General Plan in Impact LU-1 in Section 3.9, Land Use. The proposed project was found to be consistent with all applicable provisions of the General Plan. Plan Bay 2050 uses local land use plans as the basis for its regional population and employment projections; hence, the proposed project is implicitly consistent with Plan Bay Area 2050.

Refer to Response to GSEJA-7b through Response to GSEJA-8b for further discussion.

Response to GSEJA-9

The organization stated the Draft EIR is flawed and a revised EIR must be prepared.

As indicated in Responses to GSEJA-2a through GSEJA-8c, the organization's allegations of inadequate analysis are not supported by substantial evidence and, thus, there is no legal basis to revise and recirculate the Draft EIR.

Response to SWAPE-1
The organization provided introductory remarks and asserted the Draft EIR fails to adequately analyze the proposed project's air quality and health risk impacts.

As indicated in Responses to SWAPE-2a through SWAPE-2e, the organization's allegations of inadequate analysis are not supported by substantial evidence.

Response to SWAPE-2a
The organization states the Draft EIR fails to implement all feasible mitigation thus the conclusion the proposed project's air quality impacts are significant and unavoidable are unsubstantiated. The organization recommends a revised EIR be prepared that incorporates additional mitigation measures, such as those listed under "Feasible Mitigation Measures Available to Reduce Emissions."

The Draft EIR impact analysis is based on the City-approved Project Description and applicant provided site plans and information. This information was provided by architects, engineers, and planners with extensive knowledge of the proposed project and project operations. As described in Impact AIR-1, the Draft EIR considered project impacts in relation to the applicable Air Quality Plan (AQP), the BAAQMD 2017 Clean Air Plan. As described in Impact AIR-2, the Draft EIR considered the cumulative impact of criteria pollutant emissions from the proposed project. Furthermore, all potential mitigation measures were considered and ultimately, the mitigation measures included in the Draft EIR would be only measures that could feasibly be implemented by the City.

In addition, several of the measures recommended by the commenter are already incorporated into the analysis. For instance, MM AIR-2a, MM AIR-2b, and MM GHG-1a require the use of construction Best Management Plans (BMPs)—many are recommended by the BAAQMD—to reduce the generation of GHG emissions and fugitive dust during project construction, which correspond with the recommended measures for keeping construction equipment tuned to the manufacturer's specifications, limiting on-site equipment and vehicle idling times, and reducing the volatile organic compound (VOC) content of paints and coatings used during construction. Moreover, MM GHG-1c and MM GHG-1d require the proposed project to construct charging stations and construct the proposed buildings compliant with Tier 2 voluntary standards contained in the California Green Building Standards Code (CALGreen). These measures correspond to the commenter's recommendations for including electric truck charging stations, light-duty vehicle charging stations, plugs for electric Transport Refrigeration Units (TRUs), and a Tier 2 CALGreen energy efficiency building design. Finally, MM AIR-2d requires that trucks accessing the project site be model year 2014 or newer, which would achieve greater emission reductions than the commenter's recommendation for requiring trucks accessing the site to be model year 2010 or newer. The additional measures recommended by the commenter would not result in an appreciable reduction in project emissions or were determined not to be financially or technically feasible. As such, this comment is noted, and no additional measures have been identified that could practicably be included to result in project emissions sufficient to reduce impacts to less than significant. See Response to Comment SWAPE-2e below for a detailed assessment of each of the commenter's proposed mitigation measures.

Response to SWAPE-2b

The organization notes that CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type, and goes on to state that, if more specific project information is known, the user can change the default values and input project-specific values. The commenter adds that any such changes should be justified by substantial evidence. The organization contends that CalEEMod model input used in the Draft EIR is not consistent with information disclosed in the Draft EIR, thus the proposed project's operation emissions are underestimated. The organization recommends an updated Draft EIR be prepared to include an updated air quality analysis.

The technical inputs into the CalEEMod modeling reflect the best professional judgment of the air quality specialists at First Carbon Solutions who prepared the air quality analysis. This analysis was then reviewed by City of American Canyon planners with expertise in CEQA and environmental analysis. CalEEMod allows modelers to alter default assumptions in order to best reflect the circumstances and attributes of the particular projects being analyzed. That was done here based on input from the applicant, who will also serve as the construction contractor for the project. Although SWAPE might use different modeling inputs, the difference of opinion between SWAPE, on the one hand, and First Carbon Solutions and City staff, on the other, would not render the EIR inadequate. (CEQA Guidelines, § 15151.) The City of American Canyon was entitled to rely on the expert judgment of First Carbon Solutions and City planners, whose opinions and judgment constitute substantial evidence. (See, e.g., *Greenebaum v. City of Los Angeles* (1984) 153 Cal.App.3d 391, 413 [city decision-makers were entitled to rely on expert judgment of their planning staff; "[e]ven giving the appellants the benefit of the doubt and assuming that they may have had an expert compile and analyze their data for them, the fact that there are differing opinions arising from the same pool of information is not grounds for holding the EIR inadequate"].) As indicated in Response to SWAPE-2c, the organization's specific allegations of inadequate analysis are not supported by substantial evidence.

Response to SWAPE-2c

The commentator states the operational model included in the Draft EIR fails to include the proposed 528 daily truck trips, thus the models underestimate the proposed project's mobile-source operational emissions.

The commenter is incorrect in stating the air quality analysis failed to include 528 daily truck trips. As shown in *Draft EIR Appendix B* on page 3, and pages 8 through 29, emissions associated with trucking activity were calculated utilizing the ARB's EMission FACtors (EMFAC) *V*ersion 2017 for heavy-heavy-duty vehicle classes. EMFAC *V*ersion 2017 was utilized as it is consistent with the vehicle emission factors contained in CalEEMod *V*ersion 2020.4.0. Further, as identified in Section 3.2, Air Quality, and *Section* 3.6, Greenhouse Gas Emissions, the proposed project's emissions are delineated between area, energy, passenger vehicle, trucks, transport refrigerated units, water, and waste emission sources. As shown therein, the emissions associated with daily truck trips were considered in the Air Quality and Greenhouse Gas Emission analyses.

Response to SWAPE-2d

The organization stated the Draft EIR's evaluation of the proposed project's potential health risk impact, and the conclusion of a less than significant impact, is incorrect because it relies on emissions estimates from a flawed air model and the Draft EIR fails to provide the input parameters and modeling assumptions, including daily breathing rates, exposure duration, age sensitivity factors, fraction of time at home, and exposure frequency values. The organization says it is unable to verify the accuracy of the proposed project's cancer risk and asserts the cancer risk may be underestimated and should not be relied upon to determine project significance.

Please refer to Response to SWAPE-2c, which addresses inclusion of truck emissions in the emissions analysis. For the disclosure of daily breathing rates, exposure duration, age sensitivity factors, fraction of time at home, and exposure frequency values, a description of Health Risk Assessment (HRA) modeling inputs was provided in Appendix B to the Draft EIR, starting on page 329. As shown therein, the ARB's Hotspots Analysis and Reporting Program (HARP) was utilized for calculating the proposed project's potential health risk impacts. As disclosed on pages 332 and 333 of Appendix B, the HRA utilized the daily breathing rates, exposure duration, age sensitivity factors, fraction of time at home, and exposure frequency values recommended by the BAAQMD and lists out specific inputs utilized in HARP for residential and school receptors to correspond with those recommended values.

Response to SWAPE-2e

The organization stated the proposed project results in significant operational air quality impacts that should be mitigated further and provides several additional mitigation measures they request be added to the proposed project. The organization recommended an updated EIR be prepared to include all feasible mitigation measures, an updated air quality analysis, and a demonstrated commitment to implement these mitigation measures prior to project approval.

Table 3-1 below provides a feasibility analysis of each proposed mitigation measure. As indicated in the table, the proposed mitigation measures are (1) not necessary; (2) not feasible; (3) are already included as mitigation; or (4) have been included as new mitigation measures.

Table 3-1: Proposed Mitigation Measure Feasibility Analysis

Proposed Mitigation Measure	Analysis
Prohibiting off-road diesel powered equipment from being in the "on" position for more than 10 hours per day.	**Not Necessary:** Because construction criteria pollutant emissions are less than significant after mitigation, no further mitigation is necessary.
Forbidding idling of heavy equipment for more than 2 minutes.	**Not Necessary:** MM AIR-2a limits idling to no more than 5 minutes of idling in accordance with State law. Because construction criteria pollutant emissions are less than significant after mitigation, no further mitigation is necessary.
Keeping on-site and furnishing to the lead agency or other regulators upon request, all equipment maintenance records and data sheets, including design specifications and emission control tier classifications.	**Not Necessary:** Because construction criteria pollutant emissions are less than significant after mitigation, no further mitigation is necessary. Furthermore, mandating that records be made

Proposed Mitigation Measure	Analysis
	available for inspection by a government agency without a search warrant may be unlawful.
Using paints, architectural coatings, and industrial maintenance coatings that have volatile organic compound levels of less than 10 g/L.	**Not Necessary:** MM AIR-2b limits architectural coatings to no more than 50 g/L, which is classified as 'Low VOC.' Because VOC construction emissions are less than significant after mitigation, no further restrictions on VOC content are necessary.
Providing information on transit and ridesharing program and services to construction employees.	**Not Necessary:** Because construction criteria pollutant emissions are less than significant after mitigation, no further mitigation is necessary.
Providing meal options on-site or shuttles between the facility and nearby meal destinations for construction employees.	**Not Necessary:** Because construction criteria pollutant emissions are less than significant after mitigation, no further mitigation is necessary.
Requiring that all facility-owned and operated fleet equipment with a gross vehicle weight rating greater than 14,000 pounds accessing the site meet or exceed 2010 model year emissions equivalent engine standards as currently defined in California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.5, Section 2025. Facility operators shall maintain records on-site demonstrating compliance with this requirement and shall make records available for inspection by the local jurisdiction, air district, and State upon request.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, it would be speculative to place restrictions on fleet equipment. Furthermore, imposing onerous requirements on the potential fleet of future unknown users could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may be technologically infeasible due to the performance needs of the end user.
Requiring all heavy-duty vehicles entering or operated on the project site to be zero-emission beginning in 2030.	**Not Feasible:** Zero-emission heavy-duty vehicles are not widely available at the time of Final EIR publication. Imposing such a requirement for a technology in anticipation that it will become widely available is speculative. An absolute prohibition on the use of vehicles with internal combustion engineers could create hardships for future employees and visitors of the project site. The State of California is the appropriate level of government for creating incentives and/or mandates regarding the electrification of the State vehicle fleet.
Requiring all on-site equipment such as forklifts and yard trucks to electric with the necessary electrical charging stations provided.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, it would be speculative to place restrictions on on-site equipment. Furthermore, imposing onerous requirements on the potential equipment of future unknown users could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may also be technologically infeasible due to the performance needs of the end user. Nonetheless, MM AIR-2c requires that electric landscaping equipment such as lawn mowers, leaf blowers, and chainsaws be used during operations.

Proposed Mitigation Measure	Analysis
	These technologies are widely available and because the proposed project would have landscaping, can be clearly shown to reduce emissions.
Requiring tenants to use zero-emission light- and medium-duty vehicles as part of business operations.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, no information is known about what types of light- and medium-duty vehicles would be used as part of business operations. Imposing onerous requirements on the potential vehicles of future unknown users could create hardships for future employees and visitors of the project site, could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may also be technologically infeasible due to the performance needs of the end user.
Forbidding trucks from idling more than 2 minutes and requiring operators to turn off engines when not in use.	**Not Feasible:** State law limits idling to no more than 5 minutes. Limiting idling to fewer minutes would be very difficult to enforce and would create confusion between local and State vehicle idling limitations.
Posting both interior- and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to the ARB, the air district, and the building manager.	**New Mitigation:** MM AIR-2e has been added to the Draft EIR requiring that anti-idling signage be posted in loading dock areas. This change is noted in Final EIR Section 5, Errata. The residual significance of Impact AIR-1 and AIR-2 remains significant and unavoidable.
Installing and maintaining, at the manufacturer's recommended maintenance intervals, an air monitoring station proximate to sensitive receptors and the facility for the life of the project, and making the resulting data public in real time. While air monitoring does not mitigate the air quality or greenhouse gas impacts of a facility, it nonetheless benefits the affected community by providing information that can be used to improve air quality or avoid exposure to unhealthy air.	**Not Effective:** This mitigation measure does not reduce emissions. As the commenter recognizes, air monitoring by itself does not mitigate the air quality or greenhouse gas impacts of a facility.
Constructing electric truck charging stations proportional to the number of dock doors at the project.	**Already Included as Mitigation:** MM GHG-1d requires electric vehicle charging stations in parking areas. It should be noted that electric trucks – particularly heavy-duty trucks – are not widely available at the time of Final EIR release. Therefore, installing additional charging stations at loading docks likely would not reduce emissions to any meaningful degree.
Constructing electric plugs for electric Transport Refrigeration Units at every dock door, if the warehouse use could include refrigeration.	**Already Included as Mitigation:** MM GHG-1d requires electrical outlets for TRUs at each loading dock.

Proposed Mitigation Measure	Analysis
Constructing electric light-duty vehicle charging stations proportional to the number of parking spaces at the project.	**Already Included as Mitigation:** MM GHG-1d requires electric vehicle charging stations in parking areas in accordance with CalGreen Tier 2 standards.
Installing solar photovoltaic systems on the project site of a specified electrical generation capacity, such as equal to the building's projected energy needs.	**Already Included as Mitigation:** MM GHG-1d requires the proposed project to be powered with 100 percent carbon-free electricity. This requirement could be met by installing on-site solar photovoltaic systems.
Requiring all stand-by emergency generators to be powered by a non-diesel fuel.	**Not Necessary:** Operational particulate matter emissions are less than significant and do not require mitigation. Sensitive receptor exposure to diesel particulate matter emissions is also less than significant and does not require mitigation. Thus, there is no basis under CEQA to impose mitigation stand-by emergency generators.
Requiring facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queueing and idling of trucks.	**Not Feasible:** As the future operators for the proposed project are as yet unknown, this measure would be difficult to enforce. Furthermore, emission reductions or other air quality benefits resulting from this measure are not able to be quantified due to the unknown specifics of the future operation. Therefore, this proposed measure would be ineffective in providing air quality or GHG benefits, as compared to the other measures being required for the proposed project which include requirements for timing of implementation and specific enforcement criteria.
Requiring operators to establish and promote a rideshare program that discourages single-occupancy trips and provides financial incentives for alternative modes of transportation including carpooling, public transit, and biking.	**New Mitigation:** MM AIR-2f has been added to the Draft EIR requiring that a TDM Program be implemented. This change is noted in Final EIR Section 5, Errata. The residual significance of Impact AIR-1 and AIR-2 remains significant and unavoidable.
Meeting CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.	**Already Included as Mitigation:** MM GHG-1c requires project buildings to meet CalGreen Tier 2 green building standards. MM GHG-1d requires electric vehicle charging stations in parking areas in accordance with CalGreen Tier 2 standards.
Achieving certification of compliance with LEED™ green building standards.	**Already Included as Mitigation:** MM GHG-1c requires project buildings to meet CalGreen Tier 2 green building standards, which are functionally equivalent to Leadership in Energy and Environmental Design (LEED™). Furthermore, the project architect is LEED™ accredited and has included various LEED™ design features into the proposed project.

Proposed Mitigation Measure	Analysis
Providing meal options on-site or shuttles between the facility and nearby meal destinations.	**Not Feasible:** Meals are a function of personal preference, dietary needs, economics, and the amount of time one has to eat. Given that the meal preferences of project workers are unknown and may change from day-to-day, requiring on-site meal options or a shuttle to off-site meal locations as a condition of project approval would be premature and might commit future end users to expensive programs with very limited effectiveness, if any, in reducing emissions. Future end users might freely decide to provide on-site opportunities for varieties of meal types.
Posting signs at every truck exit driveway providing directional information to the truck route.	**Not Necessary:** Both Devlin Road and Green Island Road are designated truck routes. Thus, whichever way trucks turn, they would be on a truck route that connects to SR-29. Hence, this mitigation measure would not reduce emissions.
Improving and maintaining vegetation and a tree canopy for residents in and around the project area.	**Not Feasible:** The project vicinity is entirely nonresidential. The nearest residential neighborhood is 4,000 feet to the south. Nonetheless, the proposed project would provide landscaping including trees along its street frontages and within parking areas.
Requiring that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with ARB regulations, by attending ARB approved courses. Also require facility operators to maintain records on-site demonstrating compliance and make records available for inspection to the local jurisdiction, air district, and State upon request.	**Not Feasible:** ARB regulations are enforced by the State and local agencies, and operators must comply with State rules and regulations to legally operate in California. This measure does not provide direct emission reductions or other air quality benefits; rather, it assumes that increased education may lead to reduced emissions. The measure would be onerous and difficult to enforce due to the unknown future operators of the proposed project and may put the project at a competitive disadvantage through the requirement of additional steps to educate staff on already existing requirements, while not providing effective or quantifiable air quality or GHG emission reduction benefits.
Requiring tenants to enroll in the United States Environmental Protection Agency (EPA) SmartWay program and requiring tenants to use carriers that are SmartWay carriers.	**Not Feasible:** The requirement that tenants enroll in the EPA SmartWay program would be onerous and difficult to enforce against unknown future end users of the project. Additionally, this measure would have limited emission reduction potential which is not possible to quantify. Requiring tenants to use carriers that are SmartWay carriers would put the project at a competitive disadvantage through limiting the potential universe of carrier providers for future operators, a limitation that would not be faced at similar logistics centers.

Proposed Mitigation Measure	Analysis
Providing tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Initiative Program, to upgrade their fleets.	**New Mitigation:** MM AIR-2g has been added to the Draft EIR requiring that the project developer provide information on available ARB and BAAQMD incentive programs, such as the Carl Moyer Program and the Voucher Initiative Program, that support upgrading fleets. This change is noted in Final EIR Section 5, Errata. The residual significance of Impact AIR-1 and AIR-2 remains significant and unavoidable.

Response to SWAPE-3
The comment consisted of a disclaimer that SWAPE reserves the right to amend its findings if new information is made available. No response is necessary.

Response to SWAPE-4
The comment consisted of Matthew Hagemann's Curriculum Vitae. No response is necessary.

Response to SWAPE-5
The comment consisted of Paul Rosenfeld's Curriculum Vitae. No response is necessary.

From: Brent Cooper
To: Mary Bean
Cc: Joe Livaich; Bill Ross - External; Nicolle Jones; Jason Holley; Grant Gruber
Subject: Giovannoni Logistics Center DEIR Letter
Date: Monday, July 18, 2022 6:29:56 PM

Hello All,

Attached is a letter for the Giovannoni Logistics Center.

Sincerely,

Brent Cooper, AICP
Community Development Director
City of American Canyon | Broadway Street, Suite 201 | American Canyon, CA 94503
(707) 647-4335

Begin forwarded message:

From: Mike Conklin
Sent: Monday, July 18, 2022 11:10 AM
To: njones@cityofamericancanyon.org<mailto:njones@cityofamericancanyon.org>
<njones@cityofamericancanyon.org<mailto:njones@cityofamericancanyon.org>>
Subject: Fire Dept Site

Ms. Nicolle Jones

Community Development Department

City of American Canyon

4381 Broadway Street , Suite 201

American Canyon, CA 94503

1

RE: Giovannoni Logistics Center EIR

Monday, July 18, 2022

Dear Ms. Jones,

Sentinels of Freedom is a 501C3 Wounded and Injured Veterans Support Organization that owns a 25.44 acre vacant/undeveloped property adjacent to the Napa Logistic Park.

For the record, we'd like to offer to sell this property to American Canyon for a new Fire Station and Training Center to support Fire operations at the North Side of American Canyon adjacent and West of the new PG&E project. We believe this would be an

excellent site to support Fire Services for the Industrial growth in that sector.

I request that you please enter this communication and attachments into the EIR Public Comments on the upcoming Giovannoni Logistics Center EIR discussions and meetings.

We'll send the electronic records we have on our property and also my mail for your files.

1

We look forward to discussions with American Canyon on this concept and really think this could be a win/win for all concerned.

Thank you.

Very Respectfully, Mike Conklin

Mike Conklin

Chairman & CEO

Sentinels of Freedom

501(c)(3) TAX ID: 20-8139201

mconklin@sentinesloffreedom.org<mailto:mconklin@sentinesloffreedom.org>

www.sentinelsoffreedom.org<https://urldefense.proofpoint.com/v2/url?u=http-3A__www.sentinelsoffreedom.org&d=DwMFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=pWL0FyuA8vvicPruDI2xc2p2Eu_t3pyT1wGnHdG_DqM&m=BGnajKl9GVEc6fpvfKRcu6VBdJO8gqiN-zXWkQIgkcQ&s=Etx0p3IiR551zknnEE0i5l7SsYwprI-5o5bFJBMKaXY&e=>

PO Box 1316

San Ramon Ca 94583

925-216-8583 cell

925-380-6342 off

CNN HERO VIDEO (https://youtu.be/JdQ_fJUHesM<https://urldefense.proofpoint.com/v2/url?u=https-3A__youtu.be_JdQ-5FfJUHesM&d=DwMFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=pWL0FyuA8vvicPruDI2xc2p2Eu_t3pyT1wGnHdG_DqM&m=BGnajKl9GVEc6fpvfKRcu6VBdJO8gqiN-zXWkQIgkcQ&s=NfHWG3gaakwSKIVFf83OL-Y6DbjDmGS24xWD7DNTx6I&e=>)

- Sentinels of Freedom overview with Founding Judge (Ret.), US Court of Appeals for Veterans Claims, Jack Farley

- Partnership with Lennar, a home construction and real estate company, to assist in housing for US Army Veteran and Graduated Sentinel Jay Wilkerson

- Highlights from our 2016 Annual Sentinels Gala which featured guests of honor General Joseph Votel, US Army

- Most recent 2019 Annual Sentinel Gala with guest speaker General Paul J. Selva, Vice Chairman of the Joint Chief of Staff

- US Army Veteran and Graduated Sentinel Cody McCullough Interview

- US Marines Veteran and Graduated Sentinel Johnny Chinchilla Interview

- US Army Veteran and Graduated Sentinel Mike Gonzales Interview

- US Army Veteran and Graduated Sentinel Marlene Rodriguez Interview

- A Special Message from US Marines Veteran and Sentinel Kyle Carpenter

-Veterans Voices 2019 https://youtu.be/0f_VcsNttjA<https://urldefense.proofpoint.com/v2/url?u=https-3A__youtu.be_0f-5FVcsNttjA&d=DwMFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=pWL0FyuA8vvicPruDI2xc2p2Eu_t3pyT1wGnHdG_DqM&m=BGnajKl9GVEc6fpvfKRcu6VBdJO8gqiN-zXWkQIgkcQ&s=lxoW4xk0oIGnMUW1iRQJ1rIyXiyL2H3z9snW0KO2PqU&e=>

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057-090-084

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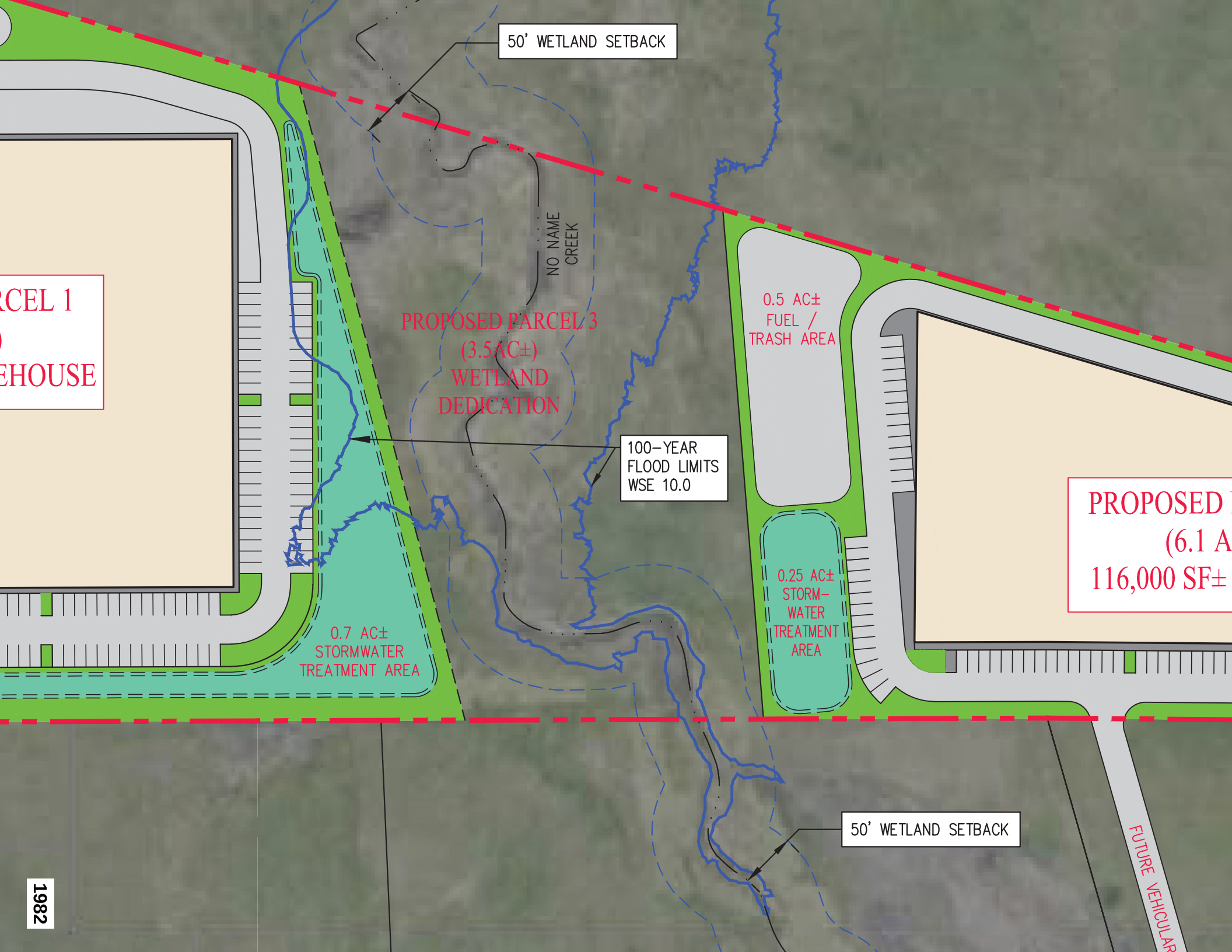
50' WETLAND SETBACK
NO NAME CREEK
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(3.5AC±)
WETLAND
DEDICATION
100-YEAR
FLOOD LIMITS
WSE 10.0
0.5 AC±
FUEL /
TRASH AREA
0.25 AC±
STORM-
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TREATMENT
AREA
0.7 AC±
STORMWATER
TREATMENT AREA
50' WETLAND SETBACK
FUTURE VEHICULAR
1982

AIRPORT ROAD
WETLAND PRESERVE
140'
1983

Sentinels of Freedom (SENTINELS)

Response to SENTINELS-1
The Sentinels of Freedom, a 501(c3) nonprofit organization, indicated that it owns a 25.44-acre vacant property adjacent to Napa Logistics Park and would like to offer to sell the site to the City of American Canyon for the development of a fire station and training center.

The new "North" fire station is addressed in Master Response 2.

Response to SENTINELS-2
The comment consists of an Assessor's Parcel Map showing the location of the Sentinels' site. No response is necessary.

Response to SENTINELS-3
The comment consists of a conceptual site plan for warehouses on the Sentinels' site. No response is necessary.

Response to SENTINELS-4
The comment consists of a conceptual site plan for warehouses on the Sentinels' site. No response is necessary.

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TANYA A. GULESSERIAN
DARIEN K. KEY
RACHAEL E. KOSS
AIDAN P. MARSHALL
TARA C. RENGIFO
MICHAEL R. SEVILLE

Of Counsel
MARC D. JOSEPH
DANIEL L. CARDOZO

July 20, 2022

Via Email and Overnight Mail

Brent Cooper, AICP,
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4381 Broadway Street, Suite 201
American Canyon, CA 94503
Email: bcooper@cityofamericancanyon.org

Nicolle Jones
Community Development Department
City of American Canyon
4381 Broadway Street, Suite 201
American Canyon, CA 94503
njones@cityofamericancanyon.org

Re: **Comments on the Draft Environmental Impact Report – Giovannoni Logistics Center Project proposed by Buzz Oates Construction, Inc. (PL20-0042, PL20-0043 and SCH #2021010104)**

Dear Mr. Cooper and Ms. Jones:

We are writing on behalf of the Napa/Solano Residents for Responsible Development ("Napa/Solano Residents") to provide comments on the Draft Environmental Impact Report[1] prepared for the Giovannoni Logistics Center Project, PL20-0042, PL20-0043 and SCH #2021010104, ("Project") prepared by the City of American Canyon ("City") pursuant to the California Environmental Quality Act ("CEQA")[2]. 1

I. INTRODUCTION

The Project, proposed by Buzz Oates Construction, Inc. ("Applicant"), calls for development of up to 2.4 million square feet of cube warehouse space on a 208-acre project site located in the City of American Canyon ("City"), Napa County.[3] Phase 1 of the Project would be built on 94.7 acres on the eastern portion of the site and

[1] City of American Canyon, Draft Environmental Impact Report-Giovannoni Logistics Center Project (May 20, 2022) (hereinafter, "DEIR"), *available at* https://lf.cityofamericancanyon.org/WebLink/Browse.aspx?id=66927&dbid=1&repo=AmericanCanyon&cr=1
[2] Pub. Resources Code ("PRC") §§ 21000 *et seq.*
[3] DEIR, pg. 2-4.

printed on recycled paper

would include two high-cube warehouse buildings totaling 1,069,904 square feet.[4] One of the buildings would be rail-served by the adjacent Napa Branch Line and each building would provide docks, grade level roll-up doors and trailer parking stalls.[5] Phase 2 consists of approximately 1.3 million square feet of high-cube warehouse on the 113.1 acre western portion of the site.[6] No design-level site plans for Phase 2 have been prepared. The DEIR purports to analyze Phase 1 at a project level and Phase 2 at a program level.[7]

The Project site is currently undeveloped land; there are no structures on-site.[8] Vegetation consists primarily of non-native grasslands, with seasonal wetlands and associated plant species scattered throughout the site.[9] The headwaters of No-Name Creek are located in the northwestern corner of the property, and the Creek flows off the site at the northwestern corner of the property.[10] The drainage is hydrologically connected to the Fagan Slough, which flows into the Napa River.[11] The Applicant proposes to preserve approximately 44.8 acres of the Project site as an open-space wetlands preserve to conserve and manage vernal pool and other wetland and grassland resources.[12] The preserve is intended to mitigate wetlands and habitat impacts caused by the development of the Project.[13] The Project will also construct 110,766 square feet of storm drainage retention on-site, to include a network of underground piping to convey runoff to bioretention and detention basins in the northern portion of the site.[14] 1

The City owns an approximately 8 acre strip of land that bisects the site north to south, and an extension of Devlin Road is currently under construction on this parcel and is projected to be completed prior to Phase 1 of the Project.[15] Vehicular access to Phase 1 would be via four driveways on Green Island Road and four driveways on Devlin Road.[16] Two driveways on each road would be dedicated for truck access and the remaining two would be dedicated for passenger vehicle

[4] *Ibid.*
[5] *Ibid.*
[6] *Ibid.*
[7] *Ibid.*
[8] *Id.,* pg. 2-1.
[9] *Ibid.*
[10] *Ibid.*
[11] *Ibid.*
[12] *Id.,* pg. 2-6.
[13] *Ibid.*
[14] *Id.,* pg. 2-7.
[15] *Id.*, pg. 2-1.
[16] *Id.*, pg. 2-6.

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access.[17] Each of the Phase 1 buildings would include 430 parking stalls, including 10 ADA stalls, 26 electric vehicle parking stalls and nine Clean Air stalls.[18] Vehicular access to Phase 2 would also occur from both Green Island Road and Devlin Road.[19]

The DEIR fails to comply with CEQA's basic requirement to act as an "informational document." It lacks meaningful details in critical areas, such as air quality, health risk, biological resources, greenhouse gas ("GHG") and transportation impacts, without which the public and decisionmakers cannot adequately assess the Project's significant impacts. Because of the DEIR's shortcomings, it is deficient as a matter of law because it fails to properly disclose and mitigate the Project's potentially significant impacts. The DEIR also lacks substantial evidence to support the City's conclusions regarding the Project's impacts and proposed mitigation. These deficiencies render the document inadequate for purposes of compliance with CEQA. 1

We reviewed the DEIR, technical appendices, and reference documents with the assistance of our expert consultants, including air quality and hazardous materials expert James J.J. Clark, Ph.D., wetlands biologist Sarah Corbin, wildlife biologist Scott Cashen, and transportation expert Norman Marshall, whose comments and qualifications are included as Exhibit A, Exhibit B, Exhibit C, and Exhibit D, respectively.[20] The City must address and respond to their comments separately and fully.[21]

II. STATEMENT OF INTEREST

Napa/Solano Residents is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential environmental impacts associated with Project development. Napa/Solano Residents includes American Canyon residents James Aken, Samantha Spangler, Evelyn Hernandez, and Alex Somodio, and members of the International Brotherhood of Electrical 2

[17] *Ibid.*
[18] *Ibid.*
[19] *Ibid.*
[20] **Exhibit A**, July 12, 2022 letter to Richard Franco from James Clark (hereinafter, "Clark Comments"); **Exhibit B**, July 19, 2022 letter to Richard M. Franco from Sarah Corbin (Shannon & Wilson) (hereinafter, "Corbin Comments"); **Exhibit C,** July 19, 2022 letter to Richard M. Franco from Scott Cashen (hereinafter, "Cashen Comments"); **Exhibit D,** July 19, 2022 letter to Richard M. Franco from Norman Marshall (hereinafter, "Marshall Comments").
[21] 14 Cal. Code Regs. ("CCR") §§ 15088(a), (c).

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Workers Local 180, Plumbers & Steamfitters Local 343, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, District Council of Ironworkers and their members and their families, and other individuals that live and/or work in the City of American Canyon and Napa/Solano Counties.

Napa/Solano Residents supports the development of sustainable commercial and industrial centers where properly analyzed and carefully planned to minimize impacts on public health and the environment. Logistics centers like the Project should avoid adverse impacts to air quality, biological resources, transportation, and public health, and should take all feasible steps to ensure unavoidable impacts are mitigated to the maximum extent feasible. Only by maintaining the highest standards can commercial and industrial development truly be sustainable.

The individual members of Napa/Solano Residents and the members of the affiliated labor organizations live, work, recreate and raise their families in and around American Canyon and Napa County. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work constructing the Project itself. They would be the first in line to be exposed to any health and safety hazards which may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts. 2

Napa/Solano Residents and its members also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for industry to expand in American Canyon and Napa County, and by making it less desirable for businesses to locate and people to live and recreate in the County, including the Project vicinity. Continued environmental degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduces future employment opportunities.

Finally, Napa/Solano Residents is concerned with projects that can result in serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighed against significant impacts to the environment.[22] It is in this spirit we offer these comments.

[22] Pub. Resources Code § 21081(a)(3); *Citizens for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 171.

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III. LEGAL BACKGROUND

CEQA requires public agencies to analyze the potential environmental impacts of their proposed actions in an EIR.[23] "The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language."[24]

CEQA has two primary purposes. First, CEQA is designed to inform decisionmakers and the public about the potential significant environmental effects of a project.[25] "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'"[26] The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[27] As the CEQA Guidelines explain, "[t]he EIR serves not only to protect the environment but also to demonstrate to the public that it is being protected."[28]

3

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring consideration of environmentally superior alternatives and adoption of all feasible mitigation measures.[29] The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced."[30] If the project will have a significant effect on

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[23] PRC § 21100.
[24] *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal ("Laurel Heights I")* (1988) 47 Cal.3d 376, 390 (internal quotations omitted).
[25] Pub. Resources Code § 21061; CEQA Guidelines §§ 15002(a)(1); 15003(b)-(e); *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 517 ("[T]he basic purpose of an EIR is to provide public agencies and the public in general with detailed information about the effect [that] a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.").
[26] *Citizens of Goleta Valley,* 52 Cal.3d at p. 564 (quoting *Laurel Heights I*, 47 Cal.3d at 392).
[27] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810; *see also Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 ("*Berkeley Jets*") (purpose of EIR is to inform the public and officials of environmental consequences of their decisions *before* they are made).
[28] CEQA Guidelines § 15003(b).
[29] *Id.* § 15002(a)(2), (3); *see also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at p. 564.
[30] CEQA Guidelines § 15002(a)(2).

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the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment" to the greatest extent feasible and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns."[31]

While courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference."[32] As the courts have explained, a prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process."[33] "The ultimate inquiry, as case law and the CEQA guidelines make clear, is whether the EIR includes enough detail 'to enable who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.'"[34] 3

IV. THE DEIR FAILS TO ADEQUATELY DESCRIBE THE PROJECT

The DEIR does not meet CEQA's requirements because it fails to include an accurate, complete and stable description of key Project components, rendering the DEIR's impact analysis inadequate. California courts have repeatedly held that "an accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[35] CEQA requires that a project be described with 4

[31] PRC § 21081(a)(3), (b); CCR §§ 15090(a), 15091(a), 15092(b)(2)(A), (B); *Covington v. Great Basin Unified Air Pollution Control Dist.* (2019) 43 Cal.App.5th 867, 883.
[32] *Berkeley Jets*, 91 Cal.App.4th at p. 1355 (emphasis added) (quoting *Laurel Heights I*, 47 Cal.3d at 391, 409, fn. 12).
[33] *Berkeley Jets*, 91 Cal.App.4th at p. 1355; *see also San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722 (error is prejudicial if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process); *Galante Vineyards*, 60 Cal.App.4th at p. 1117 (decision to approve a project is a nullity if based upon an EIR that does not provide decision-makers and the public with information about the project as required by CEQA); *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 946 (prejudicial abuse of discretion results where agency fails to comply with information disclosure provisions of CEQA).
[34] *Sierra Club,* 6 Cal.5th at p. 516 (quoting *Laurel Heights I*, 47 Cal.3d at 405).
[35] *Stopthemillenniumhollywood.com v. City of Los Angeles* (2019) 39 Cal.App.5th 1, 17; *Communities for a Better Environment v. City of Richmond* ("*CBE v. City of Richmond*") (2010) 184 Cal.App.4th 70, 85–89; *County of Inyo v. City of Los Angeles* (3d Dist. 1977) 71 Cal.App.3d 185, 193.

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enough particularity that its impacts can be assessed.[36] Without a complete project description, the environmental analysis under CEQA is impermissibly limited, thus minimizing the project's impacts and undermining meaningful public review.[37]

4

Here, the DEIR's description of the Project is inconsistent and unstable, in that the size of the Project and buildout horizon change depending on the impact being analyzed. Moreover, the DEIR does not consistently analyze both phases of the Project.

A. The DEIR Does Not Consistently Apply The Buildout Horizon Or Building Sizes Set Forth In The Project Description.

The DEIR describes the Project as an approximately 2.4 million square foot logistics center on approximately 163 acres of the approximately 208-acre Project site.[38] The Project is to be developed in two phases: Phase 1 would include two high-cube warehouse buildings totaling approximately 1.1 million square feet on the 94.7 acre eastern portion of the site, and Phase 2 would develop 1.3 million square feet of warehouse on the 113.1 acre western portion of the site.[39] With respect Project buildout horizon, the DEIR states, "For purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be *developed concurrently over a period of 18 months. As a practical matter, the proposed project would buildout over a period of years or decades.* Phase 1 would be developed first, followed by Phase 2 [emphasis added]."[40]

5a

As an initial matter, the DEIR's project description is flawed in that it assumes (and purports to analyze) a buildout scenario that admittedly will not occur, i.e. concurrent development of both phases over an 18-month period. If, "as a practical matter, the project would buildout over a period of years or decades," the DEIR's analysis should not be based on the unrealistic assumption that both phases will be developed concurrently in a year and a half. The DEIR's project description should set forth a buildout horizon that it reasonably expects to occur, so that the lead agency may properly assess the real-world expected impacts of the Project. The buildout horizon has important consequences for analyzing the Project's

[36] CCR § 15124; *see, Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1988) 47 Cal.3d 376, 192–193.
[37] *Id.*
[38] DEIR, pg. 2-4.
[39] *Ibid.*
[40] *Id.,* pg. 2-9.

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significant impacts. For example, wetlands biologist Sarah Corbin notes that "a prolonged construction schedule that extends beyond 18 months and instead extends over several years (e.g., multiple nesting seasons and multiple "rainy seasons") increases the potential for construction-related impacts to aquatic resources."[41] 5a

Despite setting forth a specific assumption regarding buildout timeframe and purporting to use that assumption as the basis for its impacts analysis, the DEIR goes on to ignore its own "worst-case" assumption regarding Project buildout. Nowhere else in the DEIR is the Project described or analyzed as a concurrent (i.e., at the same time) buildout of both Phases over an 18-month period. For example, the DEIR's air quality analysis assumes that Phase 1 construction will begin in early 2022 and be complete 10 months later, with Phase 2 construction, with Phase 2 to begin immediately following and be completed 10 months later.[42] In other words, this analysis assumes a 20-month buildout of Phases 1 and 2 consecutively, rather than 18 months concurrently. Similarly, the DEIR's Health Risk Assessment models diesel particulate matter ("DPM") emissions assuming a 24-month buildout, i.e., 1 year of Phase 1 construction, immediately followed by 1 year of Phase 2 construction, followed by 30 years of operations for both Phases.[43] These inconsistencies matter because construction time frame is a key variable in the modeling used to estimate the Project's construction emissions for purposes of analyzing air quality and greenhouse gas impacts.[44] 5b

As with the Project's buildout horizon, the DEIR contains inconsistent descriptions of the size of the buildings to be constructed. The Project description describes Phase 1 as consisting of two buildings totaling 1,069,904 square feet.[45] However, immediately following that description, Table 2-1 summarizes Phase 1 as including Building A (627,976 square feet) and Building B (469,512 square feet), for a total of 1,097,488 square feet.[46] For purposes of modeling air emissions, Appendix B assumes that Building A will be 601,383 square feet and Building B will be 469,521 square feet, for a total of 1,070,904 square feet.[47] By modeling air emissions using smaller building sizes than those set forth in the Project 5c

[41] Corbin Comments, pg. 3.
[42] DEIR, pgs. 3.2-35 and 3.2-47.
[43] *Id.,* pg. 3.2-60.
[44] *Id.,* Appendix B, pg. 2.
[45] *Id.*, pg. 2-4.
[46] *Id.*, pg. 2-5.
[47] DEIR, Appendix B at pg. 1.

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description, the DEIR's emissions calculations reflect lower, and potentially inaccurate, construction and operational emissions.

These discrepancies must be addressed in a revised and recirculated EIR with accurate, stable and realistic descriptions of the size and buildout horizon of the Project so that decisionmakers can adequately assess the Project's significant impacts in all impact areas. 5c

B. The DEIR's Analysis Of Hydrological Impacts Fails To Consider Any Impacts Associated With Construction And Operation Of Phase 2 Of The Project.

Another example of the DEIR's analysis not matching the assumptions in the Project description (Phases 1 and 2 developed concurrently) is the analysis of hydrological impacts. This analysis focuses solely on Phase 1's impacts to runoff and downstream impacts, as if Phase 2 will never be constructed. While the DEIR purports to analyze stormwater and drainage impacts of both Phases, in reality only Phase 1 impacts are analyzed.

The currently undeveloped Project site includes No-Name Creek, which runs from east to west along the northern portion of the property and eventually drains into the Napa River. The Project's Phase 1 plans include a stormwater management system to collect and store runoff from the more than one million square feet of newly impervious surfaces (i.e., buildings and parking lots) that will be constructed as part of the Project. 6

The DEIR's analysis of hydrological impacts is based on the Preliminary Hydrological and Hydraulic Modeling study ("Hydrological Study"),[48] which purports to "model, assess, and outline how the changes in existing, and proposed land cover, along with the proposed construction of Devlin Road, will impact the hydrology and hydraulics of the creek directly downstream of the Project area and along the reach to its confluence with the Napa River."[49] Notably, the DEIR purports to use this Study to analyze hydrological impacts of both Phase 1 and Phase 2.[50] However, the Hydrological Study expressly only analyzed hydrological impacts of the development of Phase 1: "The first phase of the Project, referred to as the Giovannoni Logistics Center East and covered herein, proposes the construction

[48] DEIR, Appendix F.
[49] *Id.*, pgs. 1-2.
[50] *Id.,* pgs. 3.8-10, 3.8-12, 3.8-13.

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of two warehouses (gross square footage of the two buildings is roughly one million square feet) along with parking lots…on roughly 70 acres."[51]

The Hydrological Study divides the Project area into two drainage management areas ("DMAs") comprised of a mix of parking lot, roof area and pervious landscaping.[52] The two DMAs roughly correspond with the footprints of the two proposed Phase 1 buildings.[53] The modeling implicitly assumes no development of Phase 2 on the western portion of the Project site, although Phase 2 would add more than one million square feet of impervious surfaces. The hydrological impacts of Phase 1, i.e., whether the Project's storm management system can adequately control runoff and whether there will be downstream impacts, cannot be assessed without consideration of the additive effects of Phase 2 development. 6

V. THE DEIR FAILS TO ADEQUATELY DESCRIBE THE EXISTING BASELINE

The DEIR fails to accurately disclose the baseline environmental conditions related to the Project's biological impacts. As a result, the DEIR lacks the necessary baseline information against which to measure the Project's environmental impacts with regard to impacts to wetlands and wildlife habitat.

The existing environmental setting is the starting point from which the lead agency must measure whether a proposed project may cause a significant environmental impact.[54] CEQA defines the environmental setting as the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, from both a local and regional perspective.[55] Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate, meaningful evaluation of environmental impacts. The courts have clearly stated that, "[b]efore the impacts of a project can be assessed and mitigation measures considered, an [environmental review document] must describe the existing 7

[51] DEIR, Appendix F, pg. 1.
[52] *Id.,* pg. 3.
[53] *Id.*, Figure 1.
[54] *See, e.g.*, *Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (March 15, 2010) 48 Cal.4th 310, 316.
[55] CCR §15125(a) (emphasis added); *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453 ("*Riverwatch*").

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environment. It is only against this baseline that any significant environmental effects can be determined."[56] 7

A. The DEIR Fails To Accurately Delineate Or Provide Any Functional Assessment Of The Existing Wetlands.

As discussed above, the Project site is currently undeveloped and contains several acres of both grassland and wetlands, which include palustrine emergent wetlands, seasonal wetlands, and vernal pools. Development of the Project will directly impact, i.e., fill and pave over, more than 4 acres of wetlands. The DEIR undertakes to analyze and mitigate these impacts, but fails at the most basic level: it fails to accurately delineate the full extent of the existing wetlands and provides no assessment at all of the wetlands' current functions. These errors and omissions make it impossible to adequately analyze the Project's wetlands impacts or whether the proposed mitigation will be effective. 8

1. The Project Site Wetlands Are Not Accurately Delineated.

Wetlands biologist Sarah Corbin reviewed the DEIR's wetlands impact analysis, including the supporting technical appendices, and found numerous errors and discrepancies that undermine the Project site's wetlands delineation report ("Delineation Report"), which provides the baseline against which the DEIR evaluates biological impacts.[57] For example, several of the wetland determination survey data sheets supporting the Delineation Report incorrectly failed to identify an observed plant species as a wetlands indicator species, meaning that the area surveyed was incorrectly classified as upland rather than wetland.[58] In addition, there is a glaring inconsistency with respect to a wetland area identified as Wetland IW-9 in the Delineation Report.[59] Wetland IW-9 is an isolated linear wetland in the southeast portion of the Project area that would partially coincide with or be immediately adjacent to the Project development footprint.[60] However, that wetland is absent from the October 2016 Confirmed Aquatic Resources Delineation Map, and this absence is carried through in the DEIR figures and analysis. Ms. Corbin finds that there "is no wetland determination data sheet to support the wetland's inclusion or exclusion and no discussion of the change in the DEIR or supporting 9

[56] *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.
[57] Corbin Comments, pgs. 1-2.
[58] *Id.*, pg. 2.
[59] *Id.,* pg. 4.
[60] *Ibid.*

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documents."[61] These errors mean that more wetland was present on the Project site during the delineation report fieldwork than is reflected in the resulting report and ultimately in the DEIR.[62]

The Delineation Report, and the required Army Corps of Engineers ("Corps") Jurisdictional Determination approving it, are nearly six years old. Corps Jurisdictional Determinations are valid for five years, meaning it will need to be updated before the Project can obtain the necessary Corps permits to fill any wetlands. Even though the Jurisdictional Determination was still valid in January 2021 when the Notice of Preparation for the DEIR was published, the wetlands delineation on which the DEIR's impact analysis is based is now out of date and does not accurately reflect current baseline conditions at the Project site. The Corps applies expiration dates to Jurisdictional Determinations because wetland boundaries are expected to change over time due to both natural (e.g., climate patterns) and human-caused activities.[63] Indeed, Ms. Corbin's review of recent aerial imagery of the Project site appear to demonstrate potential wetlands that were not identified as such in the delineation report.[64] For all of the foregoing reasons, the wetlands delineation must be updated to provide a proper baseline against which the Project's impacts can be accurately analyzed and the resulting analysis must be set forth in a revised and recirculated DEIR. 9

2. The DEIR Lacks Any Assessment of Wetland Functions

Wetlands can serve a number of important functions, such as providing rest and foraging habitat for migratory waterfowl, breeding habitat for amphibians and invertebrates, flood storage potential, and filtration of pollutants and excess nutrients surface water and groundwater.[65] The DEIR does not include a functional assessment of the Project site's existing wetlands and hence no functional impact analysis is provided (indeed, such analysis is not possible without the assessment). As Ms. Corbin explains, "[w]etlands impact analyses are incomplete without a functional assessment that evaluates hydrologic, water quality, and habitat functions of the site wetlands."[66] Without knowing the specific functions of the wetlands being impacted, it is therefore impossible to accurately assess those 10

[61] *Ibid.*
[62] *Id.,* pgs. 2-4.
[63] *Id.,* pg. 2.
[64] *Ibid.*
[65] *Id.*, pg. 3.
[66] *Ibid.*

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impacts or to evaluate whether mitigation will adequately replace or mitigate those lost functions. While the DEIR states that a functional assessment will be completed with the Project's Wetland Mitigation and Monitoring Plan at some later date, that will be too late for the decisionmakers to evaluate this Project's wetlands impacts or to determine whether the proposed mitigation is appropriate.

To assess the environmental impacts of a proposed project, CEQA requires that the lead agency examine the changes to existing environmental conditions that would occur if the project were implemented.[67] Because the DEIR lacks any baseline description of the existing wetlands functions, analysis of the Project's impacts and proposed mitigation measures is impossible.[68] The DEIR must be revised and recirculated after including an appropriate functional assessment and proper analysis of the Project's wetlands impacts. 10

B. The DEIR Fails To Establish A Proper Baseline With Respect To Impacts To Biological Resources.

In addition to the DEIR's failure to provide a functional assessment of the Project site's wetlands, Mr. Cashen identifies additional deficiencies in the DEIR's description of the environmental setting.

First, the DEIR's conclusion that the Project would have no impact on the federally threatened vernal pool fairy shrimp is not supported by current scientific evidence. As Mr. Cashen explains, the Project site contains vernal pools and provides potential habitat for this species.[69] The DEIR relies on dry season vernal pool fairy shrimp surveys in summer of 2016 and wet season vernal pool fairy shrimp surveys in the winter of 2016-17.[70] Mr. Cashen states that the results of those surveys are outdated and can no longer be used to assume the absence of the species at the Project site.[71] The DEIR provides no evidence supporting its assumption that these several years old surveys accurately describe the Project site's environmental setting as of the time the Notice of Preparation of the DEIR was posted.[72] 11

[67] *See, e.g.,* 14 CCR § 15126.2(a).
[68] *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App. 4th 931, 953.
[69] Cashen Comments, pg. 2.
[70] *Ibid.*
[71] *Ibid.*
[72] *See,* 14 CCR § 15125.

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Vernal pool fairy shrimp disperse among individual pools through flooding, wind, birds, other vertebrates and various human activities.[73] This species can therefore rapidly colonize new pools or recolonize pools from which they have been extirpated.[74] Mr. Cashen cites several studies that recognize viable cysts can survive passage through the digestive tract of waterfowl, as well as attach to feathers of feet of wading birds, thus promoting long-distance dispersal of vernal pool fairy shrimp among pools. As thousands of vernal pool fairy shrimp were recently detected in a vernal pool near the Napa County Airport, approximately 2,700 feet from the Project site, and because waterfowl and shorebirds frequent the Napa County Airport site and the Project site, it reasonably foreseeable that birds have transported vernal pool fairy shrimp within the five years that have elapsed since the surveys supporting the DEIR were conducted. Negative results from five-year old surveys do not justify the DEIR's definitive determination that the Project will have no impact on vernal pool fairy shrimp.

The DEIR also relies on botanical field surveys conducted at the Project site in April-May 2021 and set forth in the Helm Biological Consulting report ("HBC report"). The DEIR states that based on these surveys, "no special-status plant species occur on the project site. Therefore, no impacts to special-status species would occur from construction of the proposed project. No mitigation is warranted for special-status plants."[75] Mr. Cashen explains why this conclusion is unsupported. 11

First, the surveys were conducted during a drought year. Many vernal pool plant species have seeds that can remain dormant for many years, an adaptation that allows them to survive drought periods.[76] The HBC report admits that nine of the rare plant species that could occur at the Project site are wetland-dependent and that below-average annual rainfall in 2020-21 could have affected the ability to detect the presence of such species.[77]

Second, the HBC Report surveys did not encompass the blooming periods of all of the target species. Specifically, Napa bluecurls is an annual herb that blooms between June and October. Mr. Cashen cites evidence documenting that, of 19 specimens of Napa bluecurls collected in Napa County, all 19 were collected

[73] Cashen comments, pg. 2.
[74] *Ibid.*
[75] DEIR, pg. 3.3-23.
[76] Cashen Comments, pg. 4-5.
[77] DEIR, Appendix C-9, (HBC Report, App. A).

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between July and September. Pappose tarplant is an annual herb that blooms between May and November. Although the HBC Report included surveys performed on May 4 and May 17, 2021, Mr. Cashen cites evidence showing that it is extremely rare for pappose tarplant to bloom that early in Napa County; the vast majority of such specimens have been collected in September and October.[78]

11

Because the HBC Report surveys were not conducted when all potentially occurring rare plants would be both evident and identifiable (as required by California Department of Fish and Wildlife survey protocols), there is insufficient evidence to support the DEIR's determination that "no special-status plan species occur on the project site."[79]

VI. THE DEIR FAILS TO DISCLOSE, ANALYZE AND MITIGATE POTENTIALLY SIGNIFICANT IMPACTS

An EIR must fully disclose all potentially significant impacts of a Project and implement all feasible mitigation to reduce those impacts to less than significant levels. The lead agency's significance determination with regard to each impact must be supported by accurate scientific and factual data.[80] An agency cannot conclude that an impact is less than significant unless it produces rigorous analysis and concrete substantial evidence justifying the finding.[81]

Moreover, the failure to provide information required by CEQA is a failure to proceed in the manner required by CEQA.[82] Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an EIR or to disclose information about a project's environmental effects or alternatives, are subject to a less deferential standard than challenges to an agency's factual conclusions.[83] In reviewing challenges to an agency's approval of an EIR based on a lack of substantial evidence, the court will 'determine de novo whether the agency has employed the correct procedures, scrupulously enforcing all legislatively mandated CEQA requirements.'[84]

12

[78] Cashen Comments, pg. 4.
[79] DEIR, pg. 3.3-23.
[80] 14 CCR § 15064(b).
[81] *Kings Cty. Farm Bur. v. Hanford* (1990) 221 Cal.App.3d 692, 732.
[82] *Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236.
[83] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.
[84] *Id., Madera Oversight Coal., Inc. v. County of Madera* (2011) 199 Cal. App. 4th 48, 102.

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Even when the substantial evidence standard is applicable to agency decisions to certify an EIR and approve a project, reviewing courts will not 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference.'"[85] 12

A. The DEIR Fails To Disclose Or Adequately Analyze Transportation Impacts.

The DEIR concludes that the transportation impacts of the Project will be less than significant without mitigation. However, the transportation impacts analysis is flawed in numerous ways, most notably with respect to the Project's vehicle miles traveled ("VMT") impacts. In addition, the DEIR's faulty and unsupported conclusions with respect to VMT and trip generation completely undermine the DEIR's air quality and GHG analyses, which rely heavily on those same factors. 13

1. The DEIR's Significance Threshold For VMT is Not Based On Substantial Evidence.

The CEQA Guidelines authorize agencies to select "thresholds of significance" to assist in determining whether a project's effect will be deemed significant.[86] Lead agencies may rely on a previously adopted regulatory threshold, or may use thresholds on a case-by-case basis.[87] In either case, the selection of a threshold of significance must be supported by substantial evidence.[88] When an impact exceeds a CEQA significance threshold, the agency must disclose in the EIR that the impact is significant.[89] 14

The DEIR's VMT significance threshold is not supported by substantial evidence. The DEIR states that it relies on "established policies currently used by the OPR, Sacramento County, and the city of San Jose" in selecting its significance threshold: "a VMT impact would be identified at an industrial project if the project

[85] *Berkeley Jets*, 91 Cal.App.4th at 1355.
[86] 14 CCR § 15064.7(a); CBIA v. BAAQMD (2015) 62 Cal.4th 369.
[87] 14 CCR § 15064(b).
[88] 14 CCR § 15064(b).
[89] 14 CCR § 15064.3(b)(1) (vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact); *Comtys. for a Better Env't v. Cal. Resources Agency* (2002) 103 Cal.App.4th 98, 110-111.

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VMT per employee is higher than the regional average VMT per employee."[90] The DEIR defines "regional average VMT" as the nine county Bay Area average and asserts that this average is 23 miles per employee as reportedly stated by the City of Vallejo in its CEQA Transportation Impact Analysis Guidelines.[91] However, this is the entire extent of the "analysis" performed by the City in adopting 23 miles per employee as the VMT significance threshold in this DEIR. The DEIR doesn't make even the slightest effort to explain how Vallejo derived that number and whether it is an appropriate significance threshold for this Project. Nor is there any discussion as to why the nine county Bay Area—a region covering nearly 7000 square miles and including the full spectrum of land uses—provides a valid regional average against which to measure the impacts of this Project. 14

As discussed below, the City recently applied a lower, data-based VMT threshold to analyze the impacts of a comparable commercial distribution center project located less than 2 miles from the Project site, resulting in a finding of significant VMT impacts. By contrast, the significance threshold applied to the Project lacks any supporting data or discussion, and resulted in an unsupported finding of less than significant VMT impacts. This fails to comply with CEQA's requirements. The DEIR must be revised and recirculated to provide evidentiary support for the threshold selected for the Project, or the City must apply a more appropriate, data-based threshold to its VMT analysis.

2. The DEIR's VMT Estimates For The Project Are Inadequate As A Matter Of Law.

Determining whether a project may have significant effects plays a critical role in the CEQA process; this determination calls for careful judgment by the lead agency, based on scientific and factual data.[92] The CEQA Guidelines are explicit that, while the agency has discretion to choose the most appropriate methodology to evaluate a project's VMT impacts, any assumptions used to estimate VMT "should be documented and explained in the environmental document prepared for the project."[93] The Guidelines expressly apply section 15151's standard of adequacy to the VMT analysis: "the EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision 15

[90] DEIR, pg. 3.2-17.
[91] *Ibid.*
[92] 14 CCR § 15064(b)(1).
[93] 14 CCR § 15064.3(b)(4).

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which intelligently takes account of environmental consequences."[94] The DEIR's VMT analysis complies with none of these CEQA requirements, as there is essentially no analysis and its conclusions rely on wholly unsupported and unexplained assumptions. A conclusory discussion of a significant environmental impact can support a court's determination that an EIR is inadequate as an informational document without reference to substantial evidence review.[95]

The DEIR includes no analysis of the Project's estimated VMT. Rather, it purports to pull a number from the California Statewide Travel Demand Model ("CSTDM") with no explanation of what the model is, how the number was computed or whether it is appropriately adopted as the estimated VMT for the Project. The entirety of the VMT "analysis" for this 2.4 million square foot warehouse Project is as follows:

> According to Statewide Travel Demand Model estimates, this project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles. Because this per capita VMT rate is lower than the significance threshold of 23.0 miles, the project would be considered to have a less-than-significant impact.

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The DEIR simply adopts the 16.24 number as the "Project VMT rate" with no further discussion.[96] No other information about the CSTDM is included in the DEIR; it is not even cited in the references for the Traffic Impact Study supporting the Transportation analysis.[97] The DEIR and supporting materials provide no information allowing the reader to verify the 16.24 number, and offer no explanation of what a TAZ is, what it purports to measure or why 16.24 miles per employee can simply be adopted as the estimated VMT for the Project. As transportation expert Norman Marshall states, "it is impossible to know how the DEIR arrived at 16.24 as the Project VMT using the CSTDM, because neither the DEIR nor the technical appendices contain any detail, analysis or calculations supporting that figure."[98]

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[94] 14 CCR § 15064.3(b)(4), 14 CCR § 15151.
[95] *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502, 514.
[96] *Id.*, Appendix H, pg. 20, Table 10.
[97] *See* DEIR, Appendix H.
[98] Marshall Comments, pg. 8.

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The California Department of Transportation ("Caltrans"), which developed the CSTDM, includes the following language on the model's home webpage: "[t]he CSTDM provides an advanced tour/activity models to help Caltrans develop and evaluate transportation related policies and programs of projects that best meet our mobility goals. *This model is not an appropriate tool for individual project level analysis.*"[99] The DEIR does not discuss why, despite this admonition, it uses the CSTDM as the sole source for estimating this Project's VMT impacts. As Mr. Marshall points out, regional travel models are commonly used to estimate VMT, but the statewide model is too coarse to reliably estimate VMT for any particular project.[100]

In 2021, the City prepared an Initial Study/Mitigated Negative Declaration[101] ("IS/MND") for a 217,000 square foot wine distribution center located less than 2 miles from the Giovannoni Project site. In that IS/MND, the City assessed the potential VMT impacts as required by CEQA by performing data-based analyses, using multiple data sets, to estimate both the existing Napa County-wide average trip length/VMT per employee (which it adopted as the significance threshold) and the project area average trip length/VMT per employee. Notably, for that project the City used the same sets of data to derive both the significance threshold and the estimated project VMT. There, the City explained the nature of each of the data sets it utilized, the pros and cons of each, and the calculations used to derive a VMT significance threshold and project VMT. The City used CSTDM as one of several data points (while recognizing that TAZs' imprecise geography masks localized variation) in estimating county-wide and project area VMT per employee. It found that based on the CSTDM, the Countywide average VMT per employee was estimated to be 23.7, the Citywide average VMT per employee was 38.7 and the TAZ where the project is located has a VMT per employee rate of 38.1. After its full analysis using multiple data points, however, the City found a countywide average of 12.85 miles average commute length per employee, reduced that figure by 15% consistent with OPR guidance to establish a significance threshold of 10.92 miles, and found a project area average commute length per employee of 16.28 miles. Based on those findings, the project's VMT was a significant impact requiring mitigation.

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[99] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/data-analytics-services/statewide-modeling/california-statewide-travel-demand-model
[100] Marshall Comments, pg. 6.
[101] City of American Canyon, Recirculated Draft Initial Study for the SDG Commerce 217 Distribution Center Project (April 2021) (hereinafter IS/MND"), available at https://files.ceqanet.opr.ca.gov/266599-4/attachment/aVkmgEflxLtuZTq-6C_RV0W7gVOr14ykMtI6IpGrGiqEWWqdd33JzFQR6zE3azwdGO4aDixye5LNgU110.

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In stark contrast to the analysis performed for the wine distribution center IS/MND, the Giovannoni DEIR uses one data source to identify the significance threshold and another to estimate project VMT, and offers no explanation or analysis whatsoever of those numbers or whether the analyses from which they were derived are comparable. The DEIR is essentially asking the reader to compare one black box to another black box. It bears emphasizing that when the City actually performed a data-based VMT analysis of a similar project in a similar location, it came up with a significantly lower significance threshold (i.e., 10.92 miles per employee vs. 23 miles per employee.) But regardless of the actual numbers, it is clear that the Giovannoni DEIR doesn't come close to "including a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account" of the VMT impacts of the Project.[102] The DEIR's discussion of VMT is so cursory that it fails to comply with the basic CEQA requirement to discuss and analyze transportation impacts and makes the DEIR invalid as an informational document as a matter of law.[103] This lack of analysis is a fatal flaw which must be addressed in a revised and recirculated EIR. 15

3. The DEIR Underestimates Trip Length And Trip Generation, Which Leads To Underestimation Of GHG And Air Quality Impacts.

As explained above, the DEIR's conclusion that the Project will have no significant VMT impacts is not supported by substantial evidence, as the DEIR lacks any analysis or basis for that finding. As Mr. Marshall explains, the DEIR's chosen Project trip length (16.24 miles per employee) likely significantly underestimates average VMT per employee for the Project.[104] He explains why (consistent with Caltrans' admonition that the CSTDM is not appropriate for project level analysis) using large TAZs is not a reliable way of estimating average Project trip length.[105] He offers an alternative, more accurate method of estimating VMT per employee for this Project. He uses the U.S. Census Bureau's Longitudinal Employer-Household Dynamics ("LEHD") Origin-Destination Employment Statistics ("LODES") data that provide detailed geographic data about workers, jobs and commutes at the census block level.[106] Notably, the City also considered LODES data in the IS/MND discussed above. Census blocks are much smaller than 16

[102] *See* 14 CCR § 15151.
[103] *Sierra Club, supra,* 6 Cal. 5th at 514.
[104] Marshall Comments, pgs. 6-9.
[105] *Id.*, pgs. 6-8.
[106] *Id.,* pg. 8.

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the TAZs in the CSTDM; the City of American Canyon alone has 236 census blocks but only 2 TAZs. Therefore, the LODES data offer a more accurate look at actual commutes in the Project area than the DEIR's estimate purportedly derived from the CSTDM.

Using the LODES data, Mr. Marshall estimates average commute distances to American Canyon jobs by (1) calculating the direct ("as the crow flies") distance between the centers of each census block; (2) eliminating commutes of over 100 miles where the data may be spurious and inflate the average; and (3) multiplying by 110% to account for actual routing along roads.[107] The resulting average (mean) one way commute distance is 22 miles. To compare this average one-way commute distance to daily VMT per employee, the 22-mile average was further adjusted by (1) multiplying by 2 to account for round trips; (2) multiplying by 5/7 to account for a 5-day work week; and (3) multiplying by 95% to account for non-single occupant auto commutes.[108] The resulting daily mean VMT per employee is 29.9 which is significantly higher than the DEIR's estimate for the Project (16.24 VMT per employee) and exceeds the significance threshold adopted by the City for this Project (23.0 VMT per employee). Again, while CEQA gives lead agencies discretion to choose the most appropriate methodology to estimate a project's VMT, the assumptions underlying the analysis must be documented and explained in the EIR.[109] It also must contain a sufficient degree of analysis to enable decision makers to intelligently evaluate environmental impacts.[110] The DEIR contains virtually no analysis or explanation of its VMT estimates and therefore violates CEQA because it lacks enough detail "to enable those who did not participate in in its preparation to understand and to consider meaningfully the issues raised by the proposed project."[111]

16

Like the VMT analysis, the DEIR's trip generation analysis is not supported by substantial evidence, as it relies on unsupported assumptions which contradict assumptions made elsewhere in the DEIR.

First, the DEIR unreasonably and without justification assumes the lowest trip-generating uses for the Project. The DEIR estimates the number of vehicle

[107] *Id.*, pg. 9.
[108] *Ibid.*
[109] 14 CCR § 15064.3(b)(4).
[110] 14 CCR § 15151.
[111] *Sierra Club, supra,* 6 Cal. 5th at 516, quoting *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal. 3d 376, 405.

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trips using daily trip rates published in the *Trip Generation Manual* (10th Edition) ("Manual").[112] However, as Mr. Marshall points out, the DEIR applies the lowest trip generation rate among several different types of high-cube warehouses.[113] The DEIR uses the Manual rates of 1.4 total vehicle trips and 0.22 truck trips per day attributable to "transload and short-term storage warehouses."[114] The DEIR contains no information to validate the selection of transload and short-term warehouses, as opposed to fulfillment center or parcel hub warehouses which have trip generation rates several times higher. Indeed, it appears that specific tenants and uses for the Project are unknown, a fact that is accounted for elsewhere in the DEIR: "as the proposed project is a speculative warehouse development which could accommodate cold storage and accompanying TRUs, this analysis [i.e., air emissions and GHG emissions modeling] considers two project scenarios: a cold warehouse project scenario and a dry warehouse project scenario."[115] The DEIR's Health Risk Assessment models cold storage uses only.[116] Despite recognizing the uncertainty as to the type of warehouse uses the Project will ultimately employ, and specifically analyzing for cold storage uses in other parts of the DEIR, the DEIR offers no justification for assuming that the Project will employ the lowest trip-generating use (and no cold storage use) in its transportation analysis. At a minimum, the transportation analysis should have assumed the Manual's trip generation rates for cold storage warehouses, which is 51% higher than the rate selected for total trips and more than 3 times higher than the rate for truck trips.[117] 16

Second, the DEIR uses the Manual's trip rates discussed above to project the Project's daily trips for passenger cars (2,832 daily trips) and trucks (528 daily trips) at full buildout of the Project. However, like the prospective warehouse functions used for the trip generation rate, the daily trips estimate is inconsistent with assumptions made elsewhere in the DEIR. The DEIR estimates that the Project will employ 3,643 workers at full buildout.[118] As Mr. Marshall points out, the employment estimate cannot be squared with the number of commute trips projected for the Project in the trip generation analysis.[119] Mr. Marshall assumes that the 3,643 workers make two trips per day (multiply by 2 for round trip commutes), work five days a week (multiply by 5/7) and that 95% of workers

[112] DEIR, Appendix H, pg. 13.
[113] Marshall Comments, pg. 3.
[114] *Ibid.*
[115] DEIR, pgs. 3.2-35 and 3.6-47.
[116] *Id.*, pg. 3.2-60.
[117] Marshall Comments, pgs. 3, 6.
[118] DEIR, pg. 2-8.
[119] Marshall Comments, pg. 5.

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commute alone (multiply by .95).[120] Using these assumptions, the Project would generate 4,944 daily commute trips, more than 2,000 trips over the number estimated by the DEIR using the unsupported trip rates in the trip generation analysis.

Finally, the DEIR claims that the truck trip rate assumed for the Project (.22 trips per 1,000 square feet) was estimated using the Manual rates and "validated using local vehicle classification counts conducted in June 2021."[121] As Mr. Marshall points out, though, the classification counts tell us only about the truck percentages in traffic in the vicinity of the proposed Project. "These percentages tell us nothing about truck trip generation for the proposed facility."[122]

Ultimately then, the trips lengths and trip generation rates used by the DEIR in its analysis of transportation impacts are unexplained, unsupported and/or contradicted by assumptions applied elsewhere in the DEIR. For all the reasons discussed above (and in the Marshall comments), the finding that the Project will not have significant transportation impacts—especially with respect to VMT—is not supported by substantial evidence. Moreover, these unsupported trip length and trip generation figures are key variables in the modeling used by the DEIR to analyze Project GHG and air quality impacts.[123] Given that the trip figures are unreasonably low, the modeling underestimates the Project's emissions of air pollutants and GHG. The City must therefore revise and recirculate the EIR with valid, supported trip length and trip generation estimates and using those new figures, re-analyze VMT, air quality and GHG impacts. 16

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. *A clearly inadequate or unsupported study is entitled to no judicial deference*."[124] As the courts have explained, "a prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process."[125] That is precisely the case here.

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[120] *Ibid.*
[121] DEIR, pg. 3.12-11.
[122] Marshall Comments, pgs. 5-6.
[123] *See e.g.*, DEIR at 3.2-50; App, B note 9, pg. 3.
[124] *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added), *quoting, Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391 409, fn. 12.
[125] *Berkeley Jets*, 91 Cal.App.4th at 1355; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water*

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B. The DEIR Fails to Adequately Analyze Greenhouse Gas Impacts.

The DEIR's GHG analysis states that the Project would have significant impacts if it would (1) generate GHGs, either directly or indirectly, that may have a significant impact on the environment (GHG-1), (2) conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (GHG-2), (3) result in potentially significant environmental impact due to wasteful, inefficient or unnecessary consumption of energy resources (GHG-3), or (4) conflict with or obstruct a state or local plan for renewable energy or energy efficiency.[126] Applying each of these significance criteria, the DEIR finds that the Project would not have significant impacts with respect to GHG emissions. As discussed below, these conclusions are not supported by substantial evidence. 17

1. Impact GHG-1

The DEIR analyzes whether the Project would generate GHGs that may have a significant impact on the environment by applying the CEQA Thresholds for Evaluating the Significance of Climate Impacts, recently adopted by the Bay Area Air Quality Management District ("BAAQMD").[127] These thresholds set forth specific criteria for determining whether new land use development projects contribute their "fair share"[128] of what is required to meet California's goal of carbon-neutrality by 2045. BAAQMD's thresholds require that new projects must incorporate either A or B from the following: 18

A. Projects must include, at a minimum, the following project design elements:

1. Buildings

a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

Management Dist. (1997) 60 Cal.App.4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 946.
[126] DEIR, pg. 3.6-40.
[127] https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en ("BAAQMD Thresholds")
[128] *See, Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal. 4th 204, 220-23.

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2. Transportation

a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:

i. Residential projects: 15 percent below the existing VMT per capita
ii. Office projects: 15 percent below the existing VMT per employee
iii. Retail projects: no net increase in existing VMT
b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).[129]

18

In analyzing the Project's operational GHG impacts (GHG-1), the DEIR adopts these thresholds of significance, "with minor refinements."[130] The refinements recognize that, with respect to VMT, the BAAQMD Thresholds refer to residential, office or retail projects, but not industrial projects like this one. The DEIR adopts the BAAQMD approach used for office projects, i.e., whether the Project achieves a 15 percent reduction below the existing VMT per employee.[131] In analyzing whether the Project satisfies this criterion, the DEIR relies solely on the VMT analysis contained in the Traffic Impact Study ("TIS") prepared for the Project.[132] The DEIR asserts a "29 percent reduction in employee VMT when compared to the existing regional VMT. As discussed [in the TIS], the region's existing average daily employee VMT is 23 miles while the proposed project's employee VMT would be 16.24 miles."[133]

As discussed in detail above, however, neither the DEIR's VMT discussion nor the TIS on which it is based contain any analysis or information supporting the conclusion that the relevant regional average VMT is 23 miles per employee or that

[129] BAAQMD Thresholds, pg. 2.
[130] DEIR, pg. 3.6-44.
[131] *Id.*, pg. 3.6-45.
[132] *Id.*, pg. 3.6-56.
[133] *Ibid.*

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the Project VMT will be 16.24 miles per employee. Indeed, those conclusions are contradicted by the City's own analysis of a similar project and by the analysis performed by transportation expert Norman Marshall. Because the DEIR's claimed 29 percent reduction in VMT is totally unsupported, the conclusion that the Project complies with the modified BAAQMD significance thresholds adopted by the City is not supported by substantial evidence. 18

2. Impact GHG-2

The DEIR purports to analyze the Project's consistency with "the applicable plan adopted for the purpose of reducing GHG emissions."[134] Citing BAAQMD's CEQA Air Quality Guidelines, the DEIR states that for this impact to be less than significant, the Project must demonstrate consistency with the applicable GHG emissions reduction plan.[135] Like the BAAQMD Thresholds for evaluating climate impacts (set forth above), the BAAQMD CEQA Air Quality Guidelines define a qualified GHG reduction strategy by reference to State CEQA Guidelines section 15183.5.[136] Section 15183.5(b) sets forth specific elements for qualified GHG emissions reductions plans that may be used in later project level analysis of cumulative GHG impacts.[137] "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures…"[138] 19a

The DEIR purports to assess the Project's GHG impacts with respect to three "applicable plans adopted to reduce GHG emissions," i.e., the California Air Resources Board ("CARB") 2017 Scoping Plan, the Metropolitan Transportation Commission ("MTC") Plan Bay Area 2050, and the City of American Canyon's Energy Efficient Climate Action Plan ("EECAP"). [139] The DEIR makes no showing that any of these is a qualified GHG emissions reduction plan pursuant to CEQA Guidelines section 15183.5(b). Indeed, the DEIR expressly recognizes that American Canyon's EECAP "does not meet the requirements to be considered a qualified GHG reduction strategy capable of being tiered from under CEQA

[134] *Id.*, pg., 3.6-46.
[135] *Ibid.*
[136] https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en ("BAAQMD Air Quality Guidelines"), Appendix D, pg. D-25.
[137] 14 CCR § 15183.5(b)(1).
[138] 14 CCR § 15183.5(b)(2).
[139] DEIR, pg. 3.6-61.

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Guidelines section 15183.5(b)."[140] Nor does the DEIR contain any discussion of the elements of a qualified GHG emissions reduction plan set forth in section 15183.5(b) with respect to the 2017 Scoping Plan or MTC Plan Bay Area 2040. The DEIR fails to explain why consistency with these plans is an appropriate significance threshold for GHG impacts, and the subsequent conclusion that the Project will have no significant impacts is not supported by substantial evidence. 19a

Even if the cited plans were qualified GHG emissions reduction plans, the DEIR's analysis is riddled with holes and cannot support a finding of no significant impact. With respect to the MTC Plan Bay Area, the DEIR's analysis simply makes no sense:

> As part of the implementing framework for Plan Bay Area 2050, local governments have identified planned development areas to focus growth. The project site is within the Napa County Airport Land Use Compatibility Plan area. Thus, the proposed project would be consistent with the overall goals of Plan Bay Area, which include concentrating new investment in areas that would encourage job growth. In addition, the proposed project would be developed in an area with existing infrastructure. Therefore, the proposed project would generally not conflict with the land use concept plan in Plan Bay Area 2050.[141] 19b

What is missing from this series of seemingly unrelated sentences is any mention of GHG or any specific requirements in the plan to reduce GHG emissions. Vague assertions that the Project is "consistent with overall goals" and "generally would not conflict with land use concepts" clearly do not support a finding of consistency with an applicable plan adopted for the purpose of reducing GHG emissions.

The DEIR's analysis of the Project's consistency with the 2017 Scoping Plan is similarly specious. The DEIR identifies a series of nine specific emissions reduction measures from the Scoping Plan and purports to analyze the Project's consistency with those measures.[142] However, immediately before listing these measures, the DEIR states "[a]s shown in Table 3.6-6, *none of the measures are* 19c

[140] *Id.*, pg. 3.6-54; see also pg. 3.6-38.
[141] DEIR, pg. 3.6-64.
[142] *Id.,* Table 3.6-6 at pgs. 3.6-66—3.6-68.

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applicable to the proposed project [emphasis added]."[143] Following Table 3.6-6, the DEIR continues, "[a]s shown in Table 3.6-6, the proposed project's implementation would not conflict with the reduction measures proposed in SB 32. As such, the proposed project would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions."[144] The reader is left to guess how the lack of conflict with a series of inapplicable measures demonstrates consistency with an applicable plan adopted for the purpose of reducing GHG emissions. 19c

Finally, the DEIR analyzes the Project's consistency with American Canyon's EECAP which, again, is admittedly not a qualified GHG emissions reduction plan. Seven different GHG emissions reduction measures are identified, five of which are found to be inapplicable to the Project.[145] The two measures applicable to the Project are (1) new construction should have solar ready roofs that are pre-wired and ready for the installation of solar photovoltaic panels and solar water heating systems and (2) the project should reduce water use through building and landscape design and improvements. [146] The DEIR claims that the Project would include roof structures designed to accommodate additional weight for rooftop solar (not that it will be pre-wired and ready for installation) and would include water efficient landscaping and include water use reduction methods. The DEIR does not say that these measures will be binding and enforceable on the Project Applicant, nor are they included as mitigation measures. Unenforceable statements that the Project will comply with these two measures contained in a non-qualified GHG emissions reduction plan cannot and does not support a finding that the Project is consistent with a qualified GHG emissions reduction plan.[147] 19d

3. Impact GHG-3

The DEIR asserts that a significant impact would occur if the Project would result in the inefficient, wasteful or unnecessary use of energy, i.e., if the Project would conflict with any of the following energy conservation goals: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on fossil fuels, and (3) increasing reliance on renewable energy sources.[148] With respect to the first goal, the DEIR again cites the unsupported assumption that the Project will result in an 20

[143] *Id.*, pg. 3.6-66.
[144] *Id.*, pg. 3.6-68.
[145] *Id.*, Table 3.6-5, pgs. 3.6-64—3.6-66.
[146] *Id.,* Table 3.6-5 at pg. 3.6-66.
[147] *Lotus v. Dep't of Transp*. (2014) 223 Cal. App. 4th 645, 651-52.
[148] *Id.,* pg. 3.6-70.

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approximately 29 percent reduction in employee VMT from regional average estimates, and asserts that therefore overall energy consumption related to employee transportation would decrease from that experienced by the region's current average employee transportation behavior. Once again, the DEIR builds on its unsubstantiated VMT analysis, which undermines the conclusion that the Project will decrease overall energy consumption related to employee vehicle use. The DEIR's finding of no significant impact with respect to Impact GHG-3 is therefore not supported by substantial evidence. 20

Because the DEIR's GHG analysis fails to employ appropriate significance thresholds and lacks substantial evidence supporting the finding of no significant GHG impacts, the DEIR must be revised and recirculated with an appropriate GHG analysis.

C. The DEIR Fails to Disclose, Analyze or Mitigate the Project's Potentially Significant Air Quality Impacts.

The DEIR's air quality analysis concludes, with respect to health risks to sensitive receptors, that neither the Project's construction or operation will cause a significant impact.[149] This conclusion is not supported by substantial evidence because the health risk assessment ("HRA") on which it is based fails to consider (1) impacts from exposure to all toxic air compounds ("TAC") in diesel exhaust, and (2) the effects on emissions from building downwash. In addition, the DEIR fails to consider and incorporate a number of feasible mitigation measures to reduce emissions of air pollutants and GHGs. 21

1. The Health Risk Assessment Fails To Consider Impacts Of TAC Emissions.

The DEIR fails to analyze the potentially significant air quality impacts from the gaseous form of diesel exhaust. As Dr. Clark explains, diesel exhaust is composed of particulate matter as well as vapor.[150] The DEIR does not account for the vapor components of diesel emissions in its HRA, and thus fails as an informational document as it does not provide an analysis of the full range of the Project's potential health impacts. 22

[149] DEIR, pg. 3.2-63.
[150] Clark Comments, p. 4.

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A lead agency's significance determination must be supported by accurate scientific and factual data.[151] An agency cannot conclude that an impact is less than significant unless it produces rigorous analysis and concrete substantial evidence justifying the finding.[152] These standards apply to the DEIR's analysis of the air quality impacts of the Project.

In *Sierra Club v. County of Fresno*, the California Supreme Court affirmed CEQA's mandate to protect public health and safety by holding that an EIR fails as an informational document when it fails to disclose the public health impacts from air pollutants that would be generated by a development project.[153] In *Sierra Club*, the Supreme Court held that the EIR for the Friant Ranch Project—a 942-acre master-planned, mixed-use development with 2,500 senior residential units, 250,000 square feet of commercial space, and open space on former agricultural land in north central Fresno County—was deficient as a matter of law in its informational discussion of air quality impacts as they connect to adverse human health effects.[154] As the Court explained, "a sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact."[155] The Court concluded that the County's EIR was inadequate for failing to disclose the nature and extent of public health impacts caused by the project's air pollution. The EIR failed to comply with CEQA because the public, after reading the EIR, "would have no idea of the health consequences that result when more pollutants are added to a nonattainment basin."[156] CEQA mandates discussion, supported by substantial evidence, of the nature and magnitude of impacts of air pollution on public health.[157]

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[151] 14 C.C.R. § 15064(b).
[152] *Kings County Farm Bureau*, 221 Cal.App.3d at 732.
[153] *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 518–522.
[154] *Id.* at 507–508, 518–522.
[155] *Id.* at 519, citing *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514–515.
[156] *Id.* at 518. CEQA's statutory scheme and legislative intent also include an express mandate that agencies analyze human health impacts and determine whether the "***environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly***." (Public Resources Code § 21083(b)(3) (emphasis added).) Moreover, CEQA directs agencies to "take immediate steps to identify any critical thresholds for the ***health and safety of the people*** of the state and take all coordinated actions necessary to prevent such thresholds being reached." (Public Resources Code § 21000(d) (emphasis added).)
[157] *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 518–522.

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In *Berkeley Jets*, the Court of Appeal held that an EIR must analyze the impacts from human exposure to toxic substances.[158] In that case, the Port of Oakland approved a development plan for the Oakland International Airport.[159] The EIR admitted that the Project would result in an increase in the release of TACs and adopted mitigation measures to reduce TAC emissions, but failed to quantify the severity of the Project's impacts on human health.[160] The Court held that mitigation alone was insufficient, and that the Port had a duty to analyze the health risks associated with exposure to TACs.[161] As the CEQA Guidelines explain, "[t]he EIR serves not only to protect the environment but also to demonstrate to the public that it is being protected."[162]

The failure to provide information required by CEQA makes meaningful assessment of potentially significant impacts impossible and is presumed to be prejudicial.[163] Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an EIR or to disclose information about a project's environmental effects or alternatives, are subject to a less deferential standard than challenges to an agency's factual conclusions.[164] Courts reviewing challenges to an agency's approval of an EIR based on a lack of substantial evidence will "determine de novo whether the agency has employed the correct procedures, scrupulously enforcing all legislatively mandated CEQA requirements."[165]

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CARB defines diesel exhaust as a complex mixture of inorganic and organic compounds that exists in gaseous, liquid, and solid phases.[166] CARB and the United States Environmental Protection Agency ("U.S. EPA") identify 40 components of diesel exhaust as suspected human carcinogens, including formaldehyde, 1,3-butadiene, and benzo[a]pyrene.[167] The gas and particle components both contribute to health risks. The inhalation unit risk factor identified by OEHHA for use in risk assessments is for the DPM fraction of diesel exhaust and not the vapor phase

[158] *Berkeley Jets*, 91 Cal.App.4th at 1369–1371.
[159] *Id.* at 1349–1350.
[160] *Id*. at 1364–1371.
[161] *Id.*
[162] 14 C.C.R. § 15003(b).
[163] *Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236–1237.
[164] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.
[165] *Id.* (internal quotations omitted).
[166] Clark Comments, p. 4.
[167] *Id.*, pgs. 4-5

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components identified by CARB and U.S. EPA.[168] Here, the City only used the DPM fraction of diesel exhaust in its analysis of the construction and operational emissions and ignores the presence of TACs being emitted with diesel exhaust.[169] By failing to include an analysis of the additional TAC components of diesel exhaust, the DEIR does not provide a full picture of the Project's potential health impacts and fails as an informational document as required by CEQA. The County must update the HRA with the TAC impacts included and include the results in a revised and recirculated EIR. 22

2. The Modeling Used For The Health Risk Assessment Failed To Account For Building Downwash.

Dr. Clark reviewed the AERMOD modeling used by the DEIR to support the HRA and found that the modeling has a significant flaw: it fails to account for the impact on air emissions from building downwash.[170] Building downwash occurs as wind flows over and around buildings and impacts the dispersion of pollution from nearby sources.[171] A plume of contaminants caught in the path of this flow is drawn into the wake, temporarily trapping it in a recirculating cavity.[172] This downwash effect leads to higher ground-level concentration of chemicals emitted from sources and increases as the relative difference between the release height and top of the building increases.[173] For the closest receptors to the Project site, the residences to the east of the Project, this difference will create an additional air quality impact that is not accounted for in the City's analysis.[174] Omission of the building downwash effect underestimates the exposure point concentrations for receptors near the building(s). The City should update its HRA to account for this effect and include the results in a revised and recirculated EIR. 23

3. **The DEIR Fails to Consider and Implement All Feasible Mitigation Measures to Reduce Project Emissions.**

In response to the Notice of Preparation of the DEIR for this Project, CARB provided a letter to the City stating that "the final design of the Project should include all existing and emerging zero-emission technologies to minimize diesel PM 24

[168] *Id.*, pg. 5.
[169] *Id.*, pg. 5.
[170] *Id.*, pgs. 3-4.
[171] *Id.*, pg. 4.
[172] *Ibid.*
[173] *Ibid.*
[174] *Ibid.*

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and oxides of nitrogen (NO_x) emissions, as well as the greenhouse gases that contribute to climate change."[175] CARB also encouraged the City and the Applicant to implement the measures listed in Attachment A to its letter, in order to reduce the Project's construction and operational air pollution emissions.[176] Dr. Clark echoes CARB's suggestion, and provides his own list of mitigation measures that include CARB's proposals and others proposed by Air Quality Management Districts in California:

1. Include contractual language in tenant lease agreements that requires tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site.
2. Include contractual language in tenant lease agreements that requires all TRUs entering the project site be plug-in capable.
3. Include contractual language in tenant lease agreements that requires future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans.
4. Include contractual language in tenant lease agreements requiring all TRUs, trucks, and cars entering the Project site be zero-emission.
5. Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering or on the project site to be model year 2019 or later, expedite a transition to zero-emission vehicles, and be fully zero-emission beginning in 2030.
6. Include contractual language in tenant lease agreements that requires the tenant be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,[177] Periodic Smoke Inspection Program (PSIP),[178] and the Statewide Truck and Bus Regulation.[179]

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[175] DEIR, Appendix A, February 8, 2021 letter from Heather Arias to Brent Cooper.
[176] *Ibid.*, Attachment A.
[177] In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: https://www.arb.ca.gov/cc/hdghg/hdghg.htm.
[178] The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: https://www.arb.ca.gov/enf/hdvip/hdvip.htm.
[179] The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting

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7. Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than five minutes while on site.
8. Include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.
9. Have truck routes clearly marked with trailblazer signs, so that trucks will not enter residential areas.
10. Limit the daily number of trucks allowed at the Proposed Project to levels analyzed in the CEQA document. If higher daily truck volumes are anticipated to visit the site, the Port as the Lead Agency should commit to re-evaluating the Proposed Project through CEQA prior to allowing this land use or higher activity level. 24
11. Ensure that any check-in point for trucks is well inside the Proposed Project site to ensure that there are no trucks queuing outside of the facility.
12. Establish overnight parking within the industrial building where trucks can rest overnight.
13. Establish area(s) within the Proposed Project site for repair needs.[180]

The DEIR fails to consider or implement these feasible mitigation measures.

D. The DEIR Fails to Disclose, Analyze or Mitigate Hydrological Impacts

Wetland biologist Sarah Corbin identifies several potentially significant hydrological impacts that are not disclosed and/or are inadequately analyzed. She also cites several ways in which the DEIR fails to demonstrate the efficacy of the proposed wetlands mitigation set forth in MM BIO-3a-3d. 25

1. The DEIR Fails To Disclose Or Adequately Analyze Hydrologic Impacts.

First, as discussed above, the lack of an accurate wetlands delineation and the failure to perform any functional assessment means that the DEIR cannot and does not describe or analyze the nature and extent of wetlands impacts. This 26

January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 201 0 model year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm

[180] Clark Comments, pgs. 7-8.

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failure alone requires that the DEIR be revised and recirculated with a full disclosure and analysis of potentially significant wetlands impacts.

Second, the DEIR states that underground piping will convey stormwater from the Project's new pollution-generating impervious surfaces to bioretention and detention basins on the north boundary of the Project.[181] The DEIR further identifies "passive or active control devise [sic] to allow treated stormwater to enter the wetland swale," i.e. the created wetlands in the wetland preserve area.[182] However, the DEIR fails to discuss how drainage patterns to and hydrology sources in the unimpacted and created wetlands will be maintained. Without pre- and post-Project water budget analyses for the site wetlands, impacts to the "preserved" wetlands area cannot be properly evaluated and the DEIR's determination that additional wetlands will not be impacted is not supported by substantial evidence.[183]

Third, the Project proposes use of a specialized biosoil in the bioretention facility to remove pollutants from stormwater runoff. However, the DEIR also states that "the wetland preserve would facilitate the natural sequestration of pollutants of stormwater leaving the project site."[184] Using the wetland preserve as part of the Project's post-construction stormwater management strategy (i.e., to filter pollutants) will have long term detrimental impacts to these wetlands.[185] CEQA requires that if a mitigation measure itself would create significant impacts, those impacts must be discussed in the EIR.[186] These impacts are neither described nor analyzed in the DEIR, in violation of CEQA. 26

Fourth, the DEIR fails to disclose or analyze potentially significant indirect impacts to the Project site wetlands. As Ms. Corbin explains, buffers around wetland areas are critical to ensuring the long-term viability of those sites and may provide habitat or corridors necessary for the ecological functioning of the wetlands.[187] The importance of such buffers are emphasized in the Army Corps of Engineers mitigation guidelines for vernal pools, which require at least 100 feet

[181] Corbin Comments, pg. 4; DEIR, pg. 3.8-13.
[182] DEIR, Exh. 3.3-4.
[183] Corbin Comments, pg. 4.
[184] DEIR, pg. 3.8-11.
[185] Corbin Comments, pg. 4.
[186] 14 CCR § 15126.4(a)(1)(D).
[187] Corbin Comments, pg. 5.

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buffers "around all vernal pools and mitigation sites."[188] Such buffers should consist of "native vegetation or regionally characteristic annual grassland without cut or fill as a result of adjacent development" and the "appropriate buffer width will depend on adjacent land uses."[189]

Here, buffer widths between wetlands and the Project footprint are not provided but the DEIR's figure scales suggest they are less than 100 feet in many places, particularly adjacent to the Project footprint's northern boundary.[190] In addition, buffers surrounding several wetland areas are identified in the DEIR as proposed landscape areas, which suggests they will not consist of "native vegetation or regionally characteristic annual grassland without cut or fill as a result of adjacent development," per Corps guidelines. Indirect impacts to these wetland areas from disturbed or landscaped buffers are not disclosed or analyzed in the DEIR. 26

Finally, the connections and corridor between the wetlands in the southeastern Project area (Wetlands IW-7 to IW-10) and the remaining wetland complex to the north and east will disappear once the Project is developed.[191] This corridor disconnection, the overall reduction of undeveloped/unlandscaped buffer widths that will remain post-Project development and the indirect effects on the remaining site wetlands are not disclosed or analyzed in the DEIR. These potentially significant, unmitigated impacts must be fully analyzed in a revised and recirculated EIR.

2. The DEIR Contains No Evidence That Proposed Mitigation Will Be Effective.

In addition to the failure to describe and analyze potentially significant impacts to wetlands, the DEIR fails to demonstrate that the proposed mitigation measures will be effective in reducing the Project's significant wetlands impacts. Courts do not defer to determinations that mitigation measures will work when their efficacy is not apparent and there is no evidence in the record showing that they will be effective in remedying the identified impact.[192] 27

[188] *Id.,* citing U.S. Army Corps of Engineers (Corps), 2016b, Draft mitigation and monitoring guidelines for vernal pools: U.S. Army Corps of Engineers South Pacific Division, November, 23 p.6, available: https://www.spd.usace.army.mil//Portals/13/docs/regulatory/publicnotices/DVPGL.pdf.
[189] *Id.*
[190] Corbin Comments, pg. 5.
[191][191] *Id.*, pg. 5.
[192] *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 866

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The DEIR includes mitigation measures MM BIO-3a—BIO-3d, which would create a "wetland preserve" area adjacent to the northern boundary of the Project site.[193] This plan proposes to preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pool, create 0.992 acre of seasonal wetlands in advance of or concurrent with Phase 1 development, and create 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of Phase 2.[194] The DEIR concludes that implementation of these measures would offset impacts to the Project site wetlands "in-kind" and ensure that there is no net loss of wetland area, "thus reducing potential impacts to a level considered less than significant."[195]

As Ms. Corbin and Mr. Cashen explain, while the wetlands mitigation measures may result in no net loss of *wetland area*, there is no discussion, let alone evidence, to support the conclusion that the mitigation will replace lost wetland *functions and value*.[196] As discussed, neither the DEIR nor the supporting documentation contain any assessment of the wetland functions that will be lost by the development of the Project. Because of this failure, Ms. Corbin finds "we are unable to evaluate if the proposed mitigation will adequately replace lost wetland function."[197]

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Mr. Cashen echoes this criticism of the DEIR, noting that despite recognizing the impacts to several acres of wetland, "nowhere does the DEIR discuss the ecological functions of the wetlands at the Project site."[198] The wetlands and surrounding grasslands on the site currently occupy more than 200 acres of undeveloped land, which provide habitat for a variety of plant and bird species. After development, the "wetland preserve" would be limited to a 44.8 acre area that would "(a) be located between the Project site and the Napa Logistics Center site [an adjacent large warehouse development]; (b) be bisected by the Devlin Road Vine Trail Extension Project, and (c) have no connectivity to any other open space lands. Thus, the preserve would function as a habitat "island" surrounded by urban (industrial) development."[199] The preserve would be subject to ongoing disturbance caused by traffic, noise and human activity associated with Project operation, which would degrade the preserve's functions as wildlife habitat.[200]

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[193] DEIR, pgs. 3.3-32—3.3-37
[194] *Id.,* pgs. 3.3-28—3.3-29.
[195] *Id.*, pg. 3.3-32.
[196] Corbin Comments, pgs. 5-9; Cashen Comments, pgs. 5-6.
[197] Corbin Comments, pg. 6.
[198] Cashen Comments, pg. 5.
[199] *Id.,* pg. 6.
[200] *Ibid.*

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Given the foregoing, the failure to assess the existing wetlands functions or to analyze whether the wetland preserve will mitigate those functional losses is a glaring omission. "Although the proposed mitigation might ensure no net loss of *wetland area,* it would not ensure no net loss of wetland function and values." [201] Without an understanding of existing wetland function, it is not possible to determine whether the proposed mitigation will in fact replace or mitigate those lost functions. The DEIR therefore lacks any evidence demonstrating that mitigation measures MM BIO-3a—3d will in fact mitigate the Project's functional impacts to wetlands.

Ms. Corbin discusses several additional ways in which the DEIR fails to support the conclusion that the proposed wetland mitigation will actually be effective.

First, the DEIR lacks any evidence supporting the assumption that the proposed wetlands mitigation ratios will adequately mitigate the Project's significant impacts. The Project proposes to mitigate for Phase 1 and Phase 2 impacts at 2:1 and 1:1 ratios, respectively. Both the Devlin Road and Green Island Biological Assessments, prepared for the City in connection with projects adjacent to this Project Site and included in supporting materials for the DEIR, identify 2:1 as the typical Corps and Regional Water Quality Control Board required mitigation ratios.[202] The Corps identifies vernal pools as "difficult to replace resources" and "regionally significant habitat types," making vernal pool wetland creation an inherently high risk mitigation that warrants a higher than typical mitigation ratios.[203] The Corps also states that mitigation ratios greater than 1:1 are typically required because "mitigation sites often provide reduced functions compared to the impacted aquatic resources."[204] The DEIR offers no evidence supporting the assumption that these mitigation ratios, particularly the 1:1 ratio for Phase 2, will effectively mitigate lost wetland area and functions. 27

Second, the DEIR lacks evidence supporting that the proposed new wetlands area can be created and maintained. Ms. Corbin cites evidence demonstrating the difficulty of wetlands creation, especially with respect to vernal pools.[205] Successful

[201] *Ibid*.
[202] DEIR, Appendix C, C-6 and C-7.
[203] Corbin Comments, pg. 6.
[204] *Id.*, pg. 7, citing U.S. Army Corps of Engineers (Corps), 2015, Final 2015 regional compensatory mitigation and monitoring guidelines for South Pacific division: January, 70 p., available: https://www.spd.usace.army.mil/portals/13/docs/regulatory/mitigation/mitmon.pdf.
[205] *Id.*, pg. 6.

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wetland creation is "largely driven by ability to provide appropriate hydrology," i.e., it requires a source of water to create and maintain wetlands.[206] The DEIR does not provide any hydrologic analysis demonstrating wetland creation potential in the proposed mitigation area. Such analysis should include a water budget analysis, typically supported by hydrology monitoring in the proposed wetland creation area.[207] None of that analysis, crucial to assessing whether the proposed mitigation will be effective, is provided in the DEIR.

Finally, the wetland mitigation performance standards set forth in BIO MM 3-d will not ensure that such mitigation will be effective. This mitigation measure states that the basic objective of the Wetland Mitigation and Monitoring Plan is to "ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, *and wetlands established/created shall be in-kind to the wetlands impacted* [emphasis added]."[208] As previously discussed, though, the DEIR provides no assessment of the impacted wetlands' functions. Nor is there a discussion of the impacted wetlands varied habitat conditions (e.g., isolated vs. non-isolated wetlands). Without an understanding of the impacted wetland functions, "there is no basis for establishing meaningful mitigation goals and associated meaningful performance standards to achieve no net loss."[209] By focusing on mitigation area size without replacing lost ecological function, the DEIR lacks any supporting evidence for its conclusion that the proposed wetland mitigation will be effective, and the plan does not comply with the State's no net loss policy.[210] 27

E. The DEIR Fails to Disclose, Analyze or Mitigate Biological Impacts.

1. **The DEIR Fails To Adequately Analyze And Mitigate Impacts To The Swainson's Hawk**. 28

Mr. Cashen discusses in detail how the DEIR fails to adequately disclose or mitigate significant impacts to Swainson's hawk, a California threatened species.[211] The DEIR fails to accurately describe the Project's significant impacts to Swainson's

[206] *Ibid.*
[207] *Ibid.*
[208] DEIR, pg. 3.3-33.
[209] Corbin Comments, pg. 8.
[210] *Ibid.*
[211] Cashen Comments, pgs. 7-9, 14-15.

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hawk foraging habitat, the loss of which is one of the primary threats to the species in California.[212] The DEIR provides the following analysis of this issue:

> "Based upon the limited number of Swainson's hawk records within a 10-mile radius of the project site, there is sufficient foraging habitat in and within the vicinity of the project site. Based upon the limited number of known Swainson's hawk to occur within a 10 mile radius of the project site and the acreage of existing foraging habitat currently protected, the proposed project would not result in significant impacts to foraging habitat directly, indirectly, or cumulatively, therefore no mitigation is warranted for Swainson's hawk foraging habitat."[213]

Mr. Cashen identifies numerous flaws in this analysis.

First, while the DEIR asserts that the Project would "provide and preserve in perpetuity approximately 45 acres of open space that would include habitat currently suitable for foraging by the Swainson's hawk,"[214] it neglects to mention or analyze the fact that the Project will also result in the net *loss* of 163 acres of foraging habitat.[215] Moreover, the DEIR's discussion of habitat preservation fails to address that the Project will contain features (including landscaping and on-site drainage facilities) "designed and managed to discourage wildlife use of the site."[216] Nor does this discussion address mitigation measure MM LU-3, which would incorporate measures "to reduce the bird attractant potential of the wetland area, consistent with the [Airport Land Use Compatibility Plan] policies."[217] The DEIR's analysis of impacts to Swainson's hawk foraging habitat is incomplete without reconciling the attempts to preserve habitat with simultaneous efforts to discourage wildlife uses, and specifically bird uses, of the Project site. 28

Second, the DEIR fails to substantiate the assertion that there are only a "limited number" of Swainson's hawk records within a 10-mile radius of the Project site. Mr. Cashen provides evidence showing numerous records of Swainson's hawk in the vicinity of the Project site.[218]

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[212] *Id.,* pg. 7.
[213][213] DEIR, pg. 3.3-24.
[214][214] *Ibid.*
[215] *Id.,* pg. 3.9-51.
[216] *Id.,* pg. 3.9-52.
[217] *Ibid.*
[218] Cashen Comments, pgs. 7-9.

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Third, the DEIR's biological survey to locate Swainson's hawk nests was limited to a single survey on April 16, 2021, during which the Applicant's biologist drove roads within one mile of the Project site to inspect trees for raptor nest structures.[219] This survey did not conform to Swainson's hawk survey protocol requiring at least three independent surveys between April 5 and April 20, and therefore provides incomplete baseline data.[220] As Mr. Cashen explains, following the protocol is crucial to locating Swainson's hawk nests, because the nests are often not visible from ground level and is only detectable when one of the birds flies to of from the nest site (i.e., through extensive "sit and watch" surveying).[221]

Fourth, the DEIR claims, without any supporting data or other evidence, that "there is sufficient foraging habitat in and within the vicinity of the project site." Mr. Cashen's analysis finds that "much of the open space that remains in the vicinity of the Project is comprised of vineyards, marshlands, or other land cover types that provide little to no value as foraging habitat for Swainson's hawk."[222] 28

In an attempt to reverse the decline of California's Swainson's hawk population, California Department of Fish & Wildlife's ("CDFW") policy is that new development projects that adversely modify nesting or foraging habitat within 10 miles of an active nest should provide compensatory mitigation.[223] Mr. Cashen cites evidence of active Swainson's hawk nests within 5 miles of the Project site,[224] which triggers the need for mitigation consistent with CDFW mitigation guidelines.[225]

Because the Project site is known to provide foraging habitat for Swainson's hawks and because the DEIR does not require compensatory mitigation for impacts to that habitat, the Project would have unmitigated significant impacts.

Unrelated to mitigation of impacts to Swainson's hawk foraging habitat, MM BIO-1 purports to establish pre-construction survey requirements to prevent potential construction-related impacts to Swainson's hawk nesting areas. This mitigation measure contains conflicting requirements and lacks substantial

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[219] DEIR, Appendix C-1, pgs. 21 and 29.
[220] Cashen Comments, pg. 8.
[221] *Ibid.*
[222] *Ibid.*
[223] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.
[224] Cashen Comments, pg. 8, fn. 54.
[225] See *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899, 947 (mitigation that requires compliance with USFWS and/or CDFW approved protocols is adequate)

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evidence demonstrating that it will be effective. MM BIO-1a states that preconstruction surveys "shall be completed for at least two survey periods immediately prior to commencement of project construction."[226] This is consistent with Swainson's hawk survey protocols which state that "[t]o meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods immediately prior to a project's initiation."[227] However, MM BIO-1a goes on to state that "[i]f no nesting Swainson's hawk are found during the first non-optional survey period starting March 20, then project construction may commence."[228] Allowing construction to commence during the first non-optional survey period would violate the protocol and would not ensure protection of the species. 28

MM BIO-1a also requires a 1,000-foot buffer around any Swainson's hawk nesting sites. This conflicts with CDFW mitigation guidelines that call for a ¼ mile buffer.[229] The DEIR provides no evidence that a 1,000-foot buffer would be sufficient to prevent impacts, nor does it require monitoring to validate the adequacy of the reduced buffer.

For all the foregoing reasons, Project impacts on Swainson's hawks remain potentially significant and unmitigated, and the DEIR must be revised and recirculated to fully disclose, analyze and mitigate these impacts.

2. The DEIR Fails To Adequately Analyze And Mitigate Impacts To The Golden Eagle.

A golden eagle was observed foraging at the Project site during the wildlife survey for the HBC Report in support of the DEIR.[230] However, the DEIR offers no analysis of potential impacts of the Project to golden eagle foraging habitat. As discussed above, the Project will result in the net loss of more than 160 acres of potential foraging habitat, and will include features to discourage wildlife use and reduce bird attractant potential of the preserved open space. The DEIR fails to even acknowledge, let alone analyze or attempt to mitigate, Project impacts to golden eagle foraging habitat. 29

[226] DEIR, pg. 3.3-26.
[227] Swainson's Hawk Technical Advisory Committee. 2000 May 31. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. p. 2.
[228] DEIR, pg. 3.3-26.
[229] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California. p. 11.
[230] DEIR, pg. 3.3-25 and Appendix C-1, pg. 30.

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The DEIR does consider the possibility that Project construction activities may disturb golden eagle nests and includes MM BIO-1b to mitigate these potential impacts. As Mr. Cashen points out, however, MM BIO-1b does not require pre-construction surveys that adhere to U.S. Fish and Wildlife Service ("USFWS") survey protocol, nor does it establish any standards for survey techniques or level of effort.[231] This matters because "golden eagle nests may be difficult to detect unless special techniques (e.g., aerial surveys) are implemented."[232] In addition, MM BIO-1b provides for a 1,000-foot buffer from any golden eagle nest, which is inconsistent with USFWS guidelines which recommend a one-mile no-disturbance buffer surrounding golden eagle nesting sites. As Mr. Cashen explains, golden eagles are known to be highly sensitive to many types of disturbance and may react to human activity as far as 1,500 meters (4,921 feet) from nesting sites.[233] While the species can develop tolerance to some forms of disturbance (e.g., hikers), there is no evidence that golden eagles can tolerate the high levels of disturbance that Project construction and operations would cause.[234] The DEIR provides no evidence that a 1,000-foot buffer would adequately mitigate impacts to golden eagles nesting near the Project site. 29

3. The DEIR Fails To Adequately Analyze And Mitigate Impacts To The Northern Harrier.

Northern harriers were observed foraging at the Project site during both winter and spring (breeding) seasons during surveys for the HBC Report and the DEIR recognizes that there is suitable nesting habitat throughout the Project site.[235] As with Swainson's hawk and golden eagle, the DEIR offers no analysis of the significance of up to 163 acres of habitat loss to the northern harrier, nor does it recognize the potential for lost breeding territory. As Mr. Cashen points out, the wetland preserve area would not mitigate such impacts as it does not provide suitable habitat for this species.[236] Northern harriers "require a mosaic of large undisturbed habitats for nesting and foraging" while the proposed wetlands 30

[231] Cashen Comments, pg. 16.
[232] *Ibid,* citing Pagel JE, Whittington DM, Allen GT. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. *See also* U.S. Fish and Wildlife Service. n.d. Updated Eagle Nest Survey Protocol. Available at: <https://www.fws.gov/sites/default/files/documents/eagle-nest-survey-guidance-updated-protocol.pdf>
[233] Cashen Comments, pg. 16.
[234] *Ibid.*
[235] DEIR, pg. 3.3-25.
[236] Cashen Comments, pg. 10-11.

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preserve "would be a habitat 'island' subject to various forms of disturbance associated with the Project."[237] While MM BIO-1c attempts to mitigate direct harms to the northern harrier via pre-construction surveys and nest buffers, it does nothing to address potential loss of foraging and breeding habitat. Nor is there any evidence in the DEIR that the required 500-foot buffer zone around northern harrier nests would be sufficient to mitigate impacts. For these reasons, the Project's impacts on the northern harrier remain potentially significant and unmitigated. 30

4. The DEIR Fails To Analyze And Mitigate Impacts To The Merlin And Ferruginous Hawk.

The merlin and ferruginous hawk have been detected immediately north of the Project site[238] and the DEIR acknowledges that the Project site provides suitable foraging habitat for both species.[239] The Project would directly (via loss of 163 acres of undisturbed land) and functionally (via implementation of MM LU-3) eliminate habitat for these two species. The DEIR fails to disclose, analyze or incorporate mitigation for these potentially significant impacts. 31

5. The DEIR Fails To Adequately Mitigate Impacts To Breeding Birds (MM BIO-4).

The DEIR includes mitigation measure MM BIO-4, which requires a pre-construction breeding bird survey of the Project site and installation of "appropriate" buffer zones around all active nests. Mr. Cashen identifies three reasons why MM BIO-4 does not ensure that the Project's impacts to nesting birds will be mitigated to less than significant levels.[240] 32

First, MM BIO-4 fails to establish standards for: (a) nest searching techniques, (b) minimum level of effort (i.e., survey hours per unit area), and (c) qualifications of the biologist conducting the survey. As Mr. Cashen explains, the ability to successfully locate nests in the Project area is dependent on these three variables.

[237] *Ibid.*
[238] *Id.,* pg. 12.
[239] DEIR, Appendix C-1, Table 2.
[240] Cashen Comments, pgs. 18-20.

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While the Project site lacks trees, it provides potential habitat and nesting materials for ground-nesting birds.[241] Most ground-nesting birds construct nests that are inconspicuous and thus hard to find.[242] As a result, successfully locating nests of ground-nesting birds requires special techniques.[243] Because MM BIO-4 does not require implementation of such techniques, it provides no assurances that the Project would avoid take of nesting birds. In addition, locating all nests within the 200+ acres Project site may require a considerable level of effort. To ensure all bird nests that may be affected by the Project are located, the DEIR must establish standards for the survey effort (e.g., minimum number of survey hours per unit area). The success of any nest-searching method depends on the surveyor's knowledge of where birds nest, how nesting birds behave, and the best time of day to search for nests, knowledge which requires training and experience.[244] Because MM BIO-4 fails to establish standards for the "qualified biologist" that would conduct the nesting bird survey, it does not ensure the biologist would have the qualifications needed to successfully locate all nests within the Project area prior to construction. 32

Second, the DEIR fails to provide evidence that the buffer sizes proposed in MM BIO-4 would prevent negative impacts to nesting birds. Mr. Cashen opines that, based on his review of the literature, the 50-foot buffer proposed for passerines and other non-raptors is grossly deficient for almost all species. Construction noise levels associated with the Project may reach 90 dBA at a distance of 50 feet.[245] Noise at that level far exceeds the level that is deleterious to most breeding birds.[246] Consequently, a 50-foot buffer would be insufficient to avoid significant impacts to nesting birds. For other projects, the CDFW has recommended a minimum no-disturbance buffer of 500 feet for unlisted raptors and 250 feet for other non-listed bird species.[247]

Third, there are no performance standards, or monitoring and reporting requirements, for MM BIO-4. Monitoring is essential for two reasons: (1) to validate the adequacy of the nest buffers (and implement remedial actions if

[241] *Id.*, pg. 18.
[242] *Ibid.*
[243] *Id.*, pgs. 18-19.
[244] *Id.*, pg. 19. *See also* Martin TE, Geupel GR. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519.
[245] DEIR, p. 3.10-17.
[246] Cashen Comments, pg. 19.
[247] *Ibid.*

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necessary), and (2) to ensure construction workers comply with the nest buffers. Mr. Cashen states that, based on his experience, it is very difficult to ensure compliance with nest buffers unless a full-time biological monitor is present on site. 32

6. The DEIR's Mitigation Measures to Mitigate Wetlands Loss are Undermined by and in Conflict with MM LU-3.

As discussed, the DEIR fails to assess existing wetland functions (including habitat function) and therefore cannot demonstrate the efficacy of wetlands mitigation. However, any efforts to use the wetland preserve area to replace lost habitat functions will also be completely undermined by the application of a separate mitigation measure, MM LU-3.

Mitigation measure MM LU-3 seeks to address potential conflicts with the Napa County Airport Land Use Compatibility Plan ("ALUCP"). The ALUCP includes provisions seeking to avoid hazards to airplanes using the Napa County Airport, which is approximately 3,000 feet from the Project's proposed wetlands preserve area. Wetlands are attractive to many types of wildlife, including birds which can pose hazards to airplanes taking off and landing at nearby airports. As a result, the FAA recommends that wetland mitigation projects be sited at least 10,000 feet from the nearest aircraft operations area (for airports serving turbine-powered aircraft).[248] 33

To address this issue, MM LU-3 includes a provision requiring an assessment by a wildlife biologist of potential wildlife hazards to aviation. This assessment must "evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area [i.e., the wetland preserve required by MM BIO-2 and BIO-3]."[249] MM LU-3 specifically requires that this assessment identify management practices to "prevent the creation of attractants for large flocks or [sic] birds or other wildlife species that may present safety hazards to aviation activities."[250] In discussing this measure, the DEIR notes that the Project will include "features that would be designed and managed to discourage wildlife use of the site."[251]

[248] Cashen Comments, pg. 14.
[249] DEIR, pg. 3.9-52.
[250] *Ibid.*
[251] *Ibid.*

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The DEIR fails to acknowledge the contradiction between, on the one hand attempting to mitigate the Project's significant impacts to wetlands by creating a wetland preserve, while on the other hand actively seeking to degrade the preserve as wildlife habitat. This conflict is yet another reason why the DEIR fails to establish that MM BIO-2 and MM BIO-3 will effectively mitigate the Project's wetlands impacts. Moreover, MM LU-3 may itself cause potentially significant impacts to wildlife, requiring that the DEIR separately disclose and analyze those impacts.[252] 33

7. The DEIR Fails To Adequately Analyze Or Mitigate Cumulative Impacts To Biological Resources.

CEQA requires that an EIR include consideration of cumulative impacts when a project's incremental effects are cumulatively considerable.[253] Among other requirements, the lead agency must define the geographical scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographical limitation used.[254]

The DEIR states "[t]he geographical scope of the cumulative biological resources analysis is a 0.5-mile radius of the project site."[255] The DEIR provides no explanation for this 0.5-mile limitation, other than that the "project site is located at this transition between urban development and the marshes associated with the Napa River; accordingly, habitats in these areas tend to be disrupted and impacts would be localized."[256] The DEIR also states "[a]lthough there would be loss of foraging habitat, the cumulative loss of this resource would not be considerable due to the abundance of habitat in the American Canyon area." 34

There are several problems with the DEIR's analysis of cumulative impacts to biological resources. First, the DEIR fails to provide a reasonable explanation or any supporting evidence for limiting the geographical scope to 0.5 miles, offering only the conclusory statement that habitats in areas like the Project site "tend to be disrupted and impacts would be localized." Second, in finding that the loss of foraging habitat would not be cumulatively considerable, the DEIR relies on the "abundance of habitat in the American Canyon area." Again, there is no evidence

[252] 14 CCR § 15126.4(a)(1)(D).
[253] 14 CCR § 15130.
[254] 14 CCR § 15130(b)(3).
[255] DEIR, pg. 4-5.
[256] *Ibid.*

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for this assertion as the DEIR doesn't even attempt to describe where this abundant habitat is located, or what it is defining as the "American Canyon area." Nor does the DEIR attempt to square this assertion with the Biological Resources Analysis prepared for the City for the adjacent Green Island Road Widening Project, which states "the Giovannoni property is the only remaining, undisturbed habitat located in the vicinity of the project site."[257]

Furthermore, as Mr. Cashen points out, the DEIR's rationale is flawed as it applies two different geographic scales to the analysis. "It is not possible to accurately analyze cumulative impacts by using one geographic scale (i.e., the "American Canyon area") to analyze the abundance of remaining habitat, but a much smaller scale (i.e., 0.5-mile) to analyze other projects that would impact foraging habitat."[258] 34

VII. THE CITY MAY NOT MAKE THE REQUIRED FINDINGS TO APPROVE THE PROJECT'S LOCAL LAND USE PERMITS.

The Project requires that the City issue discretionary approvals, including a Use Permit and a Design Permit.[259] The Design Permit requires that the City make certain findings, including that the Project complies with all applicable General Plan policies.[260] The Use Permit requires that the City find that the Project is consistent with the policies and programs of the General Plan and will not be materially detrimental to the general health, safety and welfare of the public and residents in the vicinity of the Project.[261] As discussed above, the DEIR fails to disclose, analyze or effectively mitigate the Project's potentially significant impacts on air quality, public health, biological resources and transportation. These impacts also create inconsistencies with the General Plan polices which the DEIR fails to disclose and mitigate. As a result of these inconsistencies, the City is unable to make the necessary findings to approve the Project's local land use permits. 35

As an initial matter, the City may not make the required finding, pursuant to Municipal Code section 19.42.202 D.5., that the Project will not be materially detrimental to the general health, safety or general welfare of the public and residents in the vicinity of the Project. As discussed above, the Health Risk

[257] DEIR, Appendix C.7, pg. 8.
[258] Cashen Comments, pg. 14.
[259] DEIR, pg. 2-11.
[260] American Canyon Municipal Code § 19.41.050 C.
[261] American Canyon Municipal Code § 19.42.020 D.1 and D.5.

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Assessment performed for the Project has serious flaws which prevent it from adequately analyzing health risks to sensitive receptors from the Project's air emissions. 35a

The City is also precluded from making required findings pursuant to Municipal Code sections 19.41.050 C (for issuance of a Design Permit) and 19.42.020 D.1 (for issuance of a Conditional Use Permit) because it cannot find that the Project complies with and is consistent with applicable General Plan policies. Our analysis of the DEIR reflected in these comments show that the Project fails to comply with several key policies in the General Plan, including the following.

(a) Circulation Element. Guiding Policy 1.11 calls for the reduction of total vehicle miles traveled by City residents, and Policy 1.24 states that new development will be responsible for mitigation of transportation impacts. As explained in detail above, the DEIR's VMT analysis is completely unsupported and does not demonstrate that the Project will reduce VMT as compared to existing averages. To the contrary, transportation expert Norm Marshall provided evidence showing that the Project's VMT is likely to exceed applicable existing averages and therefore requires mitigation. Because the Project will not reduce VMT and will not mitigate potentially significant traffic impacts, the City cannot make the required finding of consistency with the General Plan's Circulation Element. 35b

(b) Natural and Historic/Cultural Resources Element. The General Plan includes several applicable policies with respect to the Project's impacts to biological resources.

- Policy 8.21 provides that land use applications for developments located within sensitive habitats, including riparian habitats or habitats within areas occupied by vernal pools, shall be accompanied by sufficient technical background data to enable an adequate assessment of the potential for impacts on these resources and possible measures to reduce any identifiable impacts. As discussed herein, the DEIR lacks sufficient technical background data to assess impacts to wetlands or to mitigate such impacts because it lacks any lacks any functional assessment of the existing wetlands on the Project site. Moreover, the DEIR completely fails to examine the Project's impacts on foraging habit for several special status bird species. 35c
- Policy 8.31 requires that for developments in wetlands and riparian habitats, retained riparian corridors "shall be protected by an adequate 35d

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buffer with a minimum 100 foot protection zone…" The Project's proposed buffer zones associated with No-Name Creek and the associated wetlands are not discussed in the DEIR or supporting technical documents, nor are they labeled in figures. Using the figure scales strongly suggests that buffer widths adjacent to Project development will be less than 100 feet in many places.[262] 35d

- Policy 8.41 requires that development plans incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools. As discussed herein, the DEIR's lack of a functional assessment of the Project site's wetlands, including vernal pools, makes it impossible to evaluate the efficacy of the proposed mitigation measures. 35e
- Policy 8.42 requires preservation, where possible, of the habitat of rare, threatened or endangered species, specifically including the northern harrier and golden eagle. Both of those species have been observed foraging at the Project site, and as discussed in detail above, the DEIR fails to evaluate the loss of foraging habitat, let alone make any efforts to preserve such habitat. 35f
- Policy 8.43 encourages activities that improve the biological value and integrity of the City's natural resources through, *inter alia,* control of alien plants. The Project has the potential to introduce invasive plant species and to facilitate their spread.[263] Construction vehicles and equipment are common vectors for transporting invasive plant seeds or spores from one place to another, and soil and vegetation disturbance associated with construction creates suitable conditions for establishment of invasive plants.[264] The DEIR fails to include any mitigation to minimize the Project's potential to introduce invasive plant species or facilitate their spread. 35g

The DEIR fails to address or remedy these inconsistencies with General Plan policies, and the City accordingly may not make the necessary findings to support the required discretionary approvals for the Project.

VIII. CONCLUSION

For the reasons discussed above, the DEIR for the Project is wholly inadequate under CEQA. It must be thoroughly revised to provide legally adequate 36

[262] Corbin Comments, pg. 8.
[263] Cashen Comments, pg. 12.
[264] *Ibid.*

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analysis of, and mitigation for, all of the Project's potentially significant impacts. These revisions will necessarily require that the DEIR be recirculated for additional public review. Until the DEIR has been revised and recirculated, as described herein, the County may not lawfully approve the Project. 36

Thank you for your attention to these comments. Please include them in the record of proceedings for the Project.

Sincerely,

Richard M. Franco

Attachments
RMF:acp

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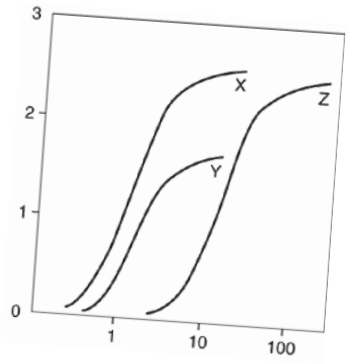
EXHIBIT A



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Attn: Mr. Richard Franco

Subject: Comments On Draft Environmental Impact Report (DEIR) For Giovanonni Logistics Center Project, City of American Canyon, Napa County, California, State Clearinghouse Number 2021010104

Dear Mr. Franco:

At the request of Adams Broadwell Joseph & Cardozo (ABJC), Clark and Associates (Clark) has reviewed materials related to the 2022 City of American Canyon's (the City's) DEIR of the above referenced project. 1

Clark's review of the materials in no way constitutes a validation of the conclusions or materials contained within the plan. If we do not comment on a specific item this does not constitute acceptance of the item.

Project Description:

According to the City the proposed project consists of the development of up to 2.4 million square feet of high-cube warehouse on 163 acres of the project site. Phase 1 consists of approximately 1.1 million square feet on the eastern portion of the project site. Phase 2 consist of approximately 1.3 million square feet on the western portion of the project site. Approximately 45 acres of the project site would be preserved as wetlands. The applicant would extend the Napa Valley Vine Trail along the project frontage with Devlin Road and Green Island Road. 2

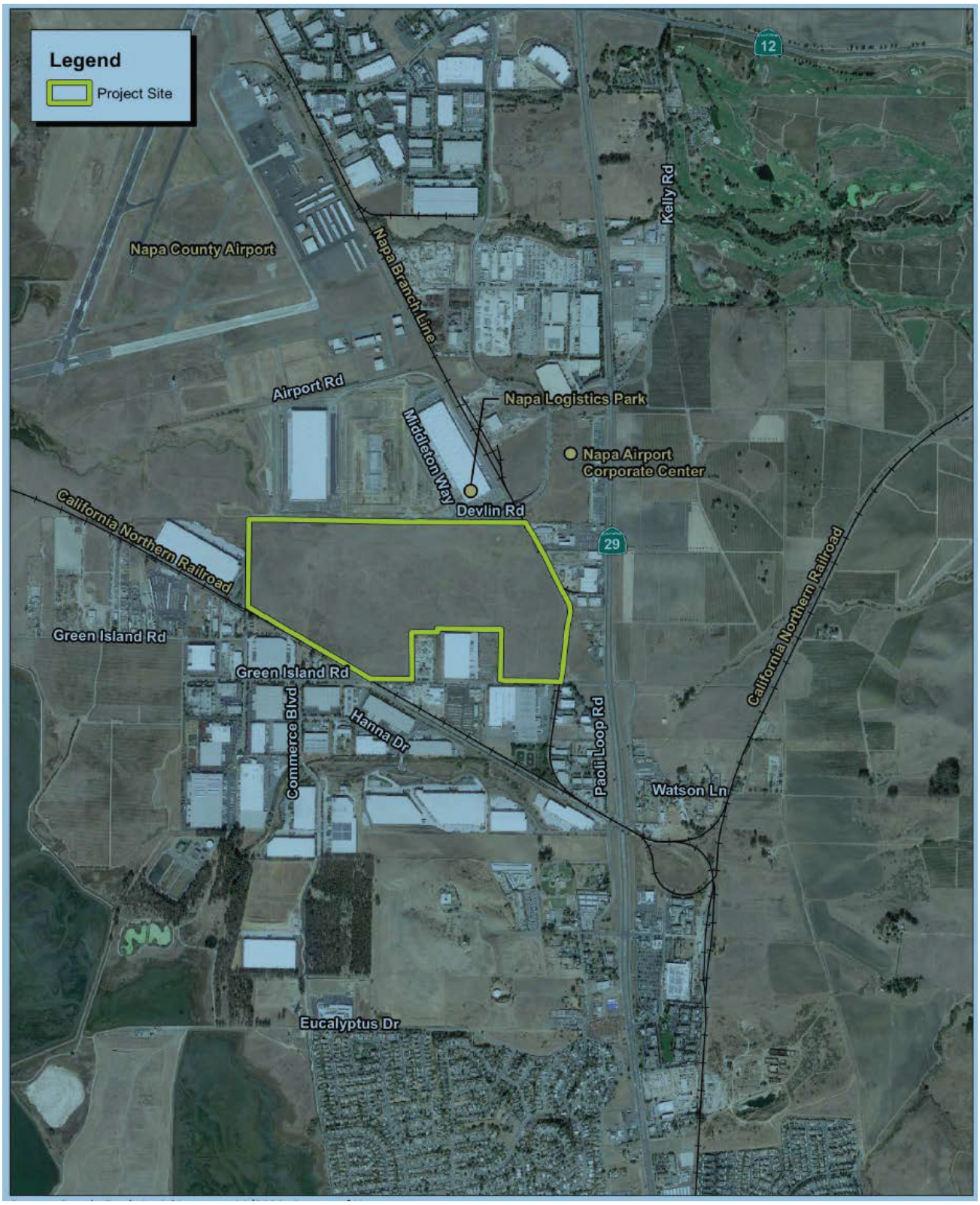


Figure 1: Project Site Location

Unavoidable Significant Impacts

According to the City's DEIR of the Project, the potentially significant and unavoidable impacts from the project include:

- Consistency With Air Quality Management Plan: The proposed project would result in exceedances of regional emissions thresholds and, therefore, be inconsistent with the Bay Area Air Quality Management District (BAAQMD) regional air quality planning assumptions. Mitigation is proposed requiring the implementation of feasible emissions reduction measures; however, these measures would not reconcile this inconsistency. Therefore, the significance after mitigation is significant and unavoidable.
- Cumulative Criteria Pollutant Emissions Impacts: The proposed project would result in a cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or State ambient air quality standard. Mitigation is proposed requiring the implementation of air emissions reduction measures, but it would not fully reduce this impact to a level of less than significant. Therefore, the significance after mitigation is significant and unavoidable.

3

The conclusion from the City that the significant impacts are unavoidable is not supported by the facts of the Project. There are substantial impacts that are not addressed in the City's analysis, as well as numerous feasible mitigation measures that the City fails to consider, that must be addressed in a revised environmental draft impact report (R-DEIR).

Specific Comments:

1. The Air Dispersion Model Used For The Health Risk Assessment For Operational Phases Of The Project Has A Structural Flaw That Result In Inaccurate Estimates Of The Project Emissions Within The Community

4

The modeling approach has a significant flaw - the model does not account for the impact on emissions from building downwash. If the building downwash were included in the model, then the Proponent would be reasonably expected to call that out in the text summary of the model. The AERMOD model calculates the ground-level concentration of DPM emission associated with the

project. The height of release for emissions from idling trucks is generally assumed to be 2.55 meters to 3.4 meters (8.4 feet to 11.2 feet) well below the height of the building. The release height for DPM from trucks traveling along the streets is generally assumed to be at the ground surface (0 meters or 0 feet).

Building downwash occurs as the wind flows over and around buildings and impacts the dispersion of pollution from nearby stacks. A plume caught in the path of this flow is drawn into the wake, temporarily trapping it in a recirculating cavity. This downwash effect leads to higher ground-level concentration of chemicals emitted from sources. The downwash effect increases as the relative difference between the release height and top of the building increases.[1] For the closest receptors to the site, the residences to the east of the Project, this difference will create an additional air quality impact that is not accounted for in the City's analysis. Guidance from authoritative bodies in California regarding the preparation of health risk assessments of mobile sources of diesel emissions[2] requires the inclusion of building heights and dimensions for building downwash calculations. Omission of the building downwash effect underestimates the exposure point concentrations for receptors near the building(s). The City should address the impact of this issue in a R-DEIR. 4

2. The City Has Failed To Quantify All Of The Health Impacts Emissions From The Project On The Surrounding Community.

The City must assess the air quality impacts for all toxic air compounds (TACs) that will be released during the construction and operational phases of the project. CARB[3] defines diesel exhaust as a complex mixture of inorganic and organic compounds that exists in gaseous, liquid, and solid phases. CARB and U.S. EPA identify 40 components of the exhaust as suspected human carcinogens, 5

[1] The so-called good engineering practice height (GEP) of the source. The GEP is defined in Section 123 of the Clean Air Act as "the height necessary to ensure that emissions from a stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies or wakes which may be created by the source itself, nearby structures or nearby terrain obstacles."

[2] SCAQMD. 2003. Health Risk Assessment Guidance For Analyzing Cancer Risks From Mobile Source Diesel Emissions. August, 2003. Page 2.

[3] CARB. 1998. Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A, Public Exposure To, Sources and Emissions of Diesel Exhaust In California. April 22, 1998. Pg A-1.

including formaldehyde, 1,3-butadiene, and benzo[a]pyrene. The inhalation unit risk factor identified by OEHHA for use in risk assessments is for the particulate matter (DPM) fraction of diesel exhaust and not the vapor phase components identified by CARB and U.S. EPA.

There is notable precedent requiring a quantitative analysis of TACs from diesel exhaust in CEQA documents. Moreover, the absence of this analysis renders the DEIR's health risk analysis incomplete. In a 2017 Air Quality Technical Report[4] submitted in support of a Draft EIR for the Turk Island Landfill Consolidation and Residential Subdivision[5], proponents accounted for the gaseous phase of diesel emission and detailed the speciated diesel total organic gas (TOG) emissions along with the DPM emissions for all construction equipment. The speciated diesel TOG emissions and DPM emissions were utilized in dispersion modeling to identify the maximally exposed individual sensitive receptor (MEISR) of the project to determine the health risks associated with all sources of air toxins from the construction phase of the project. This is a common and feasible analysis that is routinely performed for development projects like the Giovanonni Logistics Center Project. . 5

Here, the City's analysis ignores the presence of TACs being emitted with diesel exhaust during the construction and operational phases of the project without making any attempt to quantify the impacts. This omission is a continuing flaw that must be addressed by the City. The results should then be presented in an REIR prior to approving any agreements with the Proponent or issuing any permits for the Project.

3. Mitigation Measure AQ-2d Assumes That The Fleet of Heavy Duty Trucks Entering the Site Will Be From Year 2014 Or Later. If the MM Can Require A Specific Age of Vehicles Entering The Project Site, It Should Be Changed To Make A Real Impact On Emissions From The Heavy Duty Truck Traffic. 6

The City's MM requires heavy-duty vehicles entering or operation on the Phase I project

[4] Ramboll Environ. 2017. Air Quality Technical Report Turk Island Landfill Consolidation And Residential Subdivision Project. Prepared For City of Union City, Union City, CA. Prepared by Ramboll Envion US Corporation, San Francisco, CA August, 2017. https://www.unioncity.org/DocumentCenter/View/1867/Turk-Island---App-D---AQ-Emissions-Report?bidId=

[5] Union City. 2018. Draft Environmental Impact Report (DEIR) Turk Island Landfill Consolidation And Residential Subdivision Project. SCH Number 20008112107. Dated 3/15/2018. https://www.unioncity.org/DocumentCenter/View/1863/Turk-Island-DEIR?bidId=

site be model year 2014 or later. The City proffers that model year 2014 was selected as the baseline for MM AIR-2d since it is the first homogenous model year for a trucking fleet in Napa County to demonstrate a reduction in NOx emissions when compared with unmitigated emission estimates.[6] The DEIR goes on to state that this would allow the proposed project to utilize trucks which are 9 years old and would not constitute an infeasible financial burden. No explanation is provided as to why a 9 year age value is important in deciding how mitigation is best achieved in this measured. If the City can arbitrarily limit the age of the heavy duty vehicles entering and exiting the site in the mitigation measure, then clearly choosing newer model vehicles will limit the impacts of the Project on the surrounding community.

Using the California Air Resources Board's (CARB) EMission FACtor (EMFAC) model, it is possible to estimates the emissions from onroad mobile sources in California, including but not limited to heavy duty trucks. The model calculates emissions factors and emissions inventories for:

- Carbon monoxide (CO)
- Nitrogen oxides (NOx)
- Hydrocarbons (HC): HC can be expressed as TOG (total organic gases), ROG (reactive organic gases), THC (total hydrocarbon), or CH_4 (methane). The TOG class includes all organic gases emitted into the atmosphere. The ROG class is same as EPA's VOC (volatile organic compounds) definition and does not contain compounds exempt from regulation.
- Particulate matter (PM): PM estimates are provided for total suspended particulates for particulate matters 10 microns or less in diameter (PM_{10}), and particulate matters 2.5 microns or less in diameter ($PM_{2.5}$).
- Sulfur oxides (SO_x): Emissions of oxides of sulfur are a function of the sulfur content of fuel. The model calculates these emissions by multiplying the fuel consumption by the weight fraction of sulfur in a gallon of fuel.
- Greenhouse Gases (GHG): GHG emissions are consisted of complete combustion CO_2, Nitrous Oxide (N_2O) and Methane (CH_4). These are the greenhouse gases that are now included in the EMFAC2017 but not in EMFAC2014 or prior versions

6

In my analysis the emissions for NO_x, $PM_{2.5}$ as exhaust, and ROGs for vehicles with model years 2014

[6] DEIR. 2022. Pg 3.2-52

through 2023 are presented in the table below.

6

Table 1: EMFAC Emission Estimates For Heavy Duty Vehicles For Model Years 2014 Through 2023

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx RUNEX	NOx IDLEX	NOx STREX	PM2.5 RUNEX	PM2.5 IDLEX	ROG RUNEX	ROG IDLEX
NAPA	2022	HHDT	2014	Aggregate	Diesel	2.778844551	50.80636429	2.613874323	0.025035437	0.017506165	0.022887	4.299453
NAPA	2022	HHDT	2015	Aggregate	Diesel	2.345451108	51.92562228	2.74172836	0.022318586	0.017891823	0.021046	4.394169
NAPA	2022	HHDT	2016	Aggregate	Diesel	2.192511301	77.24539422	2.420945579	0.025208499	0.026616165	0.02069	6.536837
NAPA	2022	HHDT	2017	Aggregate	Diesel	1.972706671	55.10183426	2.5390266	0.022509571	0.018986239	0.019317	4.662954
NAPA	2022	HHDT	2018	Aggregate	Diesel	1.929060853	65.67679723	2.492548207	0.020133388	0.022630016	0.01898	5.557853
NAPA	2022	HHDT	2019	Aggregate	Diesel	1.783407962	65.75207583	2.532456421	0.017761909	0.022655954	0.018014	5.564223
NAPA	2022	HHDT	2020	Aggregate	Diesel	1.634436853	67.63458847	2.546059664	0.015328146	0.023304605	0.017028	5.72353
NAPA	2022	HHDT	2021	Aggregate	Diesel	1.477482558	69.45569507	2.544574509	0.012839429	0.023932097	0.016007	5.87764
NAPA	2022	HHDT	2022	Aggregate	Diesel	1.325608737	62.89555128	2.596405372	0.010019622	0.021671692	0.014993	5.322492
NAPA	2022	HHDT	2023	Aggregate	Diesel	1.130846234	89.87741795	2.369254269	0.007748138	0.030968736	0.013809	7.605814

Note: Units: g/mile for RUNEX, g/vehicle/day for IDLEX

Based on the averaged emissions from the table above it is clear that changing the minimum allowable model year from 2014 to 2018 would result in:

- A 31% reduction in running NO_x emissions (NO_x RUNEX) from trucks operating on site.
- A 19.5% reduction in diesel particulate matter (DPM) emissions from trucks measured as particulate matter less than 2.5 microns ($PM_{2.5}$) operating on site ($PM_{2.5}$ RUNEX).
- A 17% reduction in reactive organic gases (ROGs) from trucks operating on site (ROG RUNEX).

6

Based on the averaged emissions from the table above it is clear that changing the minimum allowable model year from 2014 to 2020 would result in:

- A 41% reduction in NO_x emissions from trucks operating on site.
- A 39% reduction in diesel particulate matter (DPM) emissions from trucks measured as particulate matter less than 2.5 microns ($PM_{2.5}$) operating on site.
- A 26% reduction in reactive organic gases (ROGs) from trucks operating on site.

4. There Are A Number Of Mitigation Measures That Will Have A Direct Impact On Operational NOx and GHG Emissions Not Explored By The City In The DEIR

Mitigation measures that have previously been recommended by the California Air Resources Board and the Air Quality Management Districts in California to reduce operational NO_x and GHG emissions not included in the DEIR by the City include:

1. Include contractual language in tenant lease agreements that requires tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site.
2. Include contractual language in tenant lease agreements that requires all TRUs entering the project site be plug-in capable.
3. Include contractual language in tenant lease agreements that requires future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans.
4. Include contractual language in tenant lease agreements requiring all TRUs, trucks, and cars entering the Project site be zero-emission.

7

5. Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering or on the project site to be model year 2019 or later, expedite a transition to zero-emission vehicles, and be fully zero-emission beginning in 2030.
6. Include contractual language in tenant lease agreements that requires the tenant be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,[7] Periodic Smoke Inspection Program (PSIP),[8] and the Statewide Truck and Bus Regulation.[9]
7. Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than five minutes while on site.
8. Include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.
9. Have truck routes clearly marked with trailblazer signs, so that trucks will not enter residential areas.
10. Limit the daily number of trucks allowed at the Proposed Project to levels analyzed in the CEQA document. If higher daily truck volumes are anticipated to visit the site, the City as the Lead Agency should commit to re-evaluating the Proposed Project through CEQA prior to allowing this land use or higher activity level.
11. Ensure that any check-in point for trucks is well inside the Proposed Project site to ensure that there are no trucks queuing outside of the facility.
12. Establish overnight parking within the industrial building where trucks can rest overnight.
13. Establish area(s) within the Proposed Project site for repair needs.

7

[7] In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: https://www.arb.ca.gov/cc/hdghg/hdghg.htm.

[8] The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: https://www.arb.ca.gov/enf/hdvip/hdvip.htm.

[9] The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 201 0 model year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm

5. The HRA Failed To Accurately Account For The Back-up Generator (BUG) Usage Onsite. The HRA Accounts For 50 Hours Of Operation And Does Not Account For The More Likely Use of Up To 200 Hours Of Operation Per Year.

The three 50 horse power (hp) BUGs were assumed to be operated up to 48 hours per year. Under the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines[10] guidance, the District may allow a new stationary emergency standby diesel-fueled Cl engine (> 50 hp) to operate up to 100 hours per year for *maintenance and testing purposes* on a site-specific basis, provided the diesel PM emission rate is less than or equal to 0.01 g/bhp-hr. In addition to the testing emissions, the air quality analysis in the DEIR must include the substantial increase in operational emissions from BUGs in the Air Basin due to unscheduled events, including but not limited to Public Safety Power Shutoff (PSPS) events and extreme heat events. Extreme heat events are defined as periods where in the temperatures throughout California exceed 100 degrees Fahrenheit. The total duration of the PSPS events lasted between 141 hours to 154 hours in 2019. In 2021, the Governor of California declared that during extreme heat events the use of stationary generators shall be deemed an emergency use under California Code of Regulations (CCR), title 17, section 93115.4 sub. (a) (30) (A)(2). The number of Extreme Heat Events is likely to increase in California with the continuing change in climate the State is currently undergoing. Coupling the testing time (50 hours per year) with the use during PSPS events (approximately 150 hours per year), it is more likely that the BUG will be operated at least 200 hours per year. 8

Power produced during PSPS or extreme heat events is expected to come from engines regulated by CARB and California's 35 air pollution control and air quality management districts (air districts). Of particular concern are health effects related to emissions from diesel back-up engines. DPM has been identified as a toxic air contaminant, composed of carbon particles and numerous organic compounds, including over forty known cancer-causing organic substances. The majority of DPM is small enough to be inhaled deep into the lungs and make them more susceptible to injury.

[10] Title 17, California Code of Regulations section 93115

According to the California Public Utilities Commission (CPUC) de-energization report in October 2019, there were almost 806 PSPS events (emphasis added) that impacted almost 973,000 customers (~7.5% of households in California) of which ~854,000 of them were residential customers, and the rest were commercial/industrial/medical baseline/other customers. CARB's data also indicated that on average each of these customers had about 43 hours of power outage in October 2019. Using the actual emission factors for each diesel BUG engines in the air district's stationary BUGs database, CARB staff calculated that the 1,810 additional stationary generators (like those proposed for the Project) running during a PSPS in October 2019 generated 126 tons of NOx, 8.3 tons or particulate matter, and 8.3 tons of DPM. 8

For every PSPS or Extreme Heat Event (EHE) triggered during the operational phase of the project, significant concentrations of DPM will be released. A R-DEIR should be prepared for the Project that includes an analysis of the additional operation of the BUG that will occur at the project site that is not accounted for in the current air quality and GHG analyses.

Conclusion

The facts identified and referenced in this comment letter lead me to reasonably conclude that the Project could result in significant unmitigated impacts if the DEIR is approved. The City must re-evaluate the significant impacts identified in this letter by requiring the preparation of a revised draft environmental impact report. 9

Sincerely,

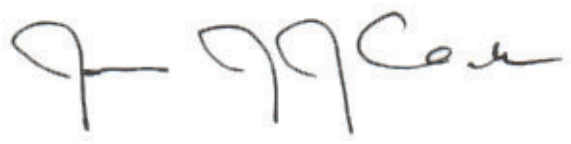
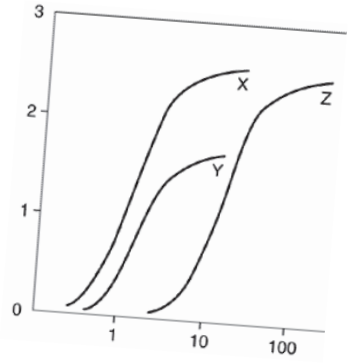


EXHIBIT A

CV



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James J. J. Clark, Ph.D.

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Toxicology/Exposure Assessment Modeling

Risk Assessment/Analysis/Dispersion Modeling

Education:

Ph.D., Environmental Health Science, University of California, 1995

M.S., Environmental Health Science, University of California, 1993

B.S., Biophysical and Biochemical Sciences, University of Houston, 1987

Professional Experience:

Dr. Clark is a well-recognized toxicologist, air modeler, and health scientist. He has 30 years of experience in researching the effects of environmental contaminants on human health including environmental fate and transport modeling (SCREEN3, AEROMOD, ISCST3, Johnson-Ettinger Vapor Intrusion Modeling, RESRAD, GENII); exposure assessment modeling (partitioning of contaminants in the environment as well as PBPK modeling); conducting and managing human health risk assessments for regulatory compliance and risk-based clean-up levels; and toxicological and medical literature research.

SELECTED AIR MODELING RESEARCH/PROJECTS

Client(s) - Confidential

Dr. Clark performed a historical dose reconstruction for community members from an active 700 acre petroleum refinery in Los Angeles. The analysis included a multi-year dispersion model was performed in general accordance with the methods outlined by the U.S. EPA and the SCAQMD for assessing the health impacts in Torrance, California. The results of the analysis are being used as the basis for injunctive relief for the communities surrounding the refinery.

Client(s) – Multiple

Indoor Air Evaluations, California: Performed multiple indoor air screening evaluations and risk characterizations consistent with California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substances Control (DTSC) and Regional Water Quality Control Board (RWQCB) methodologies. Characterizations included the use of DTSC's

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modified Johnson & Ettinger Model and USEPA models, as well as the attenuation factor model currently advocated by Cal/EPA's Office of Environmental Health and Hazard Assessment (OEHHA).

Client – Adams, Broadwell, Joseph Cardozo, P.C.

Dr. Clark has performed numerous air quality analyses and risk assessments of criteria pollutants, air toxins, and particulate matter emissions for sites undergoing evaluation via the California Environmental Quality Act (CEQA) process. The analyses include the evaluation of Initial Study (IS) and Environmental Impacts Reports (EIR) for each project to determine the significance of air quality, green house gas (GHG), and hazardous waste components of the projects. The analyses were compiled as comment letters for submittal to oversight agencies.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of criteria pollutants, air toxins, and particulate matter emissions from a carbon black production facility to determine the impacts on the surrounding communities. The results of the dispersion model were used to estimate acute and chronic exposure concentrations to multiple contaminants and were be incorporated into a comprehensive risk evaluation.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of air toxins and particulate matter emissions from a railroad tie manufacturing facility to determine the impacts on the surrounding communities. The results of the dispersion model have been used to estimate acute and chronic exposure concentrations to multiple contaminants and have been incorporated into a comprehensive risk evaluation.

PUBLIC HEALTH/TOXICOLOGY

Client: Confidential

Dr. Clark performed a historical dose reconstruction for community members from radiologically impacted material (RIM) releases from an adjacent landfill. The analysis was performed in general accordance with the methods outlined by the Agency for Toxic Substances Control (ATSDR) for assessing radiation doses from historical source areas in North St. Louis County, Missouri.

Client: City of Santa Clarita, Santa Clarita, California

Dr. Clark managed the oversight of the characterization, remediation and development activities of a former 1,000 acre munitions manufacturing facility for the City of Santa

Clarita. The site is impacted with a number of contaminants including perchlorate, unexploded ordinance, and volatile organic compounds (VOCs). The site is currently under a number of regulatory consent orders, including an Immanent and Substantial Endangerment Order. Dr. Clark assisted the impacted municipality with the development of remediation strategies, interaction with the responsible parties and stakeholders, as well as interfacing with the regulatory agency responsible for oversight of the site cleanup.

Client: Confidential

Dr. Clark performed a historical dose reconstruction for community members exposed to radioactive waste released into the environment from legacy storage facilities. The releases resulted in impacts to soils, sediments, surface waters, and groundwater in the vicinity of the sites. The analysis was performed in general accordance with the methods outlined by the Agency for Toxic Substances Control (ATSDR) for assessing radiation doses from historical source areas in the community.

Client: Confidential

Dr. Clark performed a dose assessment of an individual occupationally exposed to metals and silica from fly ash who later developed cancer. A review of the individual's medical and occupational history was performed to prepare opinions regarding his exposure and later development of cancer.

Client: Brayton Purcell, Novato, California

Dr. Clark performed a toxicological assessment of residents exposed to methyl-tertiary butyl ether (MTBE) from leaking underground storage tanks (LUSTs) adjacent to the subject property. The symptomology of residents and guests of the subject property were evaluated against the known outcomes in published literature to exposure to MTBE. The study found that residents had been exposed to MTBE in their drinking water; that concentrations of MTBE detected at the site were above regulatory guidelines; and, that the symptoms and outcomes expressed by residents and guests were consistent with symptoms and outcomes documented in published literature.

Client: Confidential

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to hexavalent chromium who later developed cancer. A review of the individual's medical and occupational history was performed to prepare opinions regarding her exposure and later development of cancer.

Client: Covanta Energy, Westwood, California

Evaluated health risk from metals in biosolids applied as soil amendment on agricultural lands. The biosolids were created at a forest waste cogeneration facility using 96% whole tree wood chips and 4 percent green waste. Mass loading calculations were used to estimate Cr(VI) concentrations in agricultural soils based on a maximum loading rate of 40 tons of biomass per acre of agricultural soil. The results of the study were used by the Regulatory agency to determine that the application of biosolids did not constitute a health risk to workers applying the biosolids or to residences near the agricultural lands.

Client: Kaiser Venture Incorporated, Fontana, California

Prepared PBPK assessment of lead risk of receptors at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

RISK ASSESSMENTS/REMEDIAL INVESTIGATIONS

Kaiser Ventures Incorporated, Fontana, California

Prepared health risk assessment of semi-volatile organic chemicals and metals for a fifty-year old wastewater treatment facility used at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

ANR Freight - Los Angeles, California

Prepared a comprehensive Preliminary Endangerment Assessment (PEA) of petroleum hydrocarbon and metal contamination of a former freight depot. This evaluation was as the basis for reaching closure of the site with lead regulatory agency.

Kaiser Ventures Incorporated, Fontana, California

Prepared comprehensive health risk assessment of semi-volatile organic chemicals and metals for 23-acre parcel of a 1,100-acre former steel mill. The health risk assessment was used to determine clean up goals and as the basis for granting closure of the site by lead regulatory agency. Air dispersion modeling using ISCST3 was performed to determine downwind exposure point concentrations at sensitive receptors within a 1 kilometer radius of the site. The results of the health risk assessment were presented at a public meeting sponsored by the Department of Toxic Substances Control (DTSC) in the community potentially affected by the site.

Unocal Corporation - Los Angeles, California

Prepared comprehensive assessment of petroleum hydrocarbons and metals for a former petroleum service station located next to sensitive population center (elementary school). The assessment used a probabilistic approach to estimate risks to the community and was used as the basis for granting closure of the site by lead regulatory agency.

Client: Confidential, Los Angeles, California

Managed oversight of remedial investigation most contaminated heavy metal site in California. Lead concentrations in soil excess of 68,000,000 parts per billion (ppb) have been measured at the site. This State Superfund Site was a former hard chrome plating operation that operated for approximately 40-years.

Client: Confidential, San Francisco, California

Coordinator of regional monitoring program to determine background concentrations of metals in air. Acted as liaison with SCAQMD and CARB to perform co-location sampling and comparison of accepted regulatory method with ASTM methodology.

Client: Confidential, San Francisco, California

Analyzed historical air monitoring data for South Coast Air Basin in Southern California and potential health risks related to ambient concentrations of carcinogenic metals and volatile organic compounds. Identified and reviewed the available literature and calculated risks from toxins in South Coast Air Basin.

IT Corporation, North Carolina

Prepared comprehensive evaluation of potential exposure of workers to air-borne VOCs at hazardous waste storage facility under SUPERFUND cleanup decree. Assessment used in developing health based clean-up levels.

Professional Associations

American Public Health Association (APHA)
Association for Environmental Health and Sciences (AEHS)
American Chemical Society (ACS)
International Society of Environmental Forensics (ISEF)
Society of Environmental Toxicology and Chemistry (SETAC)

Publications and Presentations:

Books and Book Chapters

Sullivan, P., **J.J. J. Clark,** F.J. Agardy, and P.E. Rosenfeld. (2007). *Synthetic Toxins In The Food, Water and Air of American Cities*. Elsevier, Inc. Burlington, MA.

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Clark, J.J.J. 2000. "Toxicology of Perchlorate" in *Perchlorate in the Environment.* Edward Urbansky, Ed. Kluwer/Plenum: New York.

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Baker, J.; **Clark, J.J.J.**; Stanford, J.T. 1994. Ex Situ Remediation of Diesel Contaminated Railroad Sand by Soil Washing. Principles and Practices for Diesel Contaminated Soils, Volume III. P.T. Kostecki, E.J. Calabrese, and C.P.L. Barkan, eds. Amherst Scientific Publishers, Amherst, MA. pp 89-96.

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Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** 2006. "Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." The 26th International Symposium on Halogenated Persistent Organic Pollutants –

DIOXIN2006, August 21 – 25, 2006. Radisson SAS Scandinavia Hotel in Oslo Norway.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2005. "The Value Of An Odor Quality Classification Scheme For Compost Facility Evaluations" The U.S. Composting Council's 13th Annual Conference January 23 - 26, 2005, Crowne Plaza Riverwalk, San Antonio, TX.

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Clark, J.J.J., Brown, A., Rodriguez, R. 1998. The Public Health Implications of MtBE and Perchlorate in Water: Risk Management Decisions for Water Purveyors. Proceedings of the National Ground Water Association, Anaheim, CA, June 3-4, 1998.

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Tierney, D.F. and **J.J.J. Clark.** (1990). Lung Polyamine Content Can Be Increased By Spermidine Infusions Into Hyperoxic Rats. American Review of Respiratory Disease. 139(4):A41.

EXHIBIT B

SUBMITTED TO:
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South San Francisco, CA 94080

BY:
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WATER RESOURCES REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT

Giovannoni Logistics Center

CITY OF AMERICAN CANYON, CALIFORNIA

SHANNON & WILSON

July 19, 2022

Shannon & Wilson No: 109577-2060

Submitted To: Adams Broadwell Joseph & Cardozo PC
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080
Attn: Mr. Richard M. Franco

Subject: WATER RESOURCES REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT, GIOVANNONI LOGISTICS CENTER, CITY OF AMERICAN CANYON, CALIFORNIA

Shannon & Wilson prepared this report and participated in this project as a consultant to Adams Broadwell Joseph & Cardozo PC. Our scope of services was specified in the proposal dated June 24, 2022, and was authorized by Mr. Richard Franco in email dated June 27, 2022. This report presents our review of the adequacy of the proposed water resource impact documentation and analyses and the adequacy of the associated proposed mitigation in the Giovannoni Logistics Center Draft Environmental Impact Report and was prepared by the undersigned. 1

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON

Sarah Corbin, PWS, MSES
Associate
Senior Biologist

Todd Kincaid, PhD
Senior Associate
Hydrogeologist/Hydrogeologic Modeler

SCC:KLW/scc:tdk

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2

1 INTRODUCTION

This report summarizes the findings of our water resources reviews of Section 3.03 Biological Resources and Section 3.08 Hydrology and Water Quality of the Draft Environmental Impact Report (DEIR) (State Clearinghouse Number 2021010104), including referenced and supporting material, for the Giovannoni Logistics Center project (Project) in City of American Canyon, Napa County, California (City) (Firstcarbon Solutions, 2022). The reviews focused on adequacy of wetland, groundwater, and stormwater (collectively called water resources) impact analysis and adequacy of the associated proposed mitigation. Independent analyses and assessments have not been performed. This report summarizes the analyses presented in the DEIR and supporting documents upon which the findings of impacts on water resources are based. Depth and extent of review varies by discipline. Descriptions of the specific discipline reviews and the review findings are outlined in the sections below. 3

2 WETLAND RESOURCES REVIEW

2.1 Supporting Documentation

In addition to Section 3.03 of the DEIR, our review of the Project's wetland related impacts and mitigation relied on the following documents:

- DEIR Appendix C.1 – Giovannoni Logistics Center Biological Resources Report (Huffman-Broadway Group, Inc., 2021)
- DEIR Appendix C.2 – Monk and Associates 2016 Wetland Jurisdictional Delineation Report (Monk, 2016a) 4
- DEIR Appendix C.3 – USACE 2016 Wetland Verification Map (Monk, 2016b)
- DEIR Appendix C.6 – Monk 2018 Devlin Road Biological Resources Assessment (Monk, 2018)
- DEIR Appendix C.7 – Monk Green Island Road Widening Biological Resources Assessment (Monk, 2019)

2.2 Wetland Delineation

Project site wetlands were delineated by Monk in April and May of 2016 (Monk, 2016a). The 2016 delineation report states the wetland delineations were completed using the *1987 Corps of Engineers Wetlands Delineation Manual* (U.S. Army Corps of Engineers [Corps], 1987) 5a

and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (U.S. Army Engineer Research and Development Center [USAERDC], 2008). The delineation methodology described in the Monk 2016 report is consistent with the *State Water Boards State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State* (State Procedures) (California State Water Resources Control Board [CSWRCB], 2019a). 5a

Of the 142 wetland determination data sheets included in the 2016 Monk report, we reviewed 20 representative data sheets for consistency with the Corps manuals identified above, including review of percent vegetative cover and dominant species calculations, species' indicator statuses, and consistency of observed soils with the chosen hydric soil indicators. We found errors in data sheets such as incorrect dominant species identification (Data Points [DPs] 89, 111, and 120), miscalculated absolute percent cover (DPs 42 and 43), and incorrectly identified hydric soil indicators (DP 43), none of which impacted the report's wetland and upland determinations. However, in data sheet DP 110, Monk incorrectly identifies *Helminthotheca echioides* as a Facultative Upland (FACU) species; the Corps 2020 National Wetland Plant List identifies the species as a Facultative (FAC) species in the current Arid West region (Corps, 2020). The Corps' 2014 Arid West Regional Wetland Plant List identified the species as FACU (Corps, 2014), but the Corps 2016 Arid West Regional Plant List incorporated the species' wetland indicator status change to FAC and was published April 28, 2016, making it the correct plant list to reference during the Monk data analysis and report preparation (report dated August 2016). Assigning *H. echiodes* a FAC wetland indicator status changes the findings on DP 110 from upland to wetland condition, meaning that more wetland was present on the project site during the Monk delineation fieldwork than is reflected in the Monk report and DEIR. A search for *H. echiodes* in the remaining wetland determination sheets identified DPs 40, 97, 98, and 105 as locations where application of the species' correct indicator status would change the data sheet finding from upland to wetland. The locations of DP 40 and 110, as shown on the 2016 delineation maps, approximately coincide with two of the areas the Project proposes to create wetland for mitigation of Project impacts (as shown on DEIR Exhibit 3.3-4). 5b

The Monk delineation and Corps Approved Jurisdictional Determination (AJD) is six years old. We reviewed recent Google Earth aerial imagery of the project site during spring and identified areas that appear to demonstrate potential wetland condition that were not identified as wetland in the 2016 Monk report, particularly the area north of No Name Creek (general location of DP 110). Corps AJDs are valid for five years and the Project will need to obtain an updated AJD (Corps, 2016a). The Corps applies the AJD expiration because wetland boundaries are expected to change over time due to both natural (e.g., climate patterns) and human-caused activities (Corps, 2005). Given the age of the delineation, the errors identified in the wetland determination data forms, and the 5c

associated potential for revised wetland extents, it is likely that the wetland boundaries are not accurately identified, and additional wetland is present on the site. 5c

2.3 Wetland Impacts

The DEIR states that the Project's Phases 1 and 2 will impact 0.496 acre and 3.7 acres, respectively, of wetland and notes that Phase 2 wetland impact quantities may change as design progresses. Our review covered the adequacy of the wetland impact analysis presented in the DEIR and supporting documents.

One of their main assumptions used to support the basis of the Project's impact analysis is not supported. The DEIR Project Description Section 2.3.13 states, "For the purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be developed concurrently over a period of 18 months." However, a prolonged construction schedule that extends beyond 18 months and instead extends over several years (e.g., multiple nesting seasons and multiple "rainy seasons") increases the potential for construction-related impacts to aquatic resources (e.g., water quality issues and in-air construction noise). The DEIR does not explain or support their assumption. 6a

The DEIR does not include a functional assessment of the site wetlands and no functional impact analysis is provided. Wetland impact analyses are incomplete without a functional assessment that evaluates hydrologic, water quality, and habitat functions of the site wetlands. Functions typical of vernal pool and other seasonal wetlands, such as those on the Project site, typically include providing rest and forage for migratory waterfowl along the Pacific Flyway; breeding habitat for amphibians and invertebrates; flood storage potential; and filtration of pollutants and excess nutrients from surface water and groundwater. The DEIR states that a functional assessment, such as the California Rapid Assessment Method, will be completed with the Project's Wetland Mitigation and Monitoring Plan. As described below in Section 2.4, the Project's proposed wetland mitigation cannot be deemed adequate without including consideration of impacted and mitigated wetland functions. 6b

2.3.1 Wetland Impact Inconsistencies

Our review identified several discrepancies between the DEIR and supporting documents.

In comparing the itemized wetland impact areas in DEIR Table 3.3-1 with the wetland areas in the 2016 Monk report, we noted that the Project proposes to impact 189 square feet of Wetland W-89 while the Monk report quantifies W-89 size as 195 square feet, a discrepancy of 6 square feet. Although this does not change the Phase 1 impact quantity when converted to acres, the Project should count the entirety of the wetland as impacted. 7

We identified inconsistencies in the position and presence of Wetland IW-9 in the 2016 Monk report delineation figure and the AJD and DEIR wetland figures. In the 2016 Monk report, Wetland IW-9 is a 2,625-square-foot isolated linear wetland in the southeast portion of the project area that would partially coincide with or be immediately adjacent to the Project development footprint (DEIR Appendix C, p. C-129). The 2016 Monk report also includes Wetland IW-9 in its Attachment A Table of Aquatic Resources. However, the wetland is absent from the Monk October 2016 Confirmed Aquatic Resources Delineation Map/USACE 2016 Wetland Verification Map (DEIR Appendix C, p. C-419) and the wetlands are re-numbered accordingly. The wetland's absence is carried through in the DEIR figures and analysis. There is no wetland determination data sheet to support the wetland's inclusion or exclusion and no discussion of the change in the DEIR or supporting documents. It is not clear if the omission was purposeful or an oversight; however, IW-9, as originally shown in the 2016 Monk report, is not included in the DEIR impact analysis. 7

The DEIR Exhibit 3.3-3 includes Wetland W-90 within the Project footprint and excludes it from the proposed wetland preserve. However, there is no discussion of direct or indirect impacts to W-90 included in the DEIR.

2.3.2 Indirect and Cumulative Impacts

2.3.2.1 Hydrology Impacts

The DEIR states underground piping will convey stormwater from the Project's new pollutant generating impervious surfaces to bioretention and detention basins on the north boundary of the development. The DEIR Exhibit 3.3-4 identifies "passive or active control device to allow treated stormwater to enter the [created] wetland swale." However, the Project documents do not identify how site drainage patterns to and hydrology sources in the unimpacted wetlands will be maintained. Without pre-Project and post-Project water budget analyses for the site wetlands, their determination that additional wetlands will not be impacted is not supported. 8

2.3.2.2 Water Quality Impacts

The Project proposes use of a specialized biosoil in the bioretention facility to remove pollutants. However, DEIR Section 3.8.6 states: "The wetland preserve would facilitate the natural sequestration of pollutants of stormwater leaving the project site." Incorporation of the wetland preserve into the Project's post-construction stormwater management strategy would have long-term detrimental impacts to these wetlands and does not support their determination that additional wetlands will not be impacted. 9

2.3.2.3 Reduced Buffer Widths

The State Procedures manual (CSWRCB, 2019a) states that buffers help "ensure the long-term viability of those [aquatic] resources" and that "buffers may also provide habitat or corridors necessary for the ecological functioning of aquatic resources." The Corps South Pacific Division requires that mitigation plans "provide and maintain a buffer of at least 100 feet around all vernal pool preserves and mitigation sites" in their draft *Mitigation and Monitoring Guidelines for Vernal Pools* supplement (Corps, 2016b). Buffer widths between wetlands and the Project footprint are not provided, but use of the DEIR figures' scales suggests they are less than 100 feet in many places, particularly adjacent to the northern boundary of the Project footprint. 10a

DEIR Exhibit 3.3-3 Phase 1 Wetland Impacts, Wetlands IW-7, 8, 9 and 10, appear to show an approximately 100-foot buffer adjacent to the Project. However, the buffer areas are identified as 'Proposed Landscape Areas.' This is not further defined, and it is not clear if the proposed landscape area buffers will consist of native or ornamental plants and whether they will be intensely maintained as manipulated landscape areas. Indirect impacts to these wetlands through a disturbed or landscaped buffer are not discussed in the DEIR. 10b

Further, the connections and corridor between the wetlands in the southeastern Project area (Wetlands IW-7 to IW-10) and the remaining wetland complex to the north and east will disappear once the wetlands are flanked by the development. This corridor disconnection, the overall reduction of undeveloped buffer widths of wetlands that remain post-Project, and the indirect effects on the site wetlands are not analyzed or discussed. 10c

2.3.2.4 Cumulative Impacts

The State Procedures manual (CSWRCB, 2019a) requires that compensatory mitigation be developed using a watershed profile, which "shall include information sufficient to evaluate direct, secondary (indirect), and cumulative impacts of [a] project…" The DEIR does not include an analysis of indirect impacts to wetland function associated with reduced buffer widths and increased noise, lights, and traffic compared to that of the existing condition. The DEIR does not include an analysis of cumulative wetland impacts that incorporates current development trends in the area and the associated continued aquatic habitat fragmentation. 11

2.4 Proposed Mitigation

Our review of the adequacy of the Project's proposed mitigation in offsetting the Project's wetland-related impacts follows. 12

2.4.1 Wetland Mitigation

The DEIR includes a conceptual mitigation plan shown in Exhibit 3.34 that provides a proposed wetland preservation area adjacent to the northern boundary of the Project and states that a detailed Wetland Mitigation and Monitoring Plan will be prepared but is not included in the DEIR. The DEIR states that the plan will propose to preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools; create 0.992 acre of seasonal wetlands in advance of, or concurrent with, Phase 1; and create 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of Phase 2.

12

We are unable to evaluate if the proposed mitigation will adequately replace lost wetland function because the DEIR and supporting documentation does not include an assessment of impacted wetland function. Additionally, a water budget analysis, typically supported by hydrology monitoring in the proposed wetland creation areas, is not included. Overall, the Project does not provide the information necessary to determine that the proposed wetland acreages can be successfully created.

Our review of conceptual mitigation elements provided in the DEIR follows.

2.4.1.1 Mitigation Ratios

The Project proposes to mitigate for Phases 1 and 2 wetland impacts at 2:1 and 1:1 mitigation to impact ratios, respectively. The DEIR justifies the lower Phase 2 mitigation ratio because the mitigation will be constructed "at least 1 year prior to the start of Phase 2 construction." Both Devlin Road and Green Island Biological Resource reports, two nearby projects that have completed project permitting, identify 2:1 as the typical Corps and Regional Water Quality Control Board required ratio. Of note, unlike this Project, the Devlin Road and Green Island projects did not impact vernal pool wetlands (Monk, 2018 and 2019). The Corps' *Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* identifies vernal pools as both "difficult to replace resources" and "regionally significant habitat types," (Corps, 2015) making vernal pool wetland creation an inherently high risk mitigation that warrants a higher than typical mitigation ratio.

13a

A State guidance document that includes mitigation requirements, *Staff Report Including the Substitute Environmental Documentation for the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures Staff Report), lists the difficulties of wetland replacement, using vernal pools as an example, and identifies mitigation that requires supporting structures, such as the Project's proposed detention basin system and outfall, as factors that would increase required mitigation ratios (CSWRCB, 2019b). Successful wetland creation is largely driven by ability to provide appropriate hydrology, however, hydrologic analysis that

demonstrates wetland creation potential in the proposed mitigation area is not provided in the DEIR. 13a

The Procedures Staff Report also identifies use of a mitigation bank as an avenue to avoid mitigating for temporal wetland loss, similar to the Project's justification for mitigating Phase 2 at a 1:1 ratio. However, the construction schedule for Phase 2 is not set, with references to both concurrent and possibly back-to-back construction. Mitigation banks must demonstrate achieved wetland functions, frequently over several years, prior to the sale of credits. The Project's assumption that the proposed constructed wetlands will have replaced all lost wetland function at the time of Phase 2 construction is not supported by the information provided and therefore, neither is the proposed 1:1 mitigation ratio. Further, the Corps states that mitigation ratios greater than 1:1 are typically required because "mitigation sites often provide reduced functions compared to the impacted aquatic resources (Corps, 2015)." 13b

Although ultimately the required compensatory mitigation ratios will be provided and approved by the regulatory agencies, the proposed ratios in the DEIR are low given the information provided above.

2.4.1.2 Mitigation Sequencing

The 1990 Federal Mitigation Memorandum of Agreement between the Corps and U.S. Environmental Protection Agency (EPA) requires applicants to complete a thorough mitigation sequencing process, wherein impacts to aquatic resources are first avoided to the maximum extent practicable, remaining impacts are minimized, and unavoidable impacts are then offset through compensatory mitigation (Corps and EPA, 1990). The DEIR does not address how the Project completed the required mitigation sequencing process during design, including but not limited to design decisions regarding building size and/or location, and whether higher quality and higher functioning aquatic resources were prioritized for avoidance. 14

2.4.1.3 Mitigation Monitoring and Performance Standards

The Project proposes five years of monitoring, the minimum required in the State Procedures. The Corps *Regional Compensatory Mitigation and Monitoring Guidelines for the South Pacific Division* (Corps, 2015) identifies vernal pools as an aquatic resource that warrants longer monitoring periods than the standard five years: "Monitoring periods of more than 5 years are warranted for aquatic resources with slow development rates. Examples of such aquatic resources within the South Pacific Division include vernal pools… (Corps, 2015)." The Corps' *Draft Mitigation and Monitoring Guidelines for Vernal Pools* supplement further requires that vernal pool construction projects be monitored for a 15a

minimum of ten years. (Corps, 2016b). The DEIR proposed five-year mitigation monitoring period is not consistent with these federal guidelines. 15a

Mitigation measure BIO-3d in Section 3.3 of the DEIR provides performance standards to be incorporated into the Project mitigation plan. Performance standards are tools to assess achievement of the mitigation's stated goals and objectives. The DEIR Section 3-03 Mitigation Measure states that the "basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted." More detailed mitigation goals and objectives that would relate to the project's impacts to wetlands with varied habitat conditions (e.g., isolated vs. non-isolated) are not included in the DEIR. Without an understanding of the impacted wetland functions, there is no basis for establishing meaningful mitigation goals and associated meaningful ecological performance standards to achieve no net loss. 15b

The Procedures Staff Report outlines the problematic trend mirrored by the DEIR in focusing on mitigation area and vegetation cover requirements without replacing lost ecological function, resulting in failure to comply with the State's 'no net loss' policy (CSWRCB, 2019b). Further, the State Procedures manual states: "The use of reference aquatic resources to establish performance standards will help ensure that those performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of aquatic resources as a result of natural processes and anthropogenic disturbances." The DEIR does not describe use of reference wetlands in the mitigation approach, which is needed to define the performance standards.

2.4.2 Buffer Mitigation

City policy 8.3.1 requires, "Where riparian corridors are retained, they shall be protected by an adequate buffer width of a minimum 100-foot protection zone…" The Corps South Pacific Division requires that mitigation plans "provide and maintain a buffer of at least 100 feet around all vernal pool preserves and mitigation sites" in their draft *Mitigation and Monitoring Guidelines for Vernal Pools* supplement (Corps, 2016b). Proposed buffer widths associated with No Name Creek and the associated wetlands are not discussed in the DEIR or supporting documents nor labeled in the figures. However, an approximate use of the figure scale suggests that buffer widths adjacent to the Project are less than 100 feet in many places. 16a

DEIR Exhibit 3.3-4 Wetland Mitigation Plan states that the project will "plant trees and shrubs in select locations adjacent to established wetlands on the east and west side and adjacent to No Name Creek." The DEIR does not include extent (area) or specific locations 16b

of plantings and does not state whether these plantings will be maintained, incorporated into the mitigation performance standards, and monitored. The lack of Project buffer impact analysis makes it difficult to evaluate if the proposed buffer plantings are adequate compensation to replace lost buffer function. 16b

3 GROUNDWATER RESOURCES REVIEW

3.1 Supporting Documentation

Our review and assessment of potential impacts of the Project on groundwater resources relied on the following documents: 17

- Section 3.8 of the DEIR – Hydrology and Water Quality
- Draft Water Supply Assessment (DWSA) for the Giovannoni Logistics Center Project (Balance Hydrologics, 2021)

3.2 Water Supply Demand

The water supply to the Project, as defined in the DEIR, will not be derived from groundwater and therefore will not diminish groundwater levels.

The Project's water demand will be supplied by the City. Potential impacts to groundwater levels and flows due to the Project's water supply demand are therefore predicated on the sources of water from which the City derives its water supply and the degree to which the Project demand affects the City's projected future supplies. Both of these issues are discussed and evaluated in the DWSA, which relied on the 2015 Urban Water Management Plan (Kennedy Jenks Consultants, 2016). 18a

The DWSA states that, at present, the City does not rely on groundwater for any part of its supply. Section 2.3 of the DWSA does, however, indicate that the City may consider adding groundwater as a source, depending on needs and opportunities.

The DWSA indicates that the Project's stated water supply demand falls within the City's anticipated supply through 2040 and would not prevent the City from meeting the anticipated demands, even in progressively dry years. These conclusions are based on their following assumptions:

- Between 23% and 32% of the Project's water supply demand will be filled by recycled water. Achieving this goal is predicated on the Project being hooked up to the City's recycled water infrastructure. The DWSA indicates that use of the recycled water is feasible given the City's projected expansion in demand and their capacity to meet that demand. 18b

- The City will be able to capitalize on carryover water from the State Water Plan as described in Section 4.2.1 of the DWSA to make up for shortfalls during dry periods, or the City's actual consumption will continue to be significantly below projected demand as was recorded in the six years between 2015 and 2020.
- Project water demand conforms to the following stated estimates.

  Potable water use:

  - Phase 1: 10.8 acre-feet per year (afy)
  - Phase 2: 13.1 afy

  Recycled water use:

  - Phase 1: 37.0 afy
  - Phase 2: 45.0 afy

18b

The DWSA states that the Project will be required to comply with the City's Zero Water Footprint policy, which will require the Project to commit to offsetting their potable water demand through off-site conservation measures. The DEIR does not address this requirement. To meet this requirement, the Project will be required to offset 100% of their potable water consumption through one or more types of actions that reduce the City's water consumption. The DWSA describes some potential qualifying actions as follows.

18c

- Funding conversion of irrigated landscape areas to recycled water.
- Funding or assisting the City to improve the efficiency of the City's water distribution system by reducing system losses.

3.3 Loss of Recharge

The proximity of the Project to groundwater discharge areas limits reductions in groundwater recharge due to the conversion of open space to impervious surfaces.

The Project is located less than two miles from the wetland areas associated with the Napa River and Fagan Marsh, which are the discharge areas for the surficial aquifer in the Project area. The water table (uppermost groundwater level) within that proximity to groundwater discharge areas is expected to be shallow, leaving little space available for groundwater storage. Infiltration recharge is expected to be small and not expected to contribute significantly to groundwater flow. A reduction in pervious surface will therefore not likely change the groundwater water budget for the groundwater basin.

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4 HIGH LEVEL STORMWATER REVIEW

4.1 Supporting Documentation

Our review and assessment of potential stormwater-related impacts of the Project focused only on the completeness of the analyses described in the DEIR with respect to the size and scope of the Project. The accuracy of the referenced studies was not evaluated. Our review relied on and was limited to the following documents. 20

- Section 3.8 of the DEIR – Hydrology and Water Quality
- Draft Water Supply Assessment (DWSA) for the Giovannoni Logistics Center Project (Balance Hydrologics, 2021)
- Memo on Preliminary Hydrologic and Hydraulic Modeling for the Proposed Giovannoni Logistics Center (Balance Hydrologics, 2020)

4.2 Summary

The DWSA acknowledges that the Project will be required to prepare a Stormwater Control Plan (SCP) in accordance with the Bay Area Stormwater Management Agencies Association Post-Construction Manual that must describe post-construction stormwater treatment measures, such as bioretention facilities and source control Best Management Practices, and a strategy for the ongoing maintenance of those facilities. A SCP has not been included in the DEIR.

The DEIR does describe the results of a preliminary assessment that focused on the potential change in peak runoff associated with Phase 1 of the Project. Important findings and dependencies include the following:

- The Project will leave approximately 22.6% (47 acres) of the 208 acres as open space. 21
- The Project will be required to demonstrate a 10% reduction in peak runoff flows from the current (pre-developed) condition.
- Modeling performed as part of the preliminary assessment demonstrates that more than the required 10% reduction in peak runoff flows will be achieved through the development and implementation of two detention basins, one bioretention area dedicated for water quality, and one basin sized to comply with both flood control and water quality treatment standards.
- Only Phase 1 was considered.
- The ability of the Project to meet the 10% reduction requirement for Phase 1 appears to be dependent on the construction of the Devlin Road extension, which will result in more than the required reductions in peak flow runoff.

- It does not appear that Phase 2 construction will benefit from the Devlin Road extension or a feature similar to it in function with respect to stormwater retention. It therefore appears likely that the size of the detention basins and bioretention areas for the Phase 2 component of the Project will likely have to be larger than those planned for Phase 1. 21

5 MAIN CONCLUSIONS

- More wetland was present on the project site during the 2016 Monk delineation fieldwork than is reflected in the Monk report and DEIR.
- Wetland impact analysis is not complete; namely, it is lacking analysis and discussion of impacted wetland functions, impacts associated with reduced buffer widths, impacts associated with modified surface water drainage, and cumulative impacts associated with the area's development trends.
- We are unable to evaluate if the proposed conceptual mitigation will adequately offset wetland impacts because impacted wetland functions are not evaluated nor has analysis been completed to support the probable success of wetland creation.
- Proposed wetland mitigation ratios for Phases 1 and 2 are low, given State and Federal guidance. 22
- The proposed five-year mitigation monitoring period is not consistent with Corps guidelines for compensatory mitigation involving vernal pool wetlands.
- The DEIR lacks detailed mitigation goals and objectives and associated performance standards. The provided conceptual mitigation does not incorporate reference wetlands in the strategy and as presented, is not sufficient to comply with the State's no-net-loss policy.
- The Project will not have a significant adverse impact on groundwater resources.
- It does not appear that Phase 2 construction will benefit from the Devlin Road extension or a feature similar to it in function with respect to stormwater retention.
- It appears likely that the size of the detention basins and bioretention areas for the Phase 2 component of the Project will have to be larger than those planned for Phase 1. The preliminary hydrologic assessment required for the proposed project is therefore incomplete.

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SHANNON & WILSON, INC.

Todd R. Kincaid, PhD. | Senior Associate

Hydrogeologist

EDUCATION

PhD, Karst Geohydrology, University of Wyoming, 1999
MS, Hydrogeology, University of Florida, 1994
BS, Geology, University of Florida, 1991

SUMMARY - BIO

Todd is an expert in hydrogeologic modeling and karst hydrogeology having worked extensively on the characterization and computer simulation of complex groundwater flow regimes in numerous aquifers around the world for water resources, mining, groundwater contamination, and dam leakage projects. Since 1999, he has led a team focused on modeling geology, groundwater flow, and contaminant transport through varied types of complex aquifers including the karstifed limestones in Florida, heterogeneous glacial sediments in New York and Pennsylvania; fractured rocks in Pennsylvania and Washington; and structurally complex volcanic and sedimentary rocks underlying Yucca Mountain and the Nevada National Security Site, Nevada. He has also designed and conducted numerous successful groundwater tracing projects in karst and fractured rock aquifers of Florida, Brazil, and Washington, and developed methods of incorporating tracer-testing results into hybrid numerical models of groundwater flow and erodibility along dissolutionally enhanced fracture flow paths. Todd has also lectured extensively at professional and public meetings, designed and taught professional short courses on karst hydrogeology and modeling, and provided expert testimony regarding the reliability of groundwater models.

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RELEVANT EXPERIENCE

HDR Engineering, Bounder Interceptor, Bounder CO. Hydrogeologist, Groundwater Modeler. Todd developed and implemented analytical groundwater models to predict the number of wells and pumping rates required to achieve target drawdown levels within excavation footprints along the a pipeline installation alignment that passed close to lakes and the unit extent boundary of a surficial aquifer; the depth and spatial extent of the cone-of-depression that will develop as a consequence of dewatering; and the distance from the excavation footprints over which the predicted drawdown will exceed 10 feet.

Water Services and Technologies, FEFLOW Model Review, Pontal Dam – Itabira Mining Complex, Minas Gerais Brazil. Hydrogeologist Groundwater Modeler. Todd reviewed modeling reports describing the construction and calibration of a finite-element numerical model of groundwater flow into, through, and under existing and proposed dykes developed to constrain dewatering discharge and precipitation runoff between mine tailings and waste rock piles. Todd developed an independent assessment of model reliability and provided suggestions for further analyses aimed at more fully documenting and reporting on model reliability and limitations.

Adams Broadwell Joseph & Cardozo, Environmental Impact Report (EIR) Review, Proposed Barton Road Logistics Center, Colton CA. Hydrogeologist. Todd reviewed the hydrogeologic and hydrologic sections of a draft EIR and supporting data; researched, compiled, and reviewed other relevant publicly available data; and prepared a report describing the potential impacts of a proposed development on groundwater levels with respect to California's Sustainable Groundwater Management Act (SGMA).

Laird Cowley PLLC, Hydrogeologic Data Review, Stillwater Mine, Red Lodge MT. Hydrogeologist. Todd compiled and reviewed hydraulic head, shut-in pressure, and surface water level data and analyses collected and prepared by the mine and other consultants and developed opinions regarding the probability of encountering high pressure water zones during drilling. Todd worked as part of a team of experts to inform legal staff during litigation regarding a tunnel flooding event.

Sound Transit, West Seattle – Ballard Link Extensions, Seattle/King WA. Hydrogeologist, Groundwater Modeler. Todd developed and implemented analytical groundwater models to predict the number of wells and pumping rates required to achieve target drawdown levels within station and crossover cavern excavation footprints along the tunnel alignment; the depth and spatial extent of the cone-of-depression that will develop as a consequence of dewatering; and the distance from the excavation footprints over which the predicted drawdown will exceed 10 feet.

Brown and Caldwell, OCSD TPAD Plant 2 Dewatering Assessment, Huntington Beach/Orange CA. Hydrogeologist, Groundwater Modeler. Todd developed and implemented a numerical groundwater flow modeling using the GMS software to predict the number of wells and pumping rates required to achieve target drawdown levels within the TPAD Plant 2 excavation footprint. Simulations were developed for scenarios involving natural conditions, cement deep soil mixing (CDSM) within the excavation footprint, and seven different cutoff wall configurations installed around the excavation/dewatering area. Todd used model results to delineate the depth and spatial extent of the cone-of-depression that will develop as a consequence of dewatering; and the distance from the excavation footprint over which the predicted drawdown will exceed 10 feet.

HDR Engineering, Lake Hills Trunk and Northwest Lake Sammamish Interceptor Project, Redmond/King WA. Hydrogeologist, Groundwater Modeler. Todd developed and implemented a numerical groundwater flow modeling using the GMS software to predict the number of wells and pumping rates required to achieve target drawdown levels within excavation footprints along the pipeline alignment; the depth and spatial extent of the cone-of-depression that will develop as a consequence of dewatering and the areas where the cone-of-depression will intersect critical aquifer recharge area (CARA) I and II zones; the distance from the excavation footprints over which the predicted drawdown will exceed 2 feet; and the percentage of pumped water for dewatering operations that will be drawn from the adjacent Sammamish River.

Southern Nevada Water Authority, Hydrostratigraphic Framework Model for Las Vegas Valley, Las Vegas/Clark NV. Geologic framework (EarthVision) modeler. The Southern Nevada Water Authority (SNWA) is developing a basin-scale numerical groundwater resource model to help them manage artificial aquifer recharge and groundwater withdrawals in the Las Vegas Valley. Todd developed a geologic framework model (GFM) of the Las Vegas Valley that will provide the hydrostratigraphic framework for numerical groundwater flow modeling. The modeling effort included the synthesis of multiple geophysical datasets and geologic maps into a map of the bottom of the basin fill material, modeling thrust and normal faults in the underlying basement rocks, synthesizing borehole data and published conceptual models into a hydrostratigraphic delineation of the basin fill, and assembling basement, volcanic, and basin fill units into a 3D model using ArcGIS and EarthVision™. Todd also trained SNWA staff on geologic modeling with the EarthVision software.

US Department of Energy, Geologic Structural Modeling, Nevada National Security Site, Las Vegas/Clark, NV. Todd led the development of a set of geological framework models to characterize the extent and magnitude of contamination resulting from historical underground nuclear testing. The models were created in EarthVision™ to simulate multiple faults that offset approximately 60 different discontinuous and variably thick hydrostratigraphic units, including carbonates, lava flows, welded and non-welded tuffs, and alluvial sediments. He and his team developed automated processes that allowed for rapid model revisions; a methodology for rapidly exporting the geological framework to flow modeling codes; and simulating radionuclide transport through the carbonate hydrostratigraphic units using FEFLOW™.

Puget Sound Energy, Groundwater Tracing & Numerical Modeling, Lower Baker Dam/Skagit, WA. Todd designed, constructed, and managed groundwater tracing programs at the Lower Baker Dam that defined connections and travel times between points of leakage in the forebay, discrete zones within boreholes drilled adjacent to the dam, and several discharge vents in the plunge pool. Managed the design and development of a numerical groundwater flow model constructed with the software FEFLOW™ that simulated leakage along discrete fracture flow pathways identified in a Leapfrog™ 3D geologic model and verified through groundwater tracing. Developed 3D models of simulated heads using EarthVision™ to create cross-sectional profiles of heads across key structural surfaces and calculate and rank erodibility along the fracture flow paths to support structural stability analyses.

Nexa Resources, Groundwater Tracing to an Underground Mine, Vazante, Brazil. Todd designed and conducted groundwater tracing studies that identified discrete leakage locations along a 10 km stretch of river flowing over karstic carbonate rocks and the locations of discharge into a 5 km section of underground mine tunnels spanning six elevation levels. The project involved numerous tracer injections into the river and long-term continuous sampling at more than a dozen locations within the underground mine workings using manual and automated samplers. Results included positive confirmation of connection to the river at multiple locations in the mine; and a hydrogeologic conceptual model of the mechanisms responsible for river water leakage into the mine tunnels.

Alachua County Environmental Protection Dept., Basin-Scale Water Budget Analysis, North Central Florida. Todd led an effort to define aquifer recharge in surficial aquifer and Floridan aquifer basins in north-central Florida that relied on streamflow data and a compilation of groundwater extraction records and estimates, swallet flow and lake storage measurements, and reported return flows to define recharge to surficial aquifer where present and unconfined portions of the upper Floridan aquifer as well as leakage from the surficial aquifer through the upper confining layers into the upper Floridan aquifer. There work culminated in the development of a spreadsheet tool that was delivered to County staff along with training on its use and the water budget science underlying the method. Their work is intended to support reviews of regional scale groundwater resource models and evaluation of impacts associated with consumptive use permitting.

Hull and Associates, HollyFrontier Corporation, Property Modeling, Tulsa/Tulsa, OK. Todd developed and inter-related 2D and 3D property models to delineate the horizontal and vertical extent of Light Non-aqueous Phase Liquid (LNAPL) plumes at an operational oil refinery and estimate total recoverable volumes. Models addressed geotechnical response properties, historical water table and apparent product thicknesses, underground structures, and key hydrostratigraphic surfaces. Property datasets included 4-channel Laser-Induced Fluorescence (LIF), Membrane Interface Probe (MIP) responses from a Flame Ionization Detector (FID) and Photo-Ionization

Detector (PID), Hydraulic Profiling Tool (HPT), and Electrical Conductivity (EC) responses recorded by all three tools.

HDR Engineering, Contaminant Transport Modeling, Central North Carolina. Lead Hydrogeologic Modeler. Todd led the development of five numerical models of dissolved phase cation and anion transport from coal ash basins through surficial and bedrock aquifer toward sensitive receptors including rivers and private and public supply water wells. The groundwater flow models were constructed in MODFLOW-NWT and MT3DMS. Modeled constituents included: antimony, chromium, hexavalent chromium, vanadium, and sulfate. Our team was part of a larger team of modelers assembled to complete modeling assessments required of HDR's client under a consent order agreement. All models were constructed, calibrated, and completed within an approximately six-month timeframe such that results could be included in the reports submitted to the North Carolina Department of Environment and Natural Resources within the required deadlines.

City of Tallahassee, Basin-Scale Water Budget Analysis, North Florida, South Georgia. Todd led an effort to define recharge into the surficial aquifer and leakage through the confining unit overlying the Floridan aquifer that relied on streamflow data for several sub-watershed basins in Georgia and Florida north of Tallahassee, FL. Leakage values for each basin were used to develop an empirical relationship between confining unit thickness and leakage that they used to provide the City with a map estimating recharge throughout the City on the basis of thickness of the underlying Miocene age confining unit. The maps were used by the City to help guide water reuse programs such that recharge to the Floridan aquifer was maximized.

ERM, Exxon-Mobile, Groundwater Flow & Contaminant Transport Modeling, Ontario/ San Bernardino, CA. Todd led an effort to develop a 3D digital conceptual site model and 3D numerical groundwater flow model of the West Coast Groundwater Basin surrounding Torrance, California using EarthVision™ and FEFLOW™. The model addressed hydrostratigraphic and structural relationships between the Gage/Gardena, Hollydale, Jefferson, Lynwood, and Silverado aquifers and the hydraulic properties of the Charnock Fault that crosses the upper half of the basin from northwest to southeast. The EarthVision CSM provided the framework for the FEFLOW groundwater flow model as well as a platform for the visualization of hydraulic communication between the aquifers through intervening confining layers. Regional water supply wells and the line of injection wells along the Pacific coast were included in the model such that predictions of the influence of pumping and injection on contaminant capture could be reliably rendered. Capture zones and the influence of the fault and regional wells were evaluated with 3D particle tracks exported from the FEFLOW model and visualized in GIS and the EarthVision CSM.

COAST, Nitrogen Loading to the Indian River Lagoon and Wakulla/St Marks River from OSTDS, St. Augustine/St. Johns, FL. Lead Hydrogeologic Modeler. Todd and his team identified the number and location of active onsite sewage treatment and disposal systems (OSTDS) and developed a numerical groundwater flow/contaminant transport model to quantify nitrogen loading to the Indian River from existing and projected OSTDS in southern Brevard County, FL. Modeling was performed using FEFLOW™. They identified 178,271 active OSTDS producing a total N load of 10,708 lbs/day to groundwater within the two basins. Their modeling showed that nitrogen loading from OSTDS results in groundwater concentrations up to 170 mg/l and estimated travel times between OSTDS locations and surficial water bodies ranging from days to 50 years with an average travel time of 5.1 years.

Tarmac America, Inc., Springs Mapping & Karst Aquifer Characterization, Waccasassa Bay Florida. Surveyed the Waccasassa Bay, west Central Florida to find, identify, and document spring discharges and karst features. Field verified hypothesized spring discharges based on the results of a USGS thermal anomaly survey of onshore and offshore regions using electrical conductivity surveys. Developed a conceptual model of groundwater flow patterns based on the results of the springs surveys, available potentiometric surface data, and aquifer performance tests performed at the proposed King Road quarry.

US Department of Defense, Tetra Tech EC, Geologic and Numerical Groundwater Modeling, DECP facility, Philadelphia/Philadelphia, PA. Todd led the development of a linked geological-groundwater flow model that simulates a 3D heterogeneous multi-aquifer system beneath the former DSCP facility in Philadelphia PA impacted by more than two million gallons of light non-aqueous phase liquid (LNAPL). Regional and site-scale solids models developed in EarthVision™ defined the geospatial relationship between the LNAPL plume, discrete discontinuous soil and rock zones, and buried utilities. A 3D numerical groundwater flow model constructed in FEFLOW™ was calibrated to 176 surficial aquifer and 20 deep aquifer wells using a Lipschitzian parameter optimization algorithm. Visualizations depicted flow paths from the LNAPL plume to property boundaries and into the deep aquifer in support of site closure plans.

Florida Geological Survey, Groundwater Tracing, Karst Aquifer Characterization and Numerical Groundwater Flow Modeling, Woodville Karst Plain, Woodville Karst Plain/North Florida. Todd was the lead scientist and project manager for a multi-faceted karst aquifer characterization effort that successfully established hydraulic connections between sinking streams and a municipal wastewater spray field, and several very large magnitude springs over distances of miles to tens of miles; and resulted in a first-of-its-kind dual-permeability numerical model of groundwater flow that simulated tracer defined groundwater flow paths, spring discharges, and regional pumping and head distributions. Also organized public education programs including workshops, short courses, field trips, and public presentations focusing on the ongoing results of the effort.

Coca-Cola North America, Hybrid Numerical Modeling of karstic groundwater flow, North Central Florida, Florida. Todd led the development of a regional-scale hybrid numerical model of groundwater flow through mapped, traced, and inferred conduits to numerous springs along the western Santa Fe River, and the exchange of groundwater between conduits and the aquifer matrix. Model was simultaneously calibrated to time periods representing high water and low water conditions; identified the impact of pumping on spring flows; and defined well and spring vulnerabilities to nitrate loading from intense agricultural operations and municipal wastewater disposal based on simulated travel times. Model-defined springshed boundaries were incorporated into the FDEP's BMAP.

Ginnie Springs Outdoors, Numerical Groundwater Model Evaluation, North Central Florida. Todd led an effort to test the validity and reliability of the predicted impacts of groundwater pumping to spring and river flows and upper Florida Aquifer groundwater levels generated by the Suwannee River Water Management District's regional numerical North Florida Model (NFM). Model evaluations included comparisons of: 1) assigned recharge to verifiable groundwater discharge; 2) simulated vs. tracer-defined flow paths and travel-times; 3) the identification of unreported residuals between simulated heads at rivers and springs and the target heads defined in river and drain node assignments; and 4) simulated vs. measured drawdowns at large municipal well fields.

Borton Lawson Engineering, Geologic and Groundwater Flow Modeling – Bucks County, PA. Lead Hydrogeologic Modeler. Todd and his team developed a geologic framework model and a 3D groundwater flow model that simulated groundwater flow through a complex faulted, folded fractured rock aquifer consisting of 65 stratigraphic units and multiple fault blocks. The geologic model was constructed from geologic maps that were used to project stratigraphic and structural surfaces using the EarthVision™ software. The surfaces were then used to construct a 35-layer finite-element groundwater flow model using the FEFLOW™ software. Both models were then used to simulate and visualize capture zones for municipal water wells owned and operated by five different municipalities from which wellhead protection zones were defined, published, and codified into municipal aquifer source water protection and land use ordinances.

H2H Associates, Buzzi-Unicem, Groundwater Modeling for Quarry Dewatering, Stockertown/Northampton, PA. Todd managed development of a groundwater model in a heavily karstified and geologically complex terrain in northeast Pennsylvania. Created multiple solids and groundwater flow models to simulate water table response to quarry dewatering and interactions with an adjacent stream. Identified probable karstic flow paths and defined a water budget for the quarry that quantified groundwater and re-circulated components of the pumpage. Published and resented results to PADEP and PADOT.

STV-PB Joint Venture, Metropolitan Transportation Authority, Geologic, Parameter, Groundwater Flow, Contaminant Transport Modeling, Long Island New York, NY. Todd developed a combined regional and site-scale 3D Geologic Framework Model (GFM) for the New York Metropolitan Transit Authority's East Side Access Project that delineated the spatial relationship between key geologic horizons, multiple sorbed-phase contaminant plumes, and various engineered features. The GFM was used as the framework for a numerical groundwater flow model from which his team developed mass transport models that simulated the movement of dissolved chlorinated volatile organic compounds through the complex geology and into or around large underground tunnel structures. Data generated from the respective process models was imported back into the GFM to develop visualizations and interpretations that were presented to project management, the New York Department of Environmental Conservation, and legal counsel.

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ARTICLES & REPORTS

Kincaid, T., Meyer, B., and Day, K., 2014. *"Assessment of the 2008 North Florida Numerical Groundwater Flow Model Limitations & Implications for Groundwater Resource Management",* Report developed for Ginnie Springs Outdoors, LLC, High Springs Florida and submitted to the

Florida Department of Environmental Protection and the Suwannee River Water Management District. Available for download at: http://www.geohydros.com/images/Pubs/geohydros_2014_srwmd_model_review.pdf.

Kincaid, T.R., 2009. *"Global Underwater Explorers – Focus on Conservation",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 10, No. 2 Spring 2009, in press.

Jarvis, T. and Kincaid, T.R., 2009. *"Stinking Sinks and perpetual pot holes: gypsite karst in Laramie, WY",* The Wyoming Connection, Winter 2009, Issue 72, pp. 24-29. Wyoming Association of Rural Water Systems, Glenrock, WY.

Kincaid, T.R. and Werner, C.L., 2008. *"Karst Hydrogeology of the Woodville Karst Plain Florida",* Field Trip Guidebook, American Society of Civil Engineers Field Trip, September 23, 2008, Tallahassee, FL., 23 p. Available for download at: http://www.geohydros.com/images/Pubs/geohydros_wkp_field_guide_2008.pdf.

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Kincaid, T.R., 2007, *"Can We Save Wakulla Spring?"* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 8, No. 1 Winter 2007, p. 8-11.
Kincaid, T.R., 2006, Water Resources, Sustainability and the Public Trust, DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 7, No. 2 Spring 2006, p. 17-23.

Kincaid, T.R., 2005, *"Florida Cave Database & GIS",* Underwater Speleology (Journal of the National Speleological Society – Cave Diving Section), Lake City, FL, Vol. 32, No. 6, p. 14-17. - Reprint of a Dir Quest Article from 2003

Kincaid, T.R., 2005, *"Problems of Groundwater & Surface Water Management Part* 2", Underwater Speleology (Journal of the National Speleological Society – Cave Diving Section), Lake City, FL, Vol. 32, No. 3, p. 18-23. - Reprint of a Dir Quest Article from 2002

Kincaid, T.R., 2005, *"Problems of Groundwater & Surface Water Management",* Underwater Speleology (Journal of the National Speleological Society – Cave Diving Section), Lake City, FL, Vol. 32, No. 2, p. 13-18. - Reprint of a Dir Quest Article from 2002

Kincaid, T.R., 2005, *"Hydrologic Connections",* Underwater Speleology (Journal of the National Speleological Society – Cave Diving Section), Lake City, FL, Vol. 32, No. 1, p. 8-13. Reprint of a Dir Quest Article from 2000

McKinlay, C. and Kincaid, T.R., 2004, *"The Woodville Karst Plain Project (WKPP): Taking the Wakulla Cave System Live",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 5, No. 4 Fall 2004, p. 8-11.

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Kincaid, T.R., 2003, *"GIS and the Florida Cave Database",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 4, No. 2 Spring 2003, p. 6-9.

Kincaid, T.R., 2002, *"Problems of Groundwater & Surface Water Management: Part 2",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 3, No. 2 Spring 2002, p. 7-11.

Kincaid, T.R., 2002, *"Problems of Groundwater & Surface Water Management: Part 1",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 3, No. 1 Winter 2002, p. 7-11.

Kincaid, T.R., 2001, *"Speleogenesis in the Kirkgozler Region of the Taurus Mountains, Southern Turkey",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 2, No. 2 Spring 2001, p. 17-22.

Kincaid, T.R., 2000, *"Hydrologic Connections: Mapping groundwater flow patterns through Wakulla cave & protecting ground water resources in the Woodville Karst Plain of North Florida",* DIR Quest (Journal of the Global Underwater Explorers), High Springs, Florida, Vol. 1, No. 2 Winter/Spring 2000, p. 33-38.

Kincaid, T.R., 1997, Book Review: *"Alternatives for Ground Water Cleanup"*, Environmental & Engineering Geoscience, vol. 3, no. 3, College Station, Texas.

Kincaid, T.R., 1996, *"Our New Direction"*, NACD Journal, vol. 28, no. 2, National Association for Cave Diving, Gainesville, Florida.

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Kincaid, T.R., 1995, *"Science and the WKPP"*, NACD Journal, 1995, vol. 27, no. 3, National Association for Cave Diving, Gainesville, Florida.

Ellins, K.K. and Kincaid, T.R., 1991, *"Cave Development in the Western Santa Fe River Basin. Hydrogeology of the Western Santa Fe River Basin"*, Field Trip Guidebook no. 32. Southeastern Geological Society.

SHORT COURSES, EDUCATIONAL EXHIBITS & VIDEOS

Karst Hydrogeology in Florida with Special Focus on the Santa Fe River Basin. Hydrogeology Consortium and University of Florida TREEO Center, August 23-24 2007, Gainesville Florida.

Karst Hydrogeology in Florida with Special Focus on the Woodville Karst Plain. Hydrogeology Consortium, December 5-6 2006, Tallahassee Florida.

Karst Hydrogeology in Florida with Special Focus on the Woodville Karst Plain. Hydrogeology Consortium, April 27-28 2006, Tallahassee Florida.

Karst Hydrogeology in Florida with Special Focus on the Woodville Karst Plain. Hydrogeology Consortium, November 14-15 2005, Tallahassee Florida.

Florida's Awesome Aquifer, 2002. A traveling poster exhibit and educational video on karst and groundwater flow in Florida. Developed for the Florida Geological Survey, Tallahassee, Florida.

Awesome Aquifer Adventure – 2001. A multi-media educational exhibit on aquifers and groundwater. Developed for the Reading Public Museum, Reading, Pennsylvania.
A Scientific Look at Underwater Caves - Spring, 1997 An educational video about underwater caves and groundwater flow in karst aquifers. Developed for the Geological Society of America Partners for Excellence Program, Boulder, Colorado.

Project KarstDive, Underwater Cave Exploration in Southern Turkey, 1997. A documentary video describing underwater cave exploration in Southern Turkey. Developed for the National Speleological Society-Cave Diving Section, Lake City, Florida.

EXPERT TESTIMONY / LITIGATION SUPPORT

St. Johns Riverkeeper, Florida Defenders of the Environment, Silver Springs Alliance, & Alice Gardner vs. St. Johns River Water Management District, Application No. 91926-4, Marion County, FL. (2017)

Mike Laudicina and Don DeMaria vs. DEP File No.: FLA671932-003-DW1P, etc. Florida Depart.of Environmental Protection, and Florida Keys Aqueduct Authority; Monroe County FL. (2015)

Sierra Club, Inc., and St. Johns RiverKeeper, Inc. with Florida Defenders of the Environment, Inc., vs. Sleepy Creek Lands, LLC and St. Johns River Water Management District, Case No. 14-2608; and Karen Alhers and Jeri Baldwin with Florida Defenders of the Environment, Inc. vs. Sleepy Creek Lands, LLC and St. Johns River Water Management District, Case No. 14-2609; Palatka FL. (2014)

Joseph Glisson vs. City of Tallahassee and the Florida Department of Environmental Protection: DOAA Case No.: 11 2953. (2011)

Sand Hills Lake Rural Community Special Treatment Zone Administrative Hearing (telephone). (2011)

Brown vs. Dept. of Community Affairs and Bay County Florida: Case No.: 10-0858GM. (2010)

Wakulla Springs Water Bottling; Wakulla County Commission Meeting, Crawfordville FL. (2006)

Quail Ridge Farm Nutrient Management Plan; PA Environmental Hearing Board, Harrisburg PA. (2003)

Ben Lewis Farms; Thompson Township Supervisors – Development Hearing, Thompson Township, PA. (2002)

Gel-Bare Farms; North Heidelberg Township Development Hearing, North Heidelberg Township, PA. (2002)

PROFESSIONAL ASSOCIATIONS

International Association of Hydrogeologists
National Ground Water Association
Florida Springs Institute
Hydrogeology Consortium

YEAR JOINED FIRM

December 21, 2020

YEARS WITH OTHER FIRMS

28

EMPLOYMENT HISTORY

GeoHydros, Reno, NV, President, Principal Hydrogeologist, Principal Modeler (2010-2020)
H2H Associates, Reno, NV, Principal Hydrogeologist, Principal Modeler (2007-2010)
Hazlett-Kincaid, Inc., Reno, NV, Vice President, Principal Hydrogeologist (2002-2007)
Hazlett-Kincaid, Inc., Akron, PA, Vice President, Principal Hydrogeologist (1999-2002)
Woodward-Clyde Federal Services, Las Vegas, NV, Geologic Modeler (1998)
University of Wyoming, Laramie, WY, Graduate Research Assistant (1994-1999)
GeoSolutions, Inc., Gainesville, FL, Hydrogeologist I (1992-1994)
University of Florida, Gainesville, FL, Graduate Teaching Assistant (1991-1993)

CLIENT REFERENCES

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Sarah C. Corbin, PWS, MSES | ASSOCIATE
Senior Biologist

EDUCATION
Bachelors of Arts, Biology and Environmental Studies, Whitman College, 2003
Masters of Environmental Science, Applied Ecology, Emphasis in Aquatic Ecology, Indiana University, 2008

REGISTRATIONS/CERTIFICATIONS
Certified Professional Wetland Scientist, No. 2375, 2013
Certified Erosion and Sediment Control Lead (CESCL), 70002, Expires 1/12/2025
WSDOT Certified Senior Biological Assessment Writer

ADDITIONAL TRAINING
Using the Revised Washington State Wetland Rating System in Western Washington
How to Determine the Ordinary High Water Mark, WA Department of Ecology
Oregon Streamflow Assessment Duration Method, US Army Corps of Engineers
Designing Compensatory Mitigation and Restoration Projects, WA Department of Ecology
Eelgrass Delineation Training, US Army Corps of Engineers
Completing habitat assessments for compliance with the 2008 NMFS Biological Opinion, FEMA

PROFESSIONAL SUMMARY
Sarah Corbin is a senior biologist and permit specialist with 14 years' experience providing wetland and stream delineations, aquatic functional assessments, environmental permitting, biological analyses, habitat assessments, and permit compliance for complex projects. She is a Professional Wetland Scientist with experience delineating and implementing the following regional supplements to the US Army Corps of Engineers' Delineation Manual: Western Mountains, Valleys, and Coast Region, Arid West Region, the Great Plains Region, and the Alaska Region. Sarah coordinates and provides local, state, and federal environmental permitting for hydropower facilities, restoration, linear transportation, utility, and railway projects; and performs additional technical field activities including Ordinary High Water Mark and High Tide Line determinations, rapid assessment stream surveys, bird nesting surveys, fish exclusion, and erosion control and water quality monitoring. She is experienced in writing biological assessments for Endangered Species Act compliance, providing NEPA documentation, writing wetland and stream delineation reports, identifying aquatic minimization and avoidance measures during project design and construction, and designing planting and mitigation plans.

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RELEVANT EXPERIENCE

WSDOT, I-5 Joint Base Lewis McChord Congestion Relief Project, Pierce County, WA. Lead Wetland Biologist and assistant project manager. WSDOT is proposing improvements along I-5 in the vicinity of JBLM to reduce traffic congestion and improve person and freight mobility. Sarah was instrumental in developing the Environmental Scan for the first phase of the project and authored the wetland, fish, and wildlife sections of the report. Sarah performed wetland and OHWM stream delineations for the project's 14 wetlands and 3 streams and received WSDOT concurrence on all delineations. She documented existing habitat conditions for federally and state-listed species and worked with the design team to minimize project impacts. She authored the project's Wetland and Stream Delineation Report and developed the project's Conceptual Wetland Mitigation Plan. Sarah wrote the wetland section of the project's NEPA Environmental

Assessment. In assessing the project's impacts to stream and wetland resources, Sarah coordinated extensively with planners and specialists at JBLM, Camp Murray, Pierce County, and the Cities of DuPont and Lakewood.

Puget Sound Energy, Lower Baker Dam Seepage Reduction, Concrete, WA. Lead Wetland Biologist and Permitting Specialist. Sarah is the natural resource task lead for this project to reduce seepage below the 285-foot-high, concrete gravity-arch dam. Sarah coordinated the project fieldwork and prepared the project permit applications and supporting documents. Sarah delineated and rated over 20 slope, depressional, riverine, and lacustrine wetlands on the site, received Corps-concurrence on all delineations, authored the project Critical Areas Report/Delineation Report, and developed the project's mitigation strategy to use an out-of-service-area mitigation bank when other options were deemed unviable. She worked closely with PSE environmental staff to develop required permit documents including the JARPA and JARPA drawings, SEPA Checklist, Biological Assessment, Restoration Plan, and Bank Use Plan. Sarah supported PSE environmental staff at environmental regulatory agency meetings and helped to track and organize the project's local, state, and federal permits. She assisted PSE in revising the Biological Assessment and coordinating with the US Fish and Wildlife Service when the gray wolf was re-listed after the start of construction. Sarah continues to support PSE with environmental permit compliance and contractor submittal review during project construction.

City of Marysville, 71st Avenue NE, Soper Hill Road, and Sunnyside Boulevard Intersection Improvement Project, Marysville, WA. Lead Wetland Biologist. To support the project alternatives analysis, Sarah performed a wetland and stream reconnaissance in the vicinity of the proposed intersection improvements and identified seven potential wetlands. Sarah authored the reconnaissance report and detailed applicable regulatory requirements associated with the wetlands and proposed development.

City of Mukilteo, Harbour Reach Drive Extension Project, Mukilteo, WA. Wetland Biologist. The project constructed a new urban arterial connecting Beverly Park Road and Harbour Pointe Boulevard SW. Sarah delineated and documented the existing conditions of three streams and five wetlands. Construction was completed in July 2021. Sarah assisted in developing the mitigation strategy, including siting the on-site wetland and buffer restoration and enhancement and assisted in the mitigation as-built documentation.

City of Kent Public Works Department, Mill Creek Reestablishment Project, Kent, WA. Lead Wetland Biologist Review. In the City of Kent, Mill Creek flows through a highly urbanized landscape. The project proposes to remove accumulated sediments in 3.7 river miles of the stream to increase flood storage capacity. Sarah provided a field review of the wetland and ordinary high water mark delineation performed for the project, including over 60 riverine wetlands. She verified the delineated boundaries, dug additional wetland an upland soil pits to support the delineation and reviewed the Cowardin Class designation in each wetland.

City of Edmonds Parks, Recreation, and Cultural Services, Edmonds Marsh Buffer Restoration Project, Edmonds, WA. Lead Wetland Biologist. The City proposed to restore portions of the Edmonds Marsh buffer. Sarah delineated portions of Edmonds Marsh adjacent to the proposed buffer improvements and developed the Edmonds Marsh Buffer Restoration Plan, incorporating feedback from City's Parks, Recreation, and Cultural Services Department, City maintenance staff, and local environmental groups. The plan included removal of invasive species and planting plans for select areas with varying exposure, hydrology, topography, and proximity to public roadways and public use areas.

City of Mill Creek, 35th Avenue Southeast Reconstruction Project, Mill Creek, WA. Wetland Biologist. The road improvement project addressed road flooding issues and included stormwater improvements resulting in minor wetland impacts. Sarah completed the wetland and stream delineation to identify critical areas and support the project's permitting process. Sarah assisted with preparation of environmental applications and documentation to local, state, and federal agencies. When the agencies questioned the site wetland character, Sarah performed pH monitoring and functional assessment to support the wetland's bog designation. Sarah also provided guidance and oversight to the biologist performing environmental compliance during construction.

BNSF Railway Company, Box Elder Creek Emergency Stream Crossing, Laurel Subdivision MP 208.5, Cascade County, MT. Lead Wetland Biologist and Permit Specialist. In response to an active landslide affecting the railroad tracks, BNSF installed an emergency access road and stream crossing in order to access and stabilize the slide area. Sarah assisted BNSF in determining which regulations applied to the work, performed a wetland and stream delineation, produced a Corps-approved delineation report, and coordinated the post-project environmental permitting and restoration efforts. After the temporary stream crossing had been removed, Sarah assisted BNSF with permitting a permanent stream crossing in the same location.

Puget Sound Energy, Site Development Feasibility Studies, Centralia and Redmond, WA. Lead Wetland Biologist. Sarah visited potential Puget Sound Energy-owned parcels in Centralia and Redmond to identify critical areas as part of comprehensive site development feasibility studies Shannon & Wilson completed for each PSE site. The review included wetland and stream reconnaissance, identification of floodplains, and potential habitat for federal and state protected species. Sarah co-authored Critical Areas Reports for each site.

Washington Department of Fish and Wildlife, Skagit Wildlife Area Delineation, Skagit County, WA. Lead Wetland Biologist. To support WDFW plans to improve an office trailer at the Skagit Wildlife Area Headquarters, Sarah delineated two wetlands in the vicinity of Wiley Slough, in historic floodplain on the landward side of the Wiley Slough Dike. She characterized and rated the wetlands and authored the delineation to support the environmental permit process.

Washington Department of Fish and Wildlife, Wells Recreation Boat Launch Project, Douglas County, WA. Lead Wetland Biologist. To support WDFW plans to improve the Wells Recreation Area boat launch, Sarah delineated one wetland along the Columbia River (Lake Pateros). She characterized and rated the wetland and authored the delineation report necessary to complete the project's environmental permit process.

BNSF Railway Company, Culvert Replacement Project, Big Horn Subdivision MP 609.1, Gillette, WY. Wetland Biologist and Permit Specialist. BNSF proposed to replace a culvert beneath the access road adjacent to the BNSF railroad tracks. Sarah delineated the wetland and stream associated with the culvert and produced a delineation report to support the permitting for the project.

Port of Everett, Bay Wood Interim Action Cleanup and Shoreline Restoration Project, Everett, WA. Wetland Biologist. The project combined environmental cleanup, wetland habitat restoration, and buffer enhancements along a shoreline adjacent to an upland site redevelopment. Sarah documented the project's as-built condition and co-authored the as-built restoration monitoring report. She also assisted the Port of Everett with a site visit with the Department of

Ecology and the Tulalip Tribe and developed a replanting plan for areas disturbed during the upland development construction. Sarah will continue to support the Port in site restoration monitoring.

City of Bellevue, 120th Avenue NE Corridor Project, Bellevue, WA. Wetland Biologist. This road improvement project includes road realignment and widening, stormwater management improvements, and replacing an existing culvert crossing with a new fish-passable culvert. Sarah delineated and characterized three onsite wetlands and one stream and authored the project Critical Areas Report/Delineation Report.

City of Bothell, Horse Creek Improvement and Relocation Project, Bothell, WA. Supporting Biologist. The Horse Creek Improvements Project restored a stream that flowed in an underground pipe through downtown Bothell, Washington. The project realigned the stream into approximately 2,000 linear feet of new aboveground stream channel. To support the local permitting process Sarah wrote an ecological justification for the stream restoration design, which contrasted the pre-project stream water quality, hydrologic, and habitat function with those of the restored condition.

Washington Department of Fish and Wildlife, Wiley Slough Tidegate Replacement, Skagit County, WA. Lead Wetland Biologist. The Wiley Slough tidegate is located on the WDFW – Skagit Wildlife Preserve on Fir Island, near Conway, WA. The replacement designs included two 10-foot-wide by 8-foot-high tidegates attached to a concrete box culvert. Sarah completed the estuarine, palustrine, and riverine wetland and ordinary high water mark delineations on the project site and wrote the project delineation report. The delineations were approved without comment by the regulatory agencies.

Washington Department of Fish and Wildlife, Wiley Dike Repair Project, Skagit County, WA. Lead Wetland Biologist and Permit specialist. The Project will repair 5,800 feet of the existing Wiley Slough Dike to prevent dike overtopping and meet dike stability requirements. The project includes replacing the Wiley Slough tidegate, raising the dike, incorporating riprap within and along the waterward face of the dike, and re-establishing estuarine wetland in an area of dike retraction. Sarah delineated the estuarine, freshwater tidal, riverine, and palustrine wetlands on the project site and authored the project's Delineation Report, Bank Use Plan, and Restoration Plan. To facilitate permitting of the project explorations, Sarah worked with the design team to avoid impacts to wetlands, completed the shoreline exemption application, and wrote the No Effect letter to document Endangered Species Act compliance. Sarah continues to support WDFW through the main project's permit process.

Skagit County Public Works, Freestad Lake Barrier Lagoon Restoration, Samish Island, WA. Lead Wetland Biologist and Permit Specialist. The project proposed to restore tidal inundation and estuary habitat to a 20-acre farm field. Sarah delineated and characterized the existing onsite palustrine and estuarine wetland systems and assisted the County in developing a permitting approach for the project.

Reserve Silica Corporation, Reserve Silica Cement Kiln Dust Landfill, Ravensdale, WA. Lead Wetland Biologist. Shannon & Wilson assisted Reserve Silica to better understand the extent and impacts of cement kiln dust present on the property. Sarah completed a wetland delineation in an area downgradient of the cement kiln dust burial. During the delineation she took pH measurements in surface water and exposed ground water. Sarah documented the findings and summarized applicable natural resource related local, state, and federal permits to

assist Reserve Silica in understanding requirements associated with remediating a high pH pond within the delineated wetland complex.

Puget Sound Energy, Upper Baker Dam Spillway Stability Improvements and Tailrace Channel Rock Debris Removal Project, Whatcom County, WA
Lead Wetland Biologist and Permitting Specialist. Sarah is the natural resource and permit task lead for this project to improve spillway slope stability and remove accumulated rockfall debris in the tailrace channel downstream of the dam. Sarah is supporting PSE environmental staff by preparing local, state, and federal permit applications and attending environmental regulatory agency meetings with PSE to help track and coordinate permit process, permit requirements, and answer agency questions. Sarah wrote the project Critical Areas Report/Delineation Report, the JARPA, SEPA Checklist, and Restoration Plan, contributed to the Biological Assessment, and coordinated production of the JARPA drawings. She assisted PSE in revising the Biological Assessment and coordinating with the US Fish and Wildlife Service when the gray wolf was re-listed during the consultation process. Sarah continues to assist PSE through the environmental permit process.

City of Everett, Transmission Line 5 Replacement Crossing Pilchuck River Design-Build Project, Snohomish, WA. Lead Wetland Biologist, Environmental Compliance, and Permit Specialist. Project replaced City of Everett Transmission Line 5, a 51-inch steel pipe carrying potable water from Lake Chaplain reservoir to the City of Everett, where it crosses the Pilchuck River. Sarah performed the wetland and ordinary high water mark delineations and produced the delineation report and supporting permit documents, including the Joint Aquatic Resource Application and the restoration planting plan to facilitate the project's environmental permit process. Sarah also coordinated with the Army Corps and the Snoqualmie Tribe to resolve permitting issues and expedite the permit process. During in-water work construction, Sarah performed spot-check environmental compliance in accordance with project permit conditions and provided onsite guidance to the contractor and their subcontractors. Sarah designed the project planting plans and provided guidance during the restoration phase. Sarah also produced the monitoring reports required by USFWS and NMFS to successfully close out the environmental permits following construction.

WSDOT, SR 532 Corridor Improvements: Camano Island to Interstate 5, WA. Assistant Environmental Compliance Manager. As assistant Environmental Compliance Manager for the SR532 design build project, Sarah performed wetland delineations and stream ordinary high water mark determinations and provided on-site design change guidance to avoid and minimize sensitive area impacts. Sarah is the primary author of the SR532 Environmental Compliance Plan, as well as the Water Quality Monitoring Plan for the Clean Water Act (CWA) Section 401 Water Quality Certification. She managed the SR532 environmental commitments database for the project and reviewed construction daily to ensure compliance with environmental permit commitments and regulations. Sarah performed fish exclusion in fresh water and tidally influenced work areas, allowing construction to continue without significant delay. As the Lead CESCL Field Review for the project, Sarah performed weekly site inspections of Best Management Practices (BMPs) and monitored all construction stormwater discharge points throughout the 10 mile project corridor. She also performed water quality monitoring for in-water and over-water work to meet CWA Section 401 Water Quality Certification conditions, and performed TESC design review and aided in the environmental compliance training of construction personnel. Following construction, Sarah oversaw the planting of wetland mitigation areas, performed mitigation monitoring, and obtained permit closure from the Corps after one year of monitoring, in areas where the contractor was responsible for mitigation.

Southwest Suburban Sewer District, Lift Stations No. 14 and 15 Design Retrofit, Burien, WA. Lead Wetland Biologist and Permit Specialist. The SWSSD proposed to retrofit and upgrade an existing below grade sewer line located within the intertidal zone of public and private beaches along Puget Sound. Sarah performed a wetland reconnaissance and forage fish assessment for the project, prepared a Joint Aquatic Resource Permit Application and coordinated with the Washington Department of Fish and Wildlife to obtain a Hydraulic Project Approval to cover the project in-water work. Sarah also provided technical review of the SEPA Checklist prepared by the sewer district prior to submittal to the City.

City of Edmonds, Harbor Square Outfall Stormwater Improvements, Willow Creek Daylighting Project, Edmonds, WA. Wetland Biologist and Permit Specialist. As part of the Willow Creek Daylighting project, the City is assessing potential improvements to existing outfalls within Edmonds Marsh. Sarah delineated the wetland and ordinary high water mark of Edmonds Marsh and Stella's Marsh and authored the project's delineation report, providing an assessment of functional characterizations of the wetlands and outlining the applicable local, state, and federal permits for the project. Sarah also completed water quality monitoring and macroinvertebrate sampling and contributed to the project's quarterly monitoring reports.

Washington Department of Fish and Wildlife, Fir Island Farm Restoration Feasibility Study, Skagit County, WA. Wetland Biologist. The project evaluated multiple alternatives to restore tidal marsh and coastal shoreline habitat on a 200-acre site. Sarah performed surface water elevation monitoring and data synthesis to help describe existing hydrologic conditions on the site. Sarah also helped obtain local, state, and federal permitting for the project and reviewed the marsh restoration planting and seeding plan.

Skagit County Public Works, North Fork Skagit Levee Setback Feasibility Study, Skagit County, WA. Lead Wetland biologist. The project studied the feasibility of a levee setback project to restore salmon habitat on the Skagit River. Sarah performed a wetland reconnaissance and authored a wetland characterization report to establish baseline wetland and vegetation conditions on the site. Sarah evaluated the biological merit of several tidal channel design alternatives for the Conceptual Design Alternatives report and designed a proposed planting and seeding mix for the marsh restoration habitats.

U.S. Coast Guard, Storis Water Line Replacement, Kodiak, AK. Lead Biologist. The USCG proposes to upgrade existing water line and stormwater infrastructure on the USCG Base Kodiak. The project includes constructing new stormwater outfalls in Womens Bay. Sarah wrote the Biological Assessment to evaluate the project's impact to fish and wildlife species or critical habitat listed under the federal Endangered Species Act and essential fish habitat protected under the Magnuson-Stevens Fishery Conservation and Management Act.

U.S. Department of the Navy, Navy Culvert Tunnel Construction Monitoring Project, Bremerton, WA. Biologist, Environmental Compliance and Permit Specialist. Sarah coordinated the environmental tasks for the construction of a fish passage barrier correction along Union River through an active Navy railroad embankment. To restore fish passage upstream in Union River, Shannon & Wilson assisted Navy Facilitates Engineering Systems Command with the construction of a new tunnel, measuring 20-feet wide and 280-feet long and within a 70-foot-tall Navy railroad embankment which connects Naval Base Kitsap Bremerton and NAVBASE Kitsap Bangor. Sarah performed a bird nest survey for compliance with the Migratory Bird Treaty Act, managed fish removal and exclusion downstream of the project site and performed routine monitoring of the block nets to ensure proper function throughout the project. Sarah authored the project's Environmental Protection Plan, prepared the Stormwater Pollution and Prevention Plan,

applied for the construction stormwater NPDES permit, and served as one of the project's Certified Erosion and Sediment Control Leads (CESCL), conducting TESC site inspections and reporting for compliance throughout construction and site restoration.

BNSF Railway Company, Norfolk Embankment Repair Project, Larimer County, Colorado. Wetland biologist, environmental compliance and permit specialist. The project involved bank stabilization along 0.4 miles of BNSF Railway embankment in Larimer County, Colorado. Sarah performed a site wetland delineation, wrote the project's Stormwater Management Plan to meet Colorado State guidelines and designed a native erosion control seed mix for use during the restoration phase based on the area's climate, topography, and elevation.

International and C Street LLC, International Airport Road and C Street, Anchorage, AK. Wetland Biologist. The project involved constructing the Anchorage Neighborhood Health Center and associated office buildings, and the Hyatt House hotel and associated parking on a series of parcels located in Anchorage, Alaska. Shannon & Wilson obtained a US Army Corps of Engineers Section 404 Individual Permit to fill wetlands at the development site and designed and implemented a mitigation plan for the project. Sarah performed vegetation and wetland inundation mitigation monitoring for the project, confirmed and mapped wetland boundaries, and coordinated with the Corps to assess whether the mitigation plan's performance standards had been met.

Whatcom County, Deming Levee Upstream Improvements, Deming, WA. Wetland Biologist. The Deming Levee project was an engineering and environmental design and permitting project that extended the Deming Levee 1,000 ft to tie into and prevent overtopping of a substandard structure. Sarah delineated the existing wetlands in the project area, wrote the project delineation report, contributed to the conceptual mitigation plan, and monitored the surface and groundwater dataloggers for the project.

BNSF Railway Company, Kelso to Martin Bluff, Task 6, Kelso, WA. Wetland Biologist. The project included constructing an additional rail, as well as new bridge across the Coweeman River. Sarah delineated ten wetlands and the ordinary high water mark along the Coweeman River and Owl Creek and provided functional assessments to document existing conditions in the project area. Sarah authored the wetland discipline report as part of the project's Environmental Assessment.

City of Redmond, West Lake Sammamish Sewer Manhole #2, Redmond, WA. Wetland Biologist, and Permit Specialist. The project constructed a manhole in an existing sewer line along the shoreline of Lake Sammamish to facilitate City maintenance. Sarah delineated site wetlands and delineated the Lake Sammamish Ordinary High Water Mark to assist the design team in minimizing and avoiding impacts. She also authored the project's Biological Assessment, contributed to the Wetland Delineation Report, and applied for and obtained local, state, and federal permitting, including coordination and site visits with agency representatives. Sarah also contributed to the project's Mitigation Plan and performed the mitigation baseline monitoring.

Lake Washington School District, Juanita High School Replacement, Kirkland, WA. Project manager, wetland biologist, and permit specialist. The school district intends to replace Juanita High School on the existing school property, which is constrained by a wetland and stream system on 3 of the 4 parcel boundaries. Sarah delineated site wetlands and the ordinary high water mark of the site stream to assist the design team in minimizing and avoiding impacts to critical areas and their buffers and authored the project Wetland and Stream Delineation Report/Critical Areas Report. During the project's design process the City of Kirkland updated

their critical areas code in several iterations and Sarah coordinated with the City to identify the best permitting pathway for the project. Sarah designed a buffer mitigation plan to compensate for temporary buffer impacts. Sarah has also coordinated with Shannon & Wilson hydraulic engineers to provide permitting and hydraulic analyses for a pedestrian footbridge that crossed the project site's stream. Sarah will continue to assist the project following construction completion through mitigation construction oversight and mitigation monitoring.

Lake Washington School District, Peter Kirk Elementary School Replacement, Kirkland, WA. Project manager, wetland biologist, and permit specialist. The school district is to replacing Peter Kirk Elementary School on the existing school property. Sarah delineated site wetlands and the ordinary high water mark of the site stream to assist the design team in minimizing and avoiding impacts to critical areas and their buffers. During the project's design process, the City of Kirkland updated their critical areas code in several iterations and Sarah coordinated with the City to identify the best permitting pathway for the project. She authored the project's Wetland and Stream Delineation Report/Critical Areas Report and designed and wrote the Buffer Averaging and Enhancement Mitigation Plan. Sarah successfully advocated for the School District when the City of Kirkland attempted to impose critical areas code requirements that were not applicable to the project. Sarah helped the project avoid the unnecessary code constraints by developing a case-specific ecological assessment, detailed code analysis and hydraulic analysis; by assisting the School District at City meetings; and by successfully presenting the School District's case at the project's public hearing. Sarah provided buffer mitigation construction compliance and is performing the City-required buffer mitigation monitoring and reporting.

City of Edmonds School District, New Madrona K-8 School Replacement Project, Edmonds, WA. Wetland Biologist and Permitting Specialist. The Edmonds School District replaced the Madrona K-8 School on the school property. Sarah performed wetland delineations to identify critical area constraints on the school property and prepared technical documentation to support design selection and permit applications. She also provided local critical areas code interpretation to minimize impacts to critical areas and reduce the permitting effort. Sarah designed and wrote a buffer averaging and enhancement plan to facilitate approval of local permits. Sarah also successfully presented the mitigation strategy and code compliance summary on behalf of the School District at the project's public hearing examination. Sarah will continue to provide mitigation monitoring to complete the City's critical area code requirements.

City of Sammamish, Issaquah-Fall City Road Improvements, Sammamish, WA. Wetland biologist. The project improved SE Issaquah-Fall City Road between 242nd Avenue SE to just beyond the intersection with Klahanie Drive SE. Sarah delineated and documented the existing conditions of North Fork Issaquah Creek and three wetlands, characterized, and rated the onsite wetlands and contributed to the delineation report. Sarah also assisted in the onsite mitigation as-built monitoring documentation.

City of Mill Creek, Delineation Services for Cook, Dobson, and Remillard Properties, Mill Creek, WA. Wetland Biologist. Performed wetland delineations and delineation reports to support the City's planning and development decisions for three City properties. Reduced the City's site restrictions by identifying and correcting delineation inconsistencies performed previously by other consultants on the sites.

City of Snohomish, Stocker Property, Snohomish, WA. Wetland Biologist. The City of Snohomish purchased 20 acres of farmland along the Snohomish River in order to build a public boat launch and associated parking area. Sarah performed a wetland delineation on the 20-acre property, delineated the Ordinary High Water Mark on the Snohomish River to help the City better understand site constraints. Sarah also assisted the City in understanding the federal, state,

and local permitting implications for the project, which was located within both City of Snohomish and Snohomish County jurisdictions.

Clallam County, Dungeness River Levee Setback and Floodplain Restoration, Clallam County, WA. Wetland Biologist and Permit Support. Clallam County is proposing a 2,500-foot-long, river levee setback, roadway relocation, and 120-acre river floodplain restoration project along the Dungeness River. Shannon & Wilson is performing fluvial geomorphology analysis, multidimensional (2D) hydraulic modeling, erosion and scour protection design, groundwater studies, sea level rise and climate change analysis, drainage studies, geotechnical stability analyses, seismic analyses, wetland and stream delineations, wetland functional assessments, and environmental permitting coordination. Sarah delineated nine wetlands and the ordinary high water mark of site streams within the 125-acre site, rated the wetland function using the 2014 Ecology wetland rating system, and analyzed project impacts and mitigation credits made available from the floodplain restoration.

City of Kent, Green River Levee Improvements, Kent, WA. Wetland Biologist. Sarah performed wetland reconnaissance of nine project sites, which included proposed sheet pile walls, proposed road realignment and proposed earthen berms. Sarah assisted in wetland delineations of wetlands that would be impacted by the proposed projects and categorized the wetlands using the Washington State Wetland Rating System for Western Washington. She also authored a wetland delineation report and biological assessment for the proposed projects and authored a biological assessment addendum when the project design changed.

Raft Island Improvement Association, Raft Island Community Bridge Replacement Project, Pierce County, WA. Lead Biologist and Permit Specialist. Sarah facilitated the permitting for the Raft Island Geotechnical Explorations, which included seven over-water borings. The project received funding from the US Department of Agriculture, necessitating coordination between federal and local agencies. Sarah prepared an addendum to the Raft Island Biological Evaluation, the Joint Aquatic Resource Permit Application, wrote a Shoreline Exemption letter and coordinated with Pierce County to obtain permitting for the project.

King County Library System, Algona Pacific Library Expansion, Algona Pacific, WA. Wetland Biologist. Sarah performed a wetland reconnaissance and wetland delineation for the project, rated observed wetlands using the Revised Washington State Wetland Rating System in Western Washington, and prepared a wetland delineation report.

Port of Seattle, Consolidated Rental Car Facility, SeaTac, WA. Biologist. Sarah conducted a subgrade and soil conditions evaluation for the landscaped areas associated with the Consolidated Rental Car Facility in SeaTac, WA. She used detailed field documentation and soil fertility analytical tests to compile a soil evaluation report used by Port of Seattle and Turner Construction in a case against a sub-contractor.

Kitsap County, Central Kitsap Collection & Conveyance System Upgrades Project, Kitsap County, WA. Wetland Biologist. Kitsap County Public Works plans to upgrade three lift stations. As a biologist, Sarah performed a wetland and stream reconnaissance at the lift station locations and along two proposed force main replacement alignments. Sarah rated the observed wetlands using the Revised Washington State Wetland Rating System in Western Washington, and produced a wetland and stream reconnaissance report.

City of Gig Harbor, Cushman Trail Project Phases 3 and 4, Gig Harbor, WA. Wetland Biologist. The City of Gig Harbor plans to build a non-motorized trail through areas with existing wetlands and streams. Sarah performed a wetland and stream delineation, rated observed wetlands, produced a wetland and stream delineation report, and completed a WSDOT

Environmental Classification Summary (ECS) checklist and Joint Aquatic Resource Permit Application to assist in project design and permitting.

WSDOT, SR 520 Bridge Replacements and High Occupancy Vehicle (HOV) Program, I-5 to Medina, Seattle, WA. Biologist. Sarah provided drilling observation erosion control monitoring for over-water and land borings in the I-5 to Medina portion of the SR520 Bridge Replacement Program. As a Shannon & Wilson (SW) field representative, Sarah visually classified soil samples, compiled a field log of each boring, and returned the samples to the SW laboratory for further analysis and testing. She provided TESC Quality Control through her drilling observations and documented those BMPs implemented by WSDOT personnel. Sarah also performed field reconnaissance for boring locations, assessing factors such as impact to critical areas, and BMPs and site restoration requirements.

BNSF Railway Company, BNSF Seattle to Everett Slope Stability Study, Seattle, WA. Project research and data synthesis. The study identified areas of high landslide hazard, prioritized the areas based on landslide hazard, and provided conceptual-level landslide mitigation measures and conceptual-level order-of-magnitude costs to improve slope stability and reduce the landslide hazard to railroad operations. The study included approximately 900 landslide events recorded between 1914 and 2011. Sarah compiled, organized, evaluated, and presented geologic and landslide hazard information for the report.

U.S. Department of the Navy, P-834 Pier Extension Geotechnical Explorations at Naval Base Kitsap (NBK) – Bangor, Kitsap County, WA. Biologist. The project included in-water geotechnical borings in Hood Canal, as well as upland borings and test pits along the Bangor shoreline. Sarah assessed the potential of the project to affect species listed under the Endangered Species Act. Sarah also wrote the No Effect letter for geotechnical explorations on the NBK Bangor naval base, which documented that the project will have no effect on listed species. Sarah also completed the Joint Aquatic Resource Permit Application for the project.

Youngsman Property, Twin Bridge Marine Park Biological Evaluation Addendum, Swinomish Channel, Skagit County, WA. Biologist. The Twin Bridges Marina was originally permitted in 2002 to install in-water piling, and over-water access ramps and floats for 16 boat houses. In 2012, Twin Bridge Marina proposed to modify 13 existing boat slips by moving and re-driving in-water piling. Sarah assessed the potential of the revised project to affect species listed under the Endangered Species Act and authored an addendum to the Twin Bridge Biological Evaluation documenting that the project would not likely adversely affect listed species.

The Nature Conservancy, Fisher Slough Levee Setback Project, Skagit County, WA. Biologist. The project involved the construction of approximately 3,300 feet of new levee, demolition of existing levee, and habitat restoration of 120 acres of marsh habitat. Sarah completed the Notice of Intent and implemented the NPDES permit during the last phase of the project, which involved bank stabilization in a flood damaged stream channel. Sarah also performed fish exclusion in the stream prior to the bank stabilization work.

Port of Friday Harbor, Bulkhead Replacement Project, Friday Harbor, WA. Biologist. Project replaced an aging rockery bulkhead with a 175-foot long geogrid and concrete wall bulkhead in Friday Harbor on San Juan Island, WA. The project also included the removal of approximately 17, 12-inch derelict timber creosote-treated piles. Sarah performed a qualitative beach survey to assess riparian vegetation and habitat features, aquatic substrate and macroalgae. Sarah also contributed to the project Biological Evaluation assessing potential impacts to listed species under the federal Endangered Species Act and essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act, which resulted in a *May Affect, not Likely to Adversely Affect* effects determination for the project.

Kitsap County, Central Kitsap Pump Stations 1, 6, 8, 18, and 38 Conveyance System Upgrades, Kitsap County, WA. Wetland Biologist and Permit Secialist. Kitsap County Public Works proposes to upgrade five pump stations and associated gravity sewers in Central Kitsap. Sarah delineated wetlands and streams along the project alignment and produced the wetland and stream delineation report needed to permit the project. Sarah also prepared the SEPA Checklist for the project on behalf of the County.

BNSF Railway Company, Lake Oahe MP 811.0 Landslide Repair, Mobridge, Corson County, SD. Wetland Biologist and Permit Specialist. Sarah assisted BNSF in permitting slope stabilization and repair measures near Lake Oahe, where an active, deep-seated landslide threatened the safety of train passage on the tracks above the landslide. Sarah successfully proposed and received Corps concurrence that onsite wetlands were hydrologically isolated from the lake and were therefore not regulated under the Clean Water Act, reducing project permitting effort and costs.

Stillaguamish Tribe of Indians, Harvey Creek Fish Ladder Replacement Project, Arlington, WA. Biologist and permit specialist. Project upgraded the Stillaguamish Tribe's Harvey-Armstrong Creek Hatchery, including replacing the fishway, fish ladder, and water intake to meet current fish passage criteria. Sarah wrote the project JARPA, completed the SEPA Checklist, and produced the project Biological Evaluation, documenting that the project was not likely to adversely affect ESA-listed species.

Alaska Department of Transportation and Public Facilities, Integrated Vegetation Management Plan, Alaska. Biologist. The Alaska Department of Transportation and Public Facilities (ADOT & PF) oversees 255 airports, 11 ferries, 5,619 miles of highway and 720 public facilities throughout the state of Alaska. Shannon & Wilson prepared an integrated vegetation management plan to assist ADOT & PF in using herbicide and non-chemical vegetation maintenance and control measures to improve public safety. Sarah conducted interviews with over a dozen ADOT & PF maintenance superintendents and completed site assessments of highway vegetative management throughout Alaska's ecoregions to evaluate maintenance challenges and prioritize effective management strategies. Sarah also completed factsheets on common herbicides to assist ADOT & PF maintenance operators and the public in understanding the potential risks associated with herbicide as described in the vegetation management plan.

Genesee & Wyoming, Inc., Seeding Specification for Milepost 522.3, Roseburg, OR. Lead Biologist. Genesee & Wyoming, Inc. planned slope stabilization efforts on the slopes above Milepost 522.3, where recent fires and surficial erosion resulted in vegetation loss on the slopes. To assist Genessee & Wyoming's slope stabilization efforts in the area, Sarah designing a seed mix of native, erosion control species appropriate for the area's climate and elevation and wrote the seeding specifications for the projects RFP.

Miller Hayashi Architects, Miller Hiyashi Wetland Reconnaissance, Seattle, WA. Wetland Biologist. Sarah performed a wetland reconnaissance evaluate existing conditions on a parcel within the City of Seattle. The reconnaissance and Sarah's coordination with the City of Seattle Department of Construction and Inspections was used to assist the client in the decision to purchase the subject parcel.

Lake Washington School District, Clara Barton (New North Redmond) Elementary School, Redmond, WA. Wetland Biologist, and Permit Specialist. The school district intends to build a new elementary school on a vacant parcel located in Redmond. Sarah performed a wetland and stream reconnaissance of the parcel, determined that none existed within the parcel, and provided

a letter report to the District documenting the findings. Sarah also assisted the School District during the SEPA comment review process.

Snohomish County, North Meander Stillaguamish River, Snohomish County, WA. Wetland Biologist. Performed wetland delineation and Ordinary High Water Mark delineation on a backwater area associated with the North Fork of the Stillaguamish River to support future geotechnical explorations and project design.

City of Renton, Ron Regis Park Restroom/Storage Facility, Renton, WA. Wetland Biologist and Permitting Specialist. The City of Renton is planning to construct a restroom and storage facility on Ron Regis Park. The park property is flanked by the Cedar River, Madsen Creek, and several associated wetlands, and lies within the 100-year floodplain of the Cedar River. Sarah delineated wetlands and streams on the park property and prepared the wetland delineation report to assist the City in understanding the extent of onsite wetland and stream buffers and building constraints. Sarah also wrote the Biological Assessment to assess project impacts on threatened and endangered species.

Kitsap County, Central Kitsap Treatment Plant, Kitsap County, WA. Wetland Biologist and Permitting Specialist. As a result of system improvements on the Central Kitsap Treatment Plant, the County constructed a wetland mitigation site on the treatment plant property. Sarah performed baseline and Years 1 through 5 of monitoring of the mitigation site and coordinated with the County on plant replacements, surface water monitoring, and maintenance requirements. Sarah also coordinated with the US Army Corps of Engineers in evaluating whether the project meets the mitigation success criteria. The mitigation site has successfully completed mitigation monitoring.

Kitsap County, South Central Force Main Project, Kitsap County, WA. Wetland Biologist and Permitting Specialist. The South Central Force Main project consisted of replacing approximately 6,500 feet of 30-inch-diameter techite force main from Paulson Road to the Central Kitsap Wastewater Treatment Plant (CKTP) with 34-inch high-density polyethylene pipe force main. The project included open trenching, installing the force main, and backfilling the trench with native soil. Mitigation for this project's impacts to wetlands and buffers generally consisted of restoring temporarily impacted areas to pre-construction conditions. Sarah performed mitigation monitoring over a period of 6 years and coordinated with the County on plant replacements and maintenance requirements. Sarah also coordinated with the US Army Corps of Engineers in evaluating whether the project meets the mitigation success criteria. The mitigation site has successfully completed mitigation monitoring.

Lake Washington School District, 2018 Bond Program School Reconnaissance, Cities of Kirkland, Redmond, and Sammamish, and Unincorporated King County, WA. Wetland Biologist, and Permitting Specialist. Sarah assisted the School District in evaluating several school locations that were previously identified for the 2018 Bond program. She provided wetland and stream reconnaissance, wildlife observations, and regulatory review at several proposed school sites to assist the School District in determining potential site constraints associated with critical areas. The schools under evaluation included Lake Washington High School, New Eastside School, Kamiakin Middle School, and Louisa May Alcott Elementary School.

University of Washington, University of Washington ICA Drainage Ditch Violation, City of Seattle, WA. Wetland biologist and Permitting Specialist. The University of Washington received a violation from the US Army Corps of Engineers and the WA State Department of Ecology for illegal placement of fill in a wetland during construction of the Husky Ballpark Stadium. Shannon

& Wilson assisted the UW in responding to the violation by assessing preconstruction condition and wetland function; coordinating with local, state, and federal agencies; and designing an agency-approved mitigation plan. Sarah performed oversight during mitigation site construction and will write the mitigation as-built or baseline monitoring report.

City of Edmonds Department of Parks, Recreation, & Cultural Services, Edmonds Marsh Critical Areas Report, City of Edmonds, WA. Wetland biologist. The City of Edmonds Department of Parks, Recreation, and Cultural Services is proposing to perform maintenance activities, including invasive species removal and native plantings within and in the vicinity of Edmonds Marsh. Sarah was the lead biologist in both field and aerial delineations of Edmonds Marsh, including performing a functional assessment of the marsh and identifying areas of salt and freshwater vegetation communities. Sarah wrote a Critical Areas Report to assist the City in obtaining approval to complete the proposed maintenance activities.

South Puget Sound Salmon Enhancement Group, Titlow Shoreline Restoration Project, City of Tacoma, WA. Permitting Specialist. To support the Titlow Shoreline Restoration Project, Shannon & Wilson performed geotechnical borings within existing BNSF right-of-way. The borings were located within shoreline jurisdiction and wetland buffer. Sarah obtained a City of Tacoma Shoreline Exemption to allow the borings to proceed.

City of Edmonds, Dayton Street Pump Station, City of Edmonds, WA. Permitting Specialist. The City of Edmonds proposes to upgrade the storm sewer system by constructing a stormwater pump station that connects to existing storm sewer in order to prevent flooding in the Dayton Street area. Sarah contributed to the SEPA Checklist and Shoreline Master Program Compliance Letter to facilitate local permitting for the project.

DATE JOINED FIRM

April 2009

EXPERIENCE WITH OTHER FIRMS

Washington State Department of Ecology. As a biologist for the WA State Department of Ecology, Sarah led a stream habitat monitoring project in the Wenatchee sub-basin. She performed rapid assessment stream surveys through stream channel characterization, macroinvertebrate collection and water chemistry analysis in wadeable and non-wadeable streams. The project required coordination with federal and state agencies as well as local land owners. Sarah also assisted in electro-fishing for the National Rivers and Streams Assessment (NRSA). Sarah implemented the Environmental Protection Agency's Environmental Monitoring and Assessment Program (EMAP), and NOAA Fisheries' Integrated Status and Effectiveness Monitoring Program (ISEMP).

PROFESSIONAL ASSOCIATIONS

Society of Wetland Scientists (SWS)
Women in Transportation Services (WTS)

EXHIBIT C

Scott Cashen, M.S.—Independent Biological Resources Consultant

July 19, 2022

Mr. Richard M. Franco
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Subject: Comments on the Draft Environmental Impact Report for the Giovannoni Logistics Center Project

Dear Mr. Franco:

This letter contains my comments on the Draft Environmental Impact Report ("DEIR") prepared by the City of American Canyon ("City") for the Giovannoni Logistics Center Project ("Project"). Buzz Oates LLC ("Applicant") is proposing to develop a 2.4-million-square-foot logistics center on approximately 163 acres of an approximately 208-acre site located in the northwestern portion of the City of American Canyon. The remaining 44.8 acres of the site would serve as mitigation for the Project's impacts to wetlands.

I am an environmental biologist with 29 years of professional experience in wildlife biology and natural resources management. I have served as a biological resources expert for over 150 projects in California. My experience and scope of work in this regard has included assisting various clients with evaluations of biological resource issues; preparation and peer review of environmental compliance documents prepared pursuant to the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"); and preparation of written comments that address deficiencies with CEQA and NEPA documents. My work has included written and oral testimony for the California Energy Commission, California Public Utilities Commission, and Federal courts. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University. A copy of my current curriculum vitae is attached hereto. 1

The comments herein are based on my review of the environmental documents prepared for the Project, a review of scientific literature pertaining to biological resources known to occur in the Project area, and the knowledge and experience I have acquired during my 29-year career in the field of natural resources management.

ENVIRONMENTAL SETTING

Vernal Pool Fairy Shrimp

The Project site provides potential habitat for the vernal pool fairy shrimp, a federally threatened species. LSA conducted dry season vernal pool fairy shrimp surveys in summer of 2016, and Monk & Associates conducted wet season vernal pool fairy shrimp surveys in winter of 2016-2017. The results of those surveys are outdated and can no longer be used to assume absence of the species at the Project site.

Vernal pool fairy shrimp disperse among individual pools through flooding, wind, birds, other vertebrates, and various human activities.[1] As a result, vernal pool fairy shrimp can rapidly colonize new pools, or recolonize pools from which they have been extirpated.[2] 2

Thousands of vernal pool fairy shrimp were detected in a vernal pool near the Napa County Airport, approximately 2,700 feet northwest of the Project site.[3] Numerous studies have shown that viable cysts can survive passage through the digestive tract of waterfowl, as well as attach to feathers or feet of wading birds, thus promoting long-distance dispersal among pools.[4] Because waterfowl and shorebirds commonly travel among ephemeral wetlands (e.g., vernal pools) to satisfy their energy requirements,[5] it is reasonably possible that birds transported vernal pool fairy shrimp from the occupied pool near the airport to the Project site within the five years that have elapsed since the surveys were conducted. As a result, negative results from surveys conducted five years ago do not justify the DEIR's determination that the Project would have no impact on the vernal pool fairy shrimp.

Special-Status Birds

The DEIR acknowledges that bird species designated as Bird Species of Conservation Concern by the United States Fish and Wildlife Service ("USFWS") are considered special-status species 3

[1] Incagnone G, F Marrone, R Barone, L Robba, L Naselli-Flores. 2015. How do freshwater organisms cross the "dry ocean"? A review on passive dispersal and colonization processes with a special focus on temporary ponds. Hydrobiologia 750:103-123. *See also* Maquire B Jr. 1963. The Passive Dispersal of Small Aquatic Organisms and Their Colonization of Isolated Bodies of Water. Ecological Monographs 33(2):161-185. *See also* U.S. Fish and Wildlife Service. 2007. Vernal pool fairy shrimp (*Branchinecta lynchi*), 5-year review: summary and evaluation. Sacramento Fish and Wildlife Office, Sacramento, CA, p. 5.

[2] *Ibid.*

[3] California Natural Diversity Database. 2022. RareFind 5 [Internet]. California Department of Fish and Wildlife [Jul 3, 2022].

[4] Figuerola J, A Green. 2002. Dispersal of aquatic organisms by waterbirds: a review of past research and priorities for future studies. Freshwater Biology 47:483–494. *See also* Figuerola J, A Green, T Michot. 2005. Invertebrate eggs can fly: evidence of waterfowl mediated gene-flow in aquatic invertebrates. American Naturalist 165:274–280. *See also* Proctor VW, CR Malone, VL DeVlaming. 1967. Dispersal of aquatic organisms: viability of disseminules recovered from captive killdeer. Ecology 48:672-676.

[5] Silveira JG. 1998. Avian Uses of Vernal Pools and Implications for Conservation Practice. In: Witham CW, Bauder ET, Belk D, Ferren WR Jr, Ornduff R (editors). Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA. p. 92-106.

that "must be evaluated in the context of evaluation under CEQA."[6] However, the DEIR fails to disclose or analyze impacts to the following Bird Species of Conservation Concern that were detected at the Project site:[7] California gull, savannah sparrow, and marbled godwit.[8] Although the DEIR does not quantify the number of California gulls and savannah sparrows detected at the Project site, it states that "large flocks" of marbled godwits were observed probing the ground and cow patties.[9]

In addition, the DEIR fails to disclose and analyze potentially significant impacts to the cackling goose, which is considered a special-status species on its wintering grounds in California.[10] Large flocks of cackling geese have been detected at the Napa Logistics Park[11] (which is located immediately north of the proposed Project site), and they likely occur at the Project site.[12] Grasslands associated with vernal pool landscapes in California provide critical foraging habitat for cackling geese.[13]

3

Short-eared Owl

The DEIR states that short-eared owl does not occur at the Project site because "[s]uitable habitat is not present at the site."[14] The DEIR's statement that suitable habitat is not present at the Project site is inconsistent with scientific information. According to the authors of *California Bird Species of Special Concern*:

> "Nesting short-eared owls require open country that supports concentrations of microtine rodents and herbaceous cover sufficient to conceal their ground nests from predators. Suitable habitats may include salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures. Tule marsh or tall grasslands with cover 30–50 cm in height can support nesting pairs."[15]

4

The Project site contains microtine rodents (e.g., voles), freshwater marshes, and ungrazed grasslands.[16] This constitutes prime habitat for the species. Indeed, a short-eared owl was

[6] DEIR, p. 3.3-5.
[7] DEIR, Appendix C.1, Biological Resources Report, pp. 20 and 21.
[8] *See* U.S. Fish and Wildlife Service. 2021. Birds of Conservation Concern 2021. United States Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds, Falls Church, Virginia. Table 6. Available at: <https://www.fws.gov/media/birds-conservation-concern-2021pdf>.
[9] DEIR, Appendix C.6, M & A 2018 Devlin Road Biological Resources Assessment, p. 4.
[10] California Natural Diversity Database. 2022. Special Animals List. April 2022.
[11] eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Checklists S101721785 and S103646781.
[12] Cackling geese resemble Canada geese, and therefore, some or all of the Canada geese detected at the Project site may have been cackling geese.
[13] Silveira JG. 1998. Avian Uses of Vernal Pools and Implications for Conservation Practice. In: Witham CW, Bauder ET, Belk D, Ferren WR Jr, Ornduff R (editors). Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA. p. 92-106.
[14] DEIR, Appendix C.1, Biological Resources Report, Attachment 2, Table 2.
[15] Shuford WD, T Gardali (editors). 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Western Field Ornithologists and California Department of Fish and Game.
[16] DEIR, p. 3.3-4 and Appendix C.9, Brent Helm 2021 Rare Plant Survey Report, p. 14.

flushed from vegetation along No Name Creek during a recent survey at the Napa Logistics Park.[17] For these reasons, the DEIR must analyze the Project's potentially significant impacts on the short-eared owl and its habitat. 4

Rare Plants

Dr. Brent Helm conducted botanical field surveys at the Project site on April 7, 2021, May 4, 2021, and May 17, 2021. The DEIR states: "[b]ased on the Helm Biological Consulting botanical survey results, no special-status plant species occur on the project site. Therefore, no impacts to special-status species would occur from construction of the proposed project. No mitigation is warranted for special-status plants."[18] There are two reasons why the DEIR's conclusions are not warranted. First, the surveys were conducted during a drought year. Many vernal (or ephemeral) pool plant species have seeds that can remain dormant for many years, an adaptation that allows them to survive through periods of drought.[19] Dr. Helm's rare plant survey report admits that nine of the rare plant species that could occur at the Project site are wetland dependent, and that below annual rainfall that occurred in 2020/2021 could have affected Dr. Helm's ability to detect presence of those species.[20] 5a

Second, the surveys did not encompass the blooming periods of all of the target species. Specifically:

- Napa bluecurls (*Trichostema ruygtii*) is an annual herb that blooms between June and October.[21] Specimen records in the California Consortium of Herbaria provide evidence of times of year a species is identifiable (i.e., its identity can be verified by an herbarium). The California Consortium of Herbaria has 19 specimens of Napa bluecurls collected in Napa County. All of those specimens were collected between July and September.[22] Dr. Helm did not visit a reference site to provide evidence that Napa bluecurls would have been evident and identifiable when he conducted his surveys in May 2021.[23] 5b
- Pappose tarplant (*Centromadia parryi* ssp. *parryi*) is an annual herb that blooms between May and November, depending on ecoregion, climatic conditions, and other variables that influence plant phenology. Although Helm conducted surveys on May 4 and May 17, it is very rare for pappose tarplant to bloom that early in Napa County. The California Consortium of Herbaria has 42 specimens of pappose tarplant collected in Napa County. Only three of the specimens were collected during the month of May, two of which consisted of seedlings collected on May 5, 1957.[24] Most of the remaining

[17] eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Checklist S103646781.
[18] DEIR, p. 3.3-23.
[19] *See* <https://wildlife.ca.gov/Conservation/Plants/Vernal-Pools>.
[20] DEIR, Appendix C.9, Brent Helm 2021 Rare Plant Survey Report, Appendix A.
[21] *Ibid.*
[22] Data provided by the participants of the Consortium of California Herbaria. Available at: <ucjeps.berkeley.edu/cch_archive/>. (Accessed July 5, 2022).
[23] DEIR, Appendix C.9, Brent Helm 2021 Rare Plant Survey Report, p. 9.
[24] Data provided by the participants of the Consortium of California Herbaria. Available at: <ucjeps.berkeley.edu/cch_archive/>. (Accessed July 5, 2022).

specimens were collected much later in the year (e.g., September and October).[25] Therefore, although pappose tarplant occasionally is detectable in May, Dr. Helm did not visit a reference site to confirm that pappose tarplant was evident and identifiable when he conducted his surveys in May 2021.[26]

5b

Because the surveys were not conducted when all potentially occurring rare plants were both evident and identifiable (as stipulated in the California Department of Fish and Wildlife ["CDFW"] survey protocol),[27] there is insufficient evidence to support the DEIR's determination that "no special-status plant species occur on the project site."

PROJECT IMPACTS ISSUES

Wetlands

According to the DEIR, the Project would impact 3.7 acres of palustrine emergent wetlands, seasonal wetlands, and vernal pools. However, nowhere does the DEIR discuss the ecological functions of the wetlands at the Project site, nor does it analyze the Project's indirect impacts on wetlands outside of the development footprint.

Vernal pool landscapes provide important habitat for birds at the local, regional, and continental scales.[28] On a local scale, vernal pools are part of a complex of habitats where a diversity of birds use various resources. On a regional scale, vernal pool landscapes enhance migratory bird habitats. On a continental scale, vernal pool landscapes provide vital links in the California portion of the Pacific Flyway corridor.

6

When flooded, vernal pools (or surrogates) are relatively shallow, resulting in optimal foraging depths for a variety of waterbirds. In addition, the relatively short hydroperiod of vernal pools (and surrogates) results in abundant wetland invertebrate fauna during spring, when birds require protein-rich resources to meet the energy demands of spring migration.[29]

Scientific literature has demonstrated that seasonal wetlands are critical to waterbird survival and recruitment.[30] For example, migratory shorebirds use temporary wetlands as stopover areas that may provide enough food to nearly double their body mass in a relatively short period. Grasslands associated with vernal pool landscapes in California also provide critical foraging habitat for birds. For example, during spring hyperphagia, cackling and Ross' geese spend considerable time grazing on protein rich plants in herbaceous habitats adjacent to vernal pools, while terrestrial gleaning shorebirds (e.g., curlews, plovers, and godwits) feed on beetles,

[25] *Ibid.*
[26] DEIR, Appendix C.9, Brent Helm 2021 Rare Plant Survey Report, p. 9.
[27] California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. p. 6.
[28] Silveira JG. 1998. Avian Uses of Vernal Pools and Implications for Conservation Practice. In: Witham CW, Bauder ET, Belk D, Ferren WR Jr, Ornduff R (editors). Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA.
[29] *Ibid.*
[30] *Ibid.*

spiders, and bees. These protein rich resources enable the birds to build nutrient reserves sufficient to reach their northern breeding grounds in good condition.

It is clear that the wetlands and grasslands at the Project site provide important habitat for a variety of birds, including numerous waterfowl and shorebird species.[31] For example, Monk & Associates reported "large flocks of migrating and over-stopping marbled godwits (*Limosa fedoa*) and long-billed curlews (*Numenius americanus*)" probing for insects in the ground and cow "patties" at the Project site.[32]

The City has determined that implementation of the mitigation measures proposed in the DEIR "would offset permanent impacts in-kind to the palustrine emergent wetland and in-kind to the vernal pools and ensure there is no-net loss of wetland area, thus reducing potential impacts to a level considered less than significant."[33] Although the proposed mitigation might ensure no-net loss of *wetland area*, it would not ensure no-net loss of wetland functions and values (which is the goal of the Clean Water Act Section 404 and 401 programs).[34]

6

The mitigation proposed in the DEIR entails preservation and creation of wetlands in a 44.8-acre "Wetland Preserve." This "preserve" would: (a) be located between the Project site and the Napa Logistics Center Project site, (b) be bisected by the Devlin Road Vine Trail Extension Project, and (c) have no connectivity to any other open space lands.[35] Thus, the preserve would function as a habitat "island" surrounded by urban (industrial) development.

Human disturbance, which interrupts feeding, resting, and reproductive behaviors, and uses energy associated with flight, has been identified as a major factor influencing the distribution and abundance of birds and other wildlife.[36] The "Wetland Preserve" proposed in the DEIR would be subject to ongoing disturbance caused by traffic, noise, and human activity associated with the Project. Disturbance stimuli associated with the Project would degrade the preserve's functions as wildlife habitat. MM LU-3, which requires measures to reduce the attraction of birds to the wetland preserve, would further diminish the preserve's functions as habitat. As a result, MM BIO-2 and MM BIO-3 would not reduce the Project's impacts on wetlands to less-than-significant levels.

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[31] *See* DEIR, Appendix C.6, M & A 2018 Devlin Road Biological Resources Assessment, Table 2.
[32] *Ibid*, p. 4.
[33] DEIR, p. 3.3-32.
[34] National Research Council. 2001. Compensating for wetland losses under the Clean Water Act. National Research Committee on Mitigating Wetland Losses. National Academy Press, Washington DC, USA. *See also* State Water Resources Control Board. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.
[35] *See* DEIR, Appendix C.6, M & A 2018 Devlin Road Biological Resources Assessment, Figure 2.
[36] Frid A, Dill L. 2002. Human-caused disturbance stimuli as a form of predation risk. Conservation Ecology 6(1):11. *See also* Silveira JG. 1998. Avian Uses of Vernal Pools and Implications for Conservation Practice. In: Witham CW, Bauder ET, Belk D, Ferren WR Jr, Ornduff R (editors). Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA. p. 92-106. *See also* Kaseloo PA, Tyson KO. 2004. Synthesis of Noise Effects on Wildlife Populations. US Department of Transportation, Federal Highway Administration. Publication No. FHWA-HEP-06-016. *See also* Reijnen R, Foppen R, Veenbaas G. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and planning and managing road corridors. Biodiversity and Conservation 6:567-581. *See also* Ortega CP. 2012. Effects of Noise Pollution on Birds: A Brief Review of Our Knowledge. Ornithological Monographs 74:6-22.

Swainson's Hawk

Swainson's hawks were observed foraging at the Project site during a site reconnaissance survey conducted during the nesting season.[37] According to the DEIR: "[d]evelopment of the proposed project would also provide and preserve in perpetuity approximately 45 acres of open space that would include habitat currently suitable for foraging by the Swainson's hawk as indicated by the observation of a Swainson's hawk foraging in the site in spring 2021."[38] Whereas the Project would preserve approximately 45 acres of foraging habitat, it would also result in the net loss of 163 acres of foraging habitat.[39] In addition, the Project "would be designed and managed to discourage wildlife use of the site," and MM LU-3 would incorporate measures "to reduce the bird attractant potential of the wetland area, consistent with the [Airport Land Use Compatibility Plan] policies."[40] The Federal Aviation Administration ("FAA") has ranked the relative hazard of various wildlife groups to aircraft. Hawks are one of the wildlife groups most commonly involved in damaging strikes to aircraft in the United States.[41] Therefore, it is reasonable to assume that the wildlife hazard reduction measures required under MM LU-3 would include measures to reduce the attraction of Swainson's hawks to the 45-acre open space preserve.

Loss of foraging habitat is one of the primary threats to Swainson's hawks in California.[42] In addition to generating a potentially significant impact under CEQA, the loss of foraging habitat from the Project site may result in the take (killing) of Swainson's hawks, which would be a violation of Section 2080 of California Fish and Game Code.[43] The DEIR provides the following analysis of this issue: 7a

> "Based upon the limited number of Swainson's hawk records within a 10-mile radius of the project site, there is sufficient foraging habitat in and within the vicinity of the project site. Based upon the limited number of known Swainson's hawk to occur within a 10 mile radius of the project site and the acreage of existing foraging habitat currently protected, the proposed project would not result in significant impacts to foraging habitat directly, indirectly, or cumulatively, therefore no mitigation is warranted for Swainson's hawk foraging habitat."[44]

There are several flaws with the DEIR's analysis. First, the DEIR fails to substantiate the assertion that there are only a "limited number of Swainson's hawk records within a 10-mile radius of the project site." To the contrary, the California Natural Diversity Database

[37] DEIR, Appendix C.1, Biological Resources Report, p. 28.
[38] DEIR, p. 3.3-24.
[39] DEIR, pp. 3.9-51 and -52.
[40] *Ibid.*
[41] Federal Aviation Administration. 2007. Hazardous Attractants on or near Airports. Advisory Circular 150/5200-33B. Federal Aviation Administration, Washington, D.C.
[42] California Department of Fish and Wildlife. 2016. Status Review: Swainson's Hawk (*Buteo swainsoni*) in California.
[43] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.
[44] DEIR, p. 3.3-24.

("CNDDB") has 8 "processed,"[45] and several additional "unprocessed,"[46] records of Swainson's hawk nest sites within a 10-mile radius of the Project site.[47] In addition, the eBird database has numerous records of Swainson's hawks within a 10-mile radius of the Project site (Figure 1, below).[48] 7a

Second, the Applicant's effort to locate Swainson's hawk nests that could be affected by the Project was limited to a single survey (on April 16, 2021), during which the Applicant's biologist drove roads within one mile of the Project site to inspect trees for raptor nest structures.[49] This survey effort was insufficient because it did not adhere to the Swainson's hawk survey protocol.[50] According to the Swainson's hawk survey protocol, three independent surveys need to be conducted between April 5 and April 20, and surveys during this period "may require a great deal of 'sit and watch' surveying."[51] The protocol's guidance is consistent with my experience monitoring Swainson's hawks: the nest often is not visible from ground level (e.g., due to position atop a tree with dense foliage) and is only detectable when one of the birds flies to or from the nest site (i.e., through extensive "sit and watch" surveying). 7b

Third, the DEIR provides no evidence (e.g., data) to support its claim that "there is sufficient foraging habitat in and within the vicinity of the project site." Based on my review of Google Earth imagery, much of the open space that remains in the vicinity of the Project site is comprised of vineyards, marshlands, or other land cover types that provide little to no value as foraging habitat for Swainson's hawks.[52]

To reverse the decline of Swainson's hawk populations, it is CDFW's policy that new development projects that adversely modify nesting or foraging habitat within 10 miles of an active nest should mitigate the project's impacts by providing compensatory mitigation.[53] Active Swainson's hawk nests are located within 5 miles of the Project site.[54] Therefore, in accordance with CDFW mitigation guidelines: 7c

> "Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of HM [Habitat Management] land for each acre of urban development authorized (0.75:1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation

[45] California Natural Diversity Database. 2022. RareFind 5 [Internet]. California Department of Fish and Wildlife [Jul 3, 2022].
[46] Personal communication with R. Elliott, Environmental Scientist, CNDDB on 16 Feb 2018.
[47] CNDDB data on Swainson's hawk nests in Napa County have not been updated since 2013.
[48] eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at: <http://www.ebird.org>. (Accessed July 13, 2022).
[49] DEIR, Appendix C.1, Biological Resources Report, pp. 21 and 29.
[50] *See* Swainson's Hawk Technical Advisory Committee. 2000 May 31. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.
[51] *Ibid*. p. 3.
[52] California Department of Fish and Wildlife. 2016. Status Review: Swainson's Hawk (*Buteo swainsoni*) in California. *See also* California Department of Fish and Wildlife. 2006 (update). Life history account for the Swainson's hawk. Available at: <https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range>. (Accessed July 12, 2022).
[53] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.
[54] Data provided by R. Elliott, Environmental Scientist, CNDDB on 16 Feb 2018.

easement (acceptable to the Department) on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk."[55]

Because the Project site is known to provide foraging habitat for Swainson's hawks, and because the DEIR does not require compensatory mitigation for impacts to that habitat: (a) the Project would have an unmitigated, significant impact on the Swainson's hawk; and (b) the Project requires Fish and Game Code Section 2081 Management Authorizations from the CDFW.

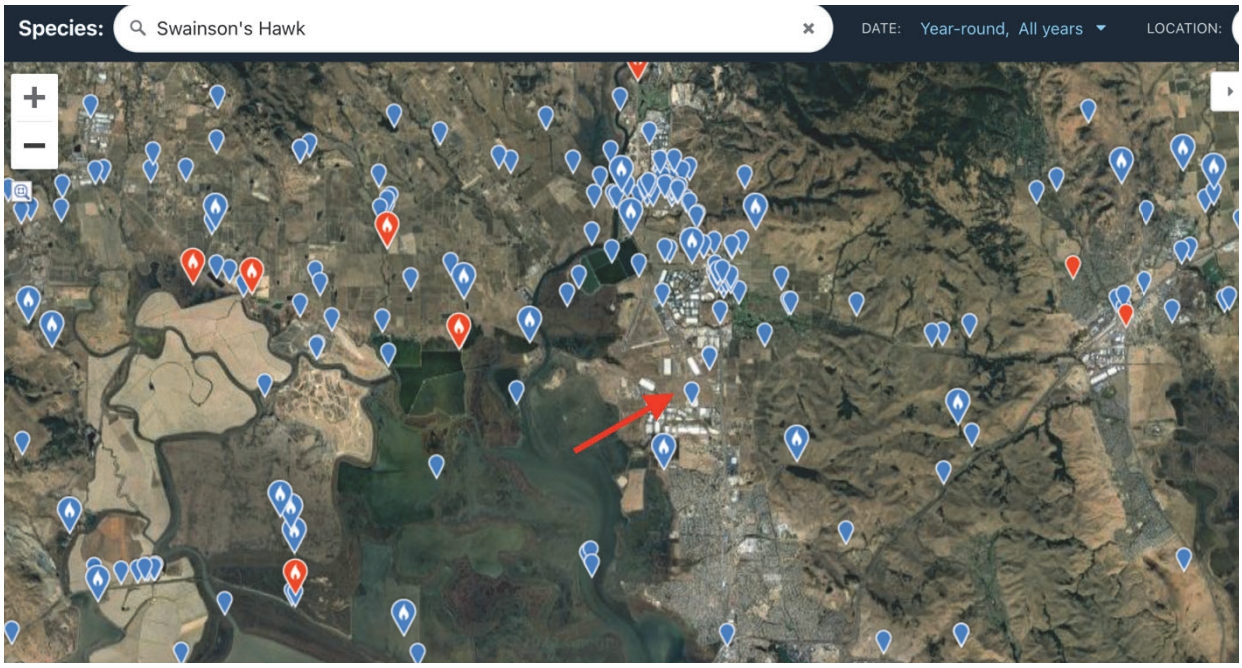

Figure 1. eBird records of Swainson's hawks (blue and red markers) in the vicinity of the Project site (red arrow).

7c

Golden Eagle

An HBG biologist observed a golden eagle foraging at the Project site on April 16, 2021.[56] The DEIR's analysis of impacts to the golden eagle is limited to the potential for Project construction activities to disturb golden eagle nests; the DEIR provide no analysis of the Project's impacts on golden eagle foraging habitat.

Habitat loss and fragmentation from development negatively affects golden eagles and can diminish prey populations.[57] In addition, golden eagles generally avoid areas with high levels of

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[55] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California. p. 12.
[56] DEIR, Appendix C.1, Biological Resources Report, p. 30.
[57] Phillips RL. 1986. Current Issues concerning the Management of Golden Eagles in Western U.S.A. In: Chandellor RD, Meyburg BU (editors). Birds of Prey Bulletin no. 3:149–156. *See also* U.S. Fish and Wildlife Service. 2016. Final Programmatic Environmental Impact Statement for the Eagle Rule Revision. Washington: Dept. of Interior.

9

development and human or vehicle disturbance.[58] In the unlikely event that golden eagles continue to forage at the Project site (i.e., at the proposed Wetland Preserve) after development of the Project, they could be subject to high mortality levels due to collisions with vehicles[59] traveling to and from the Project site.[60]

Best available scientific evidence suggests that the golden eagle population is declining in California and in many other portions of the species' range.[61] As a result, the USFWS has determined that the golden eagle population cannot withstand any additional "take" (e.g., mortality or decrease in productivity).[62] The loss of golden eagle foraging habitat can lead to take, as defined in the Bald and Golden Eagle Protection Act.[63] Because the DEIR does not incorporate mitigation for the Project's negative impacts on golden eagle foraging habitat, potentially significant impacts on the species remain unmitigated. 8

Northern Harrier

The northern harrier forages and may nest at the Project site.[64] The DEIR states that MM BIO-1c would reduce any potential impacts to nesting northern harriers to less-than-significant levels.[65]

One of the primary threats to northern harriers is the loss and degradation of nesting and foraging habitat.[66] Although the DEIR states "the proposed project would result in an approximately 163-acre reduction in avian foraging habitat,"[67] it provides no analysis of the significance of this impact on the northern harrier. Whereas mitigation measures BIO-1c (pre-construction surveys and nest buffers) might prevent direct impacts to northern harriers, the mitigation measure would do nothing to mitigate: (a) the Project's impacts on habitat, and (b) the potential loss of breeding territories, which are the ultimate source of recruitment (i.e., addition of new individuals to the population). Furthermore, the proposed wetland preserve would not mitigate the impacts because it would not provide the requisite habitat for the species. Northern harriers are susceptible to human disturbance and require a mosaic of large undisturbed habitats for nesting 9

[58] *Ibid. See also* Wiens JD, Bloom PH, Madden MC, Kolar PS, Tracey JA, Fisher RN. 2022. Golden Eagle Occupancy Surveys and Monitoring Strategy in Coastal Southern California, United States. Frontiers in Ecology and Environment 9:665792.
[59] Phillips RL. 1986. Current issues concerning the management of golden eagles in western U.S.A. In: Chandellor RD, Meyburg BU (editors). Birds of Prey Bulletin no. 3:149–156.
[60] DEIR, p. 3.12-11: "the proposed project is expected to generate an average of 3,888 net-new Passenger Car Equivalent (PCE) trips per day."
[61] U.S. Fish and Wildlife Service. 2016. Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update. Division of Migratory Bird Management, Washington D.C., USA. 101 pp.
[62] *Ibid*.
[63] *See* <https://www.fws.gov/law/bald-and-golden-eagle-protection-act>.
[64] DEIR, p. 3.3-25.
[65] *Ibid*.
[66] Shuford WD, Gardali T (editors). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
[67] DEIR, p. 3.9-51.

and foraging.[68] As discussed previously, the proposed wetland preserve would be a habitat "island" that would be subject to various forms of disturbance associated with the Project. Thus, the wetland preserve would not provide a large patch of undisturbed habitat. For these reasons, the Project's impacts on habitat for the northern harrier remain potentially significant. 9

Burrowing Owl

Habitat loss caused by development is the most immediate threat to burrowing owls that reside in high growth areas of the San Francisco Bay Area.[69] "Essential Habitat" for burrowing owls includes nesting, foraging, wintering, and dispersal habitat.[70] Accordingly, CDFW's Staff Report on Burrowing Owl Mitigation states the following with regard to impact assessments:

> "The impact assessment evaluates the potential loss of nesting burrows, satellite burrows, foraging habitat, dispersal and migration habitat, wintering habitat, and habitat linkages, including habitat supporting prey and host burrowers and other essential habitat attributes. This assessment determines if impacts to the species will result in significant impacts to the species locally, regionally and range-wide per CEQA Guidelines §15382 and Appendix G. The significance of the impact to habitat depends on the extent of habitat disturbed and length of time the habitat is unavailable (for example: minor – several days, medium – several weeks to months, high - breeding season affecting juvenile survival, or over winter affecting adult survival)."[71] 10

The DEIR states that use of the site by burrowing owls cannot be ruled out.[72] However, contrary to CDFW's guidance, the DEIR provides no analysis of impacts to burrowing owl habitat. Breeding burrowing owls are believed to be extirpated from Napa County.[73] Due to their strong site tenacity, burrowing owls rarely colonize new sites, or re-colonize historical sites from which they have been extirpated.[74] That is, burrowing owls do not merely nest elsewhere when nesting habitat at a site is eliminated. As a result, the presence of nesting burrowing owls at the Project site would be extremely significant from a biological perspective, and elimination of the nesting habitat would be significant and unmitigable.

The DEIR does not require habitat compensation even if burrowing owls are detected at the Project site during pre-construction surveys (MM BIO-1d). In accordance with CDFW's Staff Report on Burrowing Owl Mitigation:

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[68] Shuford WD, Gardali T (editors). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
[69] Townsend SE, C Lenihan. 2003. Burrowing Owl Status in the Greater San Francisco Bay Area. Proceedings of the California Burrowing Owl Symposium. Bird Populations Monographs No. 1:60-70.
[70] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation, p. 24.
[71] *Ibid*, pp. 7 and 8.
[72] DEIR, p. 3.3-26.
[73] Townsend SE, Lenihan C. 2003. Burrowing Owl Status in the Greater San Francisco Bay Area. Proceedings of the California Burrowing Owl Symposium. Bird Populations Monographs No. 1:60-70.
[74] Wilkerson RL, Siegel RB. 2010. Assessing changes in the distribution and abundance of burrowing owls in California, 1993-2007. Bird Populations 10:1-36.

> "…the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow."[75]

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The proposed wetland preserve would not mitigate the impacts to burrowing owl habitat because it does not contain ground squirrel burrows (or surrogates).[76] As a result, Project impacts to burrowing owl habitat remain potentially significant.

Merlin and Ferruginous Hawk

The merlin and ferruginous hawk have been detected immediately north of the Project site[77] and the DEIR acknowledges that the Project site provides suitable foraging habitat for both species.[78] The Project would directly and functionally eliminate (i.e., through implementation of MM LU-3) habitat for these two species. The DEIR fails to disclose, analyze, or incorporate mitigation for this potentially significant impact.

11

Invasive Plants (GP Policy 8.4.3)

Invasive (alien) plants threaten biodiversity, alter ecosystem processes,[79] and can cause extinction of native species.[80] Indeed, next to habitat loss, invasive species pose the greatest threat to the nation's biodiversity and natural resources.[81]

12

The Project has the potential to introduce invasive plant species or facilitate their spread. Construction vehicles and equipment are common vectors for transporting invasive plant propagules from one place to another.[82] In addition, soil and vegetation disturbance associated with Project construction and maintenance activities creates suitable conditions for the establishment of invasive plants.[83]

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[75] *Ibid*, p. 8.
[76] DEIR, Appendix C.1, Biological Resources Report, p. 31.
[77] eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Checklists S80227479 and S96771272.
[78] DEIR, Appendix C.1, Biological Resources Report, Table 2.
[79] Vitousek P. 1990. Biological invasions and ecosystem processes: towards an integration of population biology and ecosystem studies. Oikos 57:7–13. *See also* Theoharides KA, Dukes JS. 2007. Plant invasion across space and time: factors affecting nonindigenous species success during four stages of invasion. New Phytologist 176:256-273.
[80] Gurevitch J, Padilla DK. 2004. Are invasive species a major cause of extinctions? Trends in Ecology and Evolution 19(9):470-474.
[81] U.S. Department of the Interior, Office of Congressional and Legislative Affairs. 2013. Invasive Species Management. Statement for the Record: U.S. Department of the Interior Before the House Natural Resources Subcommittee on Public Lands and Environmental Regulation's oversight hearing on "Invasive Species Management on Federal Lands."
[82] Cal-IPC. 2012. Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers (3rd ed.). Cal-IPC Publication 2012-03. California Invasive Plant Council, Berkeley, CA.
[83] *Ibid.*

The DEIR fails to incorporate mitigation that would minimize the Project's potential to introduce invasive plant species or facilitate their spread. As a result, potentially significant impacts associated with the colonization and spread of invasive plants remain unmitigated, and the Project does not comply with General Plan Policy 8.4.3 (regarding control of alien plants). 12

Cumulative Impacts

CEQA Guidelines (14 Ca. Code Regs. § 15130(b)(3)) require lead agencies to define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used. The DEIR states: "[t]he geographic scope of the cumulative biological resources analysis is a 0.5-mile radius of the project site."[84] The DEIR fails to provide an explanation for limiting the geographic scope to 0.5-mile, which is far too small to provide a valid assessment of cumulative impacts to biological resources that occur at the Project site.

The DEIR states: "[a]lthough there would be loss of foraging habitat, the cumulative loss of this resource would not be considerable due to the abundance of habitat in the American Canyon area."[85] This statement is not supported by evidence (e.g., data) and conflicts with the Biological Resources Analysis prepared for the Green Island Road Reconstruction and Widening Project. The Biological Resources Analysis for that project states: "the Giovannoni property is the only remaining natural, undisturbed habitat located in the vicinity of the project site…"[86] Furthermore, the DEIR's rationale is flawed because it applies two different geographic scales to the analysis. It is not possible to accurately analyze cumulative impacts by using one geographic scale (i.e., the "American Canyon area") to analyze the abundance of remaining habitat, but a much smaller scale (i.e., 0.5-mile) to analyze other projects that would impact foraging habitat. 13

CDFW's comments in response to the Project's Notice of Preparation state: "reduction of available habitat for a special-status species, should be considered cumulatively considerable without mitigation to minimize or avoid the impact."[87] The DEIR does not incorporate mitigation for the Project's contribution to habitat loss for special-status species. Although the proposed wetland preserve would maintain approximately 45 acres of open space, the preserve would have minimal (or no) value as habitat for special-status species and could function as an "ecological trap" due to implementation of MM LU-3 and the surrounding industrial land uses.[88] As a result, the Project's incremental contribution to cumulative impacts remains significant.

[84] DEIR, p. 4-5.
[85] *Ibid.*
[86] DEIR, Appendix C.7, M& A 2019 Green Island Road Widening Biological Resources Assessment, p. 8.
[87] DEIR, Appendix A, CDFW comments, p. 6.
[88] An "ecological trap" occurs when an organism is lured into habitat where it either dies or has reduced reproductive output. *See* Robertson BA, Rehage JS, Sih A. 2013. Ecological novelty and the emergence of evolutionary traps. Trends in Ecology & Evolution 28:552-560.

Impacts Caused by MM LU-3

Wetlands are attractive to many types of wildlife, including many which rank high on the list of species hazardous to aircraft.[89] As a result, the FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited at least 10,000 feet from the nearest aircraft operations area (for airports serving turbine-powered aircraft).[90] The wetland mitigation project ("preserve") proposed in the DEIR would be located approximately 3,000 feet from the aircraft operations area at the Napa County Airport.

MM LU-3 requires a wildlife hazard assessment that would identify measures to reduce the bird attractant potential of the proposed wetland preserve.[91] The DEIR does not identify the specific measures that might be implemented to reduce the abundance of birds at the proposed wetland preserve. However, potential measures generally fall into one of three categories: (1) modifying the landscape in order to deter wildlife, (2) hazing, or (3) removal of hazardous wildlife.[92] Modifying the landscape to deter wildlife does not appear to be a feasible option because it would preclude implementation of MM BIO-2 and MM BIO-3 (which require establishment of wetlands in the preserve). In addition, removal (i.e., translocation or killing) of wildlife does not appear to be a feasible option due to legal constraints and the potential abundance of birds at the preserve. Therefore, it appears that implementation of MM LU-3 would (or might) require hazing (e.g., pyrotechnics, propane cannons, or directional sonic/hailing devices). Although hazing may be effective, it could have adverse effects on non-target organisms, including special-status species. As a result, the DEIR must disclose, analyze, and mitigate any potentially significant impacts associated with implementation of MM LU-3. 14

MITIGATION ISSUES

MM BIO-1a (Swainson's Hawk)

MM BIO-1a provides conflicting information on the pre-construction survey requirements in relation to initiation of construction activities. MM BIO-1a first states that preconstruction surveys "shall be completed for at least two survey periods immediately prior to commencement of project construction" in accordance with the survey protocol developed by the Swainson's Hawk Technical Advisory Committee. However, MM BIO-1a then states:

> "If no nesting Swainson's hawk are found during the first non-optional survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are 15

[89] Federal Aviation Administration. 2007. Hazardous Attractants on or near Airports. Advisory Circular 150/5200-33B. Federal Aviation Administration, Washington, D.C.
[90] Federal Aviation Administration. 2020. Hazardous Attractants on or near Airports. Advisory Circular 150/5200-33C. Federal Aviation Administration, Washington, D.C.
[91] DEIR, p. 3.9-52. [emphasis added].
[92] Federal Aviation Administration. 2020. Hazardous Attractants on or near Airports. Advisory Circular 150/5200-33C. Federal Aviation Administration, Washington, D.C.

> habituated to the ambient level of noise and disturbance emanating from the project site."

The survey protocol states: "[t]o meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods immediately *prior to a project's initiation*."[93] Therefore, allowing construction to commence during the first non-optional survey period would violate the protocol and would not ensure protection for the species. Furthermore, the DEIR's rationale pertaining to habituation of Swainson's hawks nesting in the Project vicinity is flawed because it assumes: (a) noise, human activity, and other disturbances that may cause nest abandonment would not increase (or change) as construction progresses; and (b) that construction activities have no potential to cause take of "habituated" Swainson's hawks. These assumptions have not been substantiated and are not necessarily valid. For example, a nesting pair of Swainson's hawk may tolerate noise and human activity that is dispersed across the Project site (e.g., during the site preparation and grading phases) but not noise and human activity that is concentrated near the nest site (e.g., during the building construction phase). Furthermore, even if the Swainson's hawk pair does not abandon their nest in response to Project construction activities, those activities could cause adverse effects that are not readily apparent to humans. For example, a simulation model examining the cost of human disturbance found large reductions in the number of food items captured following disturbance.[94] This constitutes take under Fish and Game Code Section 2080.[95] 15

MM BIO-1a requires installation of a 1,000-foot buffer around Swainson's hawk nest sites. CDFW mitigation guidelines call for a ¼-mile buffer.[96] The DEIR does not provide evidence that a 1,000-foot buffer would be sufficient to prevent impacts, nor does it require monitoring to validate the adequacy of the reduced buffer. As a result, and because the DEIR does not require compensatory mitigation for the Project's impacts to foraging habitat, Project impacts on the Swainson's hawk remain potentially significant.

MM BIO-1b (Golden Eagle)

MM BIO-1b states:

> "No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project site vicinity. Pre-construction surveys shall include investigation of all potential nesting trees within a 0.5-mile radius around all project activities. If active golden eagle active nests are identified within any trees within a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird 16a

[93] Swainson's Hawk Technical Advisory Committee. 2000 May 31. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. p. 2. [emphasis added].
[94] Blumstein DT. 2006. Developing an evolutionary ecology of fear: how life history and natural history traits affect disturbance tolerance in birds. Animal Behaviour 71:389-399.
[95] California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California. pp. 3 and 4.
[96] *Ibid*. p. 11.

> mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be modified by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance."

16a

There are several problems with MM BIO-1b. First, the mitigation measure does not require surveys that adhere to the USFWS survey protocol,[97] nor does it establish any standards for the survey techniques and level of effort. This is important because golden eagle nests may be difficult to detect unless special techniques (e.g., aerial surveys) are implemented.[98]

Second, the 1,000-foot buffer proposed in MM BIO-1b is inconsistent with USFWS guidelines, which recommend a one-mile no-disturbance buffer surrounding golden eagle nesting sites.[99]

Third, the DEIR provides no evidence that a reduced buffer might be sufficient for some eagles, nor does it explain how the qualified Raptor Biologist would be able to make the *a priori* determination that a particular eagle pair would be able to tolerate forthcoming construction activities. Instead the DEIR allows a trial and error approach with no monitoring or remedial action requirements.

16b

Golden eagles are known to be highly sensitive to many types of disturbance[100] and may react to human activity as far as 1,500 meters (4,921 feet) from nesting sites.[101] While golden eagles can develop tolerance of some forms of disturbance (e.g., hikers), there is no evidence that golden eagles can tolerate the high levels of disturbance caused by construction activities. Furthermore, Pauli et al. (2017) demonstrated that tolerance for even moderate levels of disturbance may not develop within a population at a sufficient rate to offset the adverse effects of the disturbance activity, particularly because the golden eagle is a long-lived species with low recruitment.[102]

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[97] Pagel JE, Whittington DM, Allen GT. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. *See also* U.S. Fish and Wildlife Service. n.d. Updated Eagle Nest Survey Protocol. Available at: <https://www.fws.gov/sites/default/files/documents/eagle-nest-survey-guidance-updated-protocol.pdf>

[98] *Ibid*, pp. 11 and 12.

[99] U.S. Fish and Wildlife Service. 2021 May. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada. Available at: <https://www.fws.gov/cno/conservation/migratorybirds/pdf-files/USFWS-Pacific-Southwest-Region-golden-eagle-nest-buffer-recommendations-May2021.pdf>

[100] Ruddock M, Whitfield DP. 2007. A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage. 181 pp.

[101] Steenhof K, Brown JL, Kochert MN. 2014. Temporal and Spatial Changes in Golden Eagle Reproduction in Relation to Increased Off Highway Vehicle Activity. Wildlife Society Bulletin 38(4):682–688.

[102] Pauli BP, Spaul RJ, Heath JA. 2017. Forecasting disturbance effects on wildlife: tolerance does not mitigate effects of increased recreation on wildlands. Animal Conservation 20:251-260. Available at: <https://zslpublications.onlinelibrary.wiley.com/doi/abs/10.1111/acv.12308>.

MM BIO-1c (Northern Harrier)

MM BIO-1c states: "[a]n active northern harrier nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing." The DEIR fails to provide evidence that a 500-foot buffer would be sufficient to prevent impacts to northern harrier nests, and thus the proposed buffer appears to be arbitrary. 17

MM BIO-1d (Burrowing Owl)

MM BIO-1d requires a no-disturbance buffer zone a minimum of 100 feet around any burrows occupied by burrowing owls. However, MM BIO-1d allows the Applicant to passively relocate owls if installation of the buffer zone would preclude construction activities.

The 100-foot buffer required under MM BIO-1d is inconsistent with CDFW mitigation guidelines, which recommend a 500-meter (1,640-foot) buffer between occupied burrows and activities causing a high level of disturbance (e.g., construction activities), regardless of season.[103] Because the DEIR allows the Applicant to install a buffer that is substantially (94%) less than the buffer recommended by CDFW, it does not ensure Project construction activities would avoid causing significant impacts to burrowing owls. 18a

<u>Passive Relocation (Burrow Exclusion)</u>

"Passive relocation" involves installation of one-way doors in burrow openings to evict burrowing owls and prevent burrow re-occupation. The DEIR does not disclose or evaluate impacts to burrowing owls due to burrow exclusion, nor does it identify mitigation measures sufficient to reduce such impacts below a level of significance. Consistent with CDFW guidelines, burrow exclusion is a potentially significant impact under CEQA that must be analyzed.[104] Specifically, burrow exclusion may result in: (a) significant loss of habitat for reproduction, refuge from predators, and shelter from weather; (b) increased stress on burrowing owls and reduced reproductive rates; (c) increased depredation; (d) increased energetic costs; and (e) risks posed by having to find and compete for available burrows.[105] 18b

The need for full analysis of potential impacts associated with passive relocation (i.e., exclusion) of burrowing owls is further supported by research that indicates most relocation projects have resulted in fewer breeding pairs of burrowing owls at the mitigation site than at the original site, and that relocation projects generally have failed to produce self-sustaining populations.[106] Investigators attribute the limited success of relocation to: (a) strong site tenacity exhibited by burrowing owls, and (b) potential risks associated with forcing owls to move into unfamiliar and perhaps less preferable habitats.[107]

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[103] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. p. 9.
[104] *Ibid*, p. 10.
[105] *Ibid*, pp. 10 and 21.
[106] Smith BW, JR Belthoff. 2001. Burrowing owls and development: short-distance nest burrow relocation to minimize construction impacts. J. Raptor Research 35:385-391.
[107] *Ibid.*

MM BIO-2 and BIO-3 (Wetlands)

Mitigation measures BIO-2 and BIO-3 propose compensation ratios of 2:1 and 1:1 for direct impacts to wetlands during Phase I and Phase II of the Project, respectively. The DEIR fails to provide evidence that the proposed ratios would be sufficient to mitigate Project impacts to less-than-significant levels.

In general, a ratio greater than 1:1 is required, in part due to scientific observations that compensatory mitigation sites often provide reduced functions compared to the impacted aquatic resources.[108] In addition, a compensation ratio greater than 1:1 may be needed to account for a project's indirect impacts, and for its contribution to cumulative impacts. In this case, the Project would have indirect impacts that would significantly reduce the habitat functions at the proposed wetland preserve. Indeed, the DEIR states:

> "The proposed project also would include landscaping and on-site drainage facilities that would be designed and managed to discourage wildlife use of the site. MM LU-3 requires the applicant to retain a qualified Biologist to prepare a wildlife hazard assessment that would identify measures to *reduce the bird attractant potential of the wetland area*, consistent with the ALUCP's policies."[109]

19

In general, compensatory mitigation projects that are conducted onsite are more likely to replace the ecological functions of the impacted wetlands. In this case, however, implementation of MM LU-3 would preclude the proposed preserve's ability to replace the wetland habitat functions that would be impacted by the Project. As a result, mitigation measures BIO-2 and BIO-3 do not reduce the Project's impacts on wetlands to less-than-significant levels.

MM BIO-4 (Breeding Birds)

MM BIO-4 requires a pre-construction breeding bird survey and installation of "appropriate" buffers around all active nests. There are three reasons why MM BIO-4 does not ensure that the Project's impacts on nesting birds would be less than significant:

First, MM BIO-4 fails to establish standards for the: (a) nest searching techniques, (b) minimum level of effort (i.e., survey hours per unit area), and (c) qualifications of the biologist conducting the survey. As explained below, the ability to successfully locate nests in the Project area is dependent on these three variables.

20a

Although the Project site lacks trees, it provides nesting substrates for ground-nesting birds. Most ground-nesting birds construct nests that are inconspicuous and thus hard to find.[110] As a

[108] National Research Council. 2001. Compensating for wetland losses under the Clean Water Act. National Research Committee on Mitigating Wetland Losses. National Academy Press, Washington DC, USA. Available at: <https://www.nap.edu/catalog/10134/compensating-for-wetland-losses-under-the-clean-water-act>.
[109] DEIR, p. 3.9-52. [emphasis added].
[110] Galligan EW, Bakken GS, Lima SL. 2003. Using a thermographic imager to find nests of grassland birds. Wildlife Society Bulletin 31(3):865-869.

result, successfully locating nests of ground-nesting birds requires special techniques.[111] Because MM BIO-4 does not require implementation of those techniques, it provides no assurances that the Project would avoid take of nesting birds.

Many biologists that conduct pre-construction surveys fail to devote the level of effort needed to locate all bird nests. Locating all nests within the Project site may require a considerable level of effort. To ensure all bird nests that may be affected by the Project are located, the DEIR must establish standards for the survey effort (e.g., minimum number of survey hours per unit area). 20a

The success of any nest-searching method depends on the surveyor's knowledge of where birds nest, how nesting birds behave, and the best time of day to search for nests.[112] Attaining this knowledge requires training and experience.[113] Because MM BIO-4 fails to establish standards for the "qualified biologist" that would conduct the nesting bird survey, it does not ensure the biologist would have the qualifications needed to successfully locate all nests within the Project area prior to construction.

Second, the DEIR fails to provide evidence that the buffer sizes proposed in MM BIO-4 would prevent negative impacts to nesting birds. Based on my review of scientific literature, the 50-foot buffer proposed for passerines and other non-raptors is grossly deficient for almost all species. Construction noise levels associated with the Project may reach 90 dBA at a distance of 50 feet.[114] Noise at that level far exceeds the level that is deleterious to most breeding birds.[115] Consequently, a 50-foot buffer would be insufficient to avoid significant impacts to nesting birds. For other projects, the CDFW has recommended a minimum no-disturbance buffer of 500 feet for unlisted raptors and 250 feet for other non-listed bird species.[116] 20b

Third, there are no performance standards, or monitoring and reporting requirements, for MM BIO-4. Monitoring is essential for two reasons: (1) to validate the adequacy of the nest buffers (and implement remedial actions if necessary), and (2) to ensure construction workers comply with the nest buffers. Based on my experience monitoring bird nests at construction sites, it is 20c

[111] *Ibid. See also* Martin TE, Geupel GR. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519. *See also* Rodewald AD. 2004. Nest-Searching Cues and Studies of Nest-Site Selection and Nesting Success. J. Field Ornithol. 75(1):31-39. *See also* Winter M, Hawks SA, Shaffer JA, Johnson DH. 2003. Guidelines for Finding Nests of Passerine Birds in Tallgrass Prairie. The Prairie Naturalist 35(3):197-211.

[112] Winter M, Hawks SA, Shaffer JA, Johnson DH. 2003. Guidelines for Finding Nests of Passerine Birds in Tallgrass Prairie. The Prairie Naturalist 35(3):197-211.

[113] *Ibid. See also* Martin TE, Geupel GR. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519.

[114] DEIR, p. 3.10-17.

[115] Kaseloo PA, KO Tyson. 2004. Synthesis of Noise Effects on Wildlife Populations. US Department of Transportation, Federal Highway Administration. Publication No. FHWA-HEP-06-016. Available at: <https://www.fhwa.dot.gov/environment/noise/noise_effect_on_wildlife/effects/effects.pdf>. *See also* Reijnen R, R Foppen, G Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and planning and managing road corridors. Biodiversity and Conservation 6:567-581. *See also* Ortega CP. 2012. Effects of Noise Pollution on Birds: A Brief Review of Our Knowledge. Ornithological Monographs 74:6-22.

[116] California Department of Fish and Wildlife. 2015 Jan 13. Letter to Merced County Planning and Community Development Department regarding the Final Environmental Impact Report (FEIR) for Wright Solar Project. p. 3.

very difficult to ensure compliance with nest buffers unless a full-time biological monitor is present on site.

This concludes my comments on the DEIR. 20c

Sincerely,

Scott Cashen, M.S.
Senior Biologist

Scott Cashen, M.S.
Senior Wildlife Biologist

Scott Cashen has 28 years of professional experience in natural resources management. During that time he has worked as a field biologist, forester, environmental consultant, and instructor of Wildlife Management. Mr. Cashen focuses on CEQA/NEPA compliance issues, endangered species, scientific field studies, and other topics that require a high level of scientific expertise.

Mr. Cashen has knowledge and experience with numerous taxa, ecoregions, biological resource issues, and environmental regulations. As a biological resources expert, Mr. Cashen is knowledgeable of the various agency-promulgated guidelines for field surveys, impact assessments, and mitigation. Mr. Cashen has led field investigations on several special-status species, including ones focusing on the yellow-legged frog, red-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and various forest carnivores.

Mr. Cashen is a recognized expert on the environmental impacts of renewable energy development. He has been involved in the environmental review process of over 100 solar, wind, biomass, and geothermal energy projects. Mr. Cashen's role in this capacity has encompassed all stages of the environmental review process, from initial document review through litigation support. Mr. Cashen provided expert witness testimony on several of the Department of the Interior's "fast-tracked" renewable energy projects. His testimony on those projects helped lead agencies develop project alternatives and mitigation measures to reduce environmental impacts associated with the projects. 21

Mr. Cashen was a member of the independent scientific review panel for the Quincy Library Group project, the largest community forestry project in the United States. As a member of the panel, Mr. Cashen was responsible for advising the U.S. Forest Service on its scientific monitoring program, and for preparing a final report to Congress describing the effectiveness of the Herger-Feinstein Forest Recovery Act of 1998.

AREAS OF EXPERTISE

- CEQA, NEPA, and Endangered Species Act compliance issues
- Comprehensive biological resource assessments
- Endangered species management
- Renewable energy development
- Scientific field studies, grant writing and technical editing

EDUCATION

M.S. Wildlife and Fisheries Science - The Pennsylvania State University (1998)
Thesis: *Avian Use of Restored Wetlands in Pennsylvania*
B.S. Resource Management - The University of California, Berkeley (1992)

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

Mr. Cashen has served as a biological resources expert for over 125 projects subject to environmental review under the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA). As a biological resources expert, Mr. Cashen reviews CEQA/NEPA documents and provides his clients with an assessment of biological resource issues. He then submits formal comments on the scientific and legal adequacy of the project's environmental documents (e.g., Environmental Impact Report). If needed, Mr. Cashen conducts field studies to generate evidence for legal testimony, or he can obtain supplemental testimony from his deep network of species-specific experts. Mr. Cashen has provided written and oral testimony to the California Energy Commission, California Public Utilities Commission, and U.S. district courts. His clients have included law firms, non-profit organizations, and citizen groups.

REPRESENTATIVE EXPERIENCE

Solar Energy

- Abengoa Mojave Solar Project
- Avenal Energy Power Plant
- Beacon Solar Energy Project
- Blythe Solar Power Project
- Calico Solar Project
- California Flats Solar Project
- Calipatria Solar Farm II
- Carrizo Energy Solar Farm
- Catalina Renewable Energy
- Fink Road Solar Farm
- Genesis Solar Energy Project
- Heber Solar Energy Facility
- Imperial Valley Solar Project
- Ivanpah Solar Electric Generating
- Maricopa Sun Solar Complex
- McCoy Solar Project
- Mt. Signal and Calexico Solar
- Panoche Valley Solar
- San Joaquin Solar I & II
- San Luis Solar Project
- Stateline Solar Project
- Solar Gen II Projects
- SR Solis Oro Loma
- Vestal Solar Facilities
- Victorville 2 Power Project
- Willow Springs Solar

Geothermal Energy

- Casa Diablo IV Geothermal
- East Brawley Geothermal
- Mammoth Pacific 1 Replacement
- Orni 21 Geothermal Project
- Western GeoPower Plant

Wind Energy

- Catalina Renewable Energy
- Ocotillo Wind Energy Project
- SD County Wind Energy
- Searchlight Wind Project
- Shu'luuk Wind Project
- Tres Vaqueros Repowering Project
- Tule Wind Project
- Vasco Winds Relicensing Project

Biomass Facilities

- CA Ethanol Project
- Colusa Biomass Project
- Tracy Green Energy Project

Other Development Projects

- Cal-Am Desalination Project
- Carnegie SVRA Expansion Project
- Lakeview Substation Project
- Monterey Bay Shores Ecoresort
- Phillips 66 Rail Spur
- Valero Benecia Crude By Rail
- World Logistics Center

Project Management

Mr. Cashen has managed several large-scale wildlife, forestry, and natural resource management projects. Many of the projects have required hiring and training field crews, coordinating with other professionals, and communicating with project stakeholders. Mr. Cashen's experience in study design, data collection, and scientific writing make him an effective project manager, and his background in several different natural resource disciplines enable him to address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

Wildlife Studies

- Peninsular Bighorn Sheep Resource Use and Behavior Study: (*CA State Parks*)
- "KV" Spotted Owl and Northern Goshawk Inventory: (*USFS, Plumas NF*)
- Amphibian Inventory Project: (*USFS, Plumas NF*)
- San Mateo Creek Steelhead Restoration Project: (*Trout Unlimited and CA Coastal Conservancy, Orange County*)
- Delta Meadows State Park Special-Status Species Inventory: (*CA State Parks, Locke*)

Natural Resources Management

- Mather Lake Resource Management Study and Plan – (*Sacramento County*)
- Placer County Vernal Pool Study – (*Placer County*)
- Weidemann Ranch Mitigation Project – (*Toll Brothers, Inc., San Ramon*)
- Ion Communities Biological Resource Assessments – (*Ion Communities, Riverside and San Bernardino Counties*)
- Del Rio Hills Biological Resource Assessment – (*The Wyro Company, Rio Vista*)

Forestry

- Forest Health Improvement Projects – (*CalFire, SD and Riverside Counties*)
- San Diego Bark Beetle Tree Removal Project – (*SDG&E, San Diego Co.*)
- San Diego Bark Beetle Tree Removal Project – (*San Diego County/NRCS*)
- Hillslope Monitoring Project – (*CalFire, throughout California*)

Biological Resources

Mr. Cashen has a diverse background with biological resources. He has conducted comprehensive biological resource assessments, habitat evaluations, species inventories, and scientific peer review. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and forest carnivores.

REPRESENTATIVE EXPERIENCE

Biological Assessments/Biological Evaluations ("BA/BE")

- Aquatic Species BA/BE – Reliable Power Project (*SFPUC*)
- Terrestrial Species BA/BE – Reliable Power Project (*SFPUC*)
- Management Indicator Species Report – Reliable Power Project (*SFPUC*)
- Migratory Bird Report – Reliable Power Project (*SFPUC*)
- Terrestrial and Aquatic Species BA – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BE – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BA/BE – Public Lands Lease Application (*Society for the Conservation of Bighorn Sheep*)
- Terrestrial and Aquatic Species BA/BE – Simon Newman Ranch (*The Nature Conservancy*)
- Draft EIR (Vegetation and Special-Status Plants) - Wildland Fire Resiliency Program (*Midpeninsula Regional Open Space District*)

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-Status Species Inventory *(CA State Parks: Locke)*
- Study design and lead bird surveyor - Placer County Vernal Pool Study *(Placer County: throughout Placer County)*
- Surveyor - Willow flycatcher habitat mapping *(USFS: Plumas NF)*
- Surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects *(Ducks Unlimited/USGS: San Pablo Bay)*
- Study design and Lead Investigator - Bird use of restored wetlands research *(Pennsylvania Game Commission: throughout Pennsylvania)*
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County *(HCV Associates: Napa)*
- Surveyor - Baseline inventory of bird abundance following diesel spill *(LFR Levine-Fricke: Suisun Bay)*

- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site *(City of Fairfield: Fairfield, CA)*
- Surveyor - Burrowing owl relocation and monitoring *(US Navy: Dixon, CA)*
- Surveyor - Pre-construction burrowing owl surveys *(various clients: Livermore, San Ramon, Rio Vista, Napa, Victorville, Imperial County, San Diego County)*
- Surveyor - Backcountry bird inventory *(National Park Service: Eagle, Alaska)*
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)
- Surveyor – Pre-construction surveys for nesting birds (*various clients and locations)*

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys *(USFS: Plumas NF)*
- Surveyor - Foothill yellow-legged frog surveys *(PG&E: North Fork Feather River)*
- Surveyor - Mountain yellow-legged frog surveys *(El Dorado Irrigation District: Desolation Wilderness)*
- Crew Leader - Bullfrog eradication *(Trout Unlimited: Cleveland NF)*

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys *(USFS: Plumas NF)*
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping *(City of Fairfield: Fairfield, CA)*
- GPS Specialist - Salmonid spawning habitat mapping *(CDFG: Sacramento River)*
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use *(CA Coastal Conservancy: Gualala River estuary)*
- Crew Leader - Exotic species identification and eradication *(Trout Unlimited: Cleveland NF)*

Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)

- Scientific Advisor –Study on red panda occupancy and abundance in eastern Nepal *(The Red Panda Network: CA and Nepal)*
- Surveyor - Forest carnivore surveys *(University of CA: Tahoe NF)*
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals *(US Navy: Skagg's Island, CA)*
- Surveyor – Surveys for Monterey dusky-footed woodrat. Relocation of woodrat houses (*Touré Associates: Prunedale*)

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the scientific review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units *(CDF: San Diego, San Bernardino, and Riverside Counties)*
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*various law firms, non-profit organizations, and citizen groups)*
- Lead Consultant - Pre- and post-harvest biological resource assessments of tree removal sites *(SDG&E: San Diego County)*
- Crew Leader - T&E species habitat evaluations for Biological Assessment in support of a steelhead restoration plan *(Trout Unlimited: Cleveland NF)*
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park *(County of Sacramento: Sacramento, CA)*
- Lead Investigator - Biological Resources Assessment for 1,070-acre Alfaro Ranch property *(Yuba County, CA)*
- Lead Investigator - Wildlife Strike Hazard Management Plan *(HCV Associates: Napa)*
- Lead Investigator - Del Rio Hills Biological Resource Assessment *(The Wyro Company: Rio Vista, CA)*
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: Validation of California's Wildlife Habitat Relationships (CWHR) Model *(University of California: Tahoe NF)*

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. Mr. Cashen has consulted with landowners and timber operators on forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CalFire fuels treatment projects *(SD and Riverside Counties)*
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project *(San Diego)*
- Crew Leader - Hillslope Monitoring Program *(CalFire: throughout California)*
- Consulting Forester – Forest inventories and timber harvest projects *(various clients throughout California)*

Grant Writing and Technical Editing

Mr. Cashen has prepared and submitted over 50 proposals and grant applications. Many of the projects listed herein were acquired through proposals he wrote. Mr. Cashen's clients and colleagues have recognized his strong scientific writing skills and ability to generate technically superior proposal packages. Consequently, he routinely prepares funding applications and conducts technical editing for various clients.

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society
Cal Alumni Foresters
Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*
Scientific Advisor – *Mt. Diablo Audubon Society*
Grant Writer – *American Conservation Experience*

TEACHING EXPERIENCE

Instructor: Wildlife Management - The Pennsylvania State University, 1998

Teaching Assistant: Ornithology - The Pennsylvania State University, 1996-1997

PUBLICATIONS

Gutiérrez RJ, AS Cheng, DR Becker, S Cashen, et al. 2015. Legislated collaboration in a conservation conflict: a case study of the Quincy Library group in California, USA. Chapter 19 *in*: Redpath SR, et al. (eds). Conflicts in Conservation: Navigating Towards Solutions. Cambridge Univ. Press, Cambridge, UK.

Cheng AS, RJ Gutiérrez RJ, S Cashen, et al. 2016. Is There a Place for Legislating Place-Based Collaborative Forestry Proposals?: Examining the Herger-Feinstein Quincy Library Group Forest Recovery Act Pilot Project. Journal of Forestry.

EXHIBIT D

794 Sawnee Bean Road
Thetford Center VT 05075

Norman Marshall, President
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July 19, 2022

Richard M. Franco
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000
South San Francisco, CA 94080

Subject: Giovanonni Logistics Center

Dear Mr. Franco,

I have reviewed trip generation, vehicle miles traveled (VMT) impacts and greenhouse gas (GHG) impacts of the proposed Giovanonni Logistics Center Draft Environmental Impact Report ("DEIR"). I make the following findings:

1) Given that the tenants have not been identified, trip generation is highly uncertain. The DEIR applies the lowest rate of five different rates for high-cube warehouses in *Trip Generation*. Depending on the tenant and type of operation, the actual trip generation rate could be three times the rate used in the DEIR or even higher.
2) The DEIR assumes an unrealistically low employee commute trip length.
3) Given more realistic assumptions about employee commute length, the DEIR should include mitigation strategies to reduce project VMT, and also address workforce housing.
4) The combination of underestimating trip length and underestimating trip generation causes the DEIR to underestimate GHG.

1

1

Project Trip Generation Could Be Much Higher Than Assumed

The project is comprised of up to 2.4 million square feet of warehouse. (DEIR, p. 1) The tenants have not been identified, and the nature of the operations are unknown at this time.

The DEIR estimated trip generation using the *Trip Generation Manual* category: "High-Cube Transload and Short-Term Storage Warehouse." (DEIR, p. 3.12-11) The *Trip Generation Manual* (10th Edition)[1] states:

> A high-cube warehouse (HCW) is a building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical HCW has a high level of on-site automation and logistics management. The automation and logistics enable highly efficient processing of goods through the HCS.

The *Trip Generation Manual* presents trip generation rates for five types of high-cube warehouses:

2

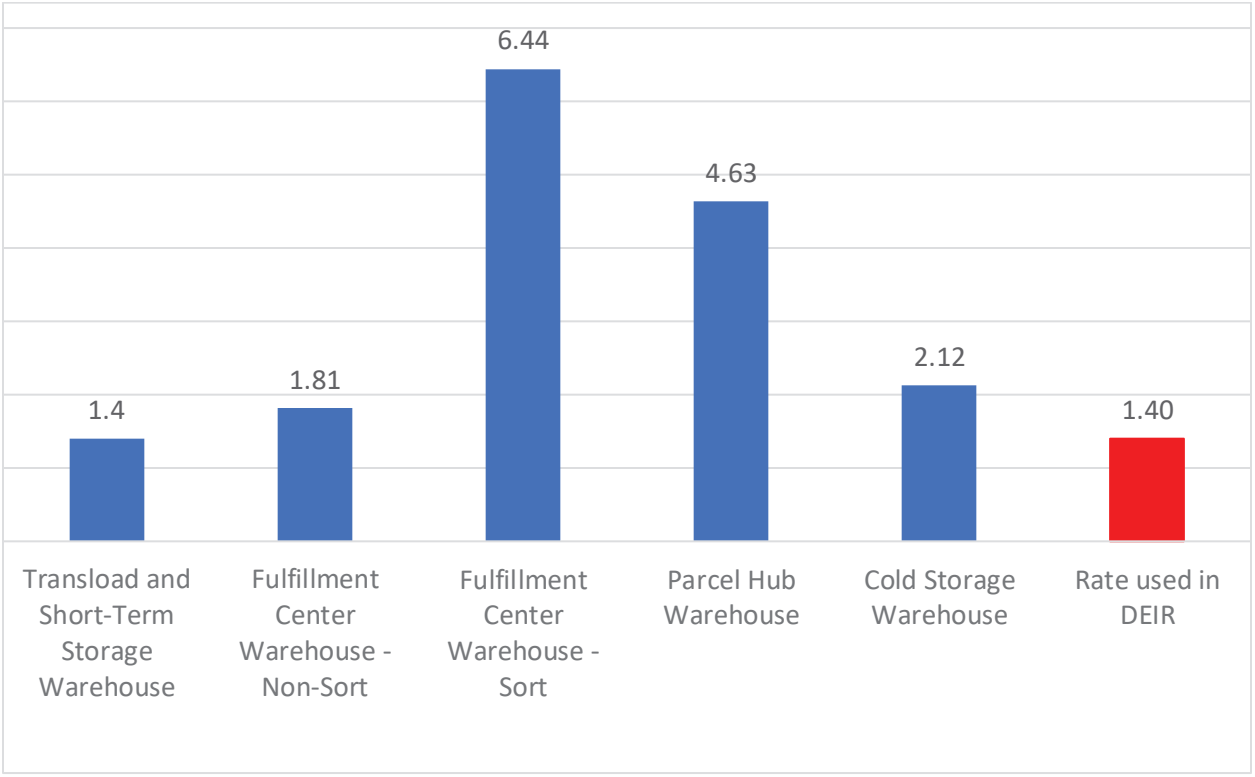
- High-Cube Transload and Short-Term Storage Warehouse (154) – Transload facilities have a primary function of consolidation and distribution of pallet loads (or larger) for manufacturer, wholesalers, or retailer. Short-term HCWs are high-efficiency distribution facilities often with custom/special features built into structure for movement of large volumes of freight with only short-term storage of projects.
- High-Cube Fulfillment Center Warehouse (155) – characterized by a significant storage function and direct distribution of ecommerce product to end users
    - A) Non-sort
    - B) Sort
- High-Cube Parcel Hub Warehouse (156) – typically serve as regional and local freight-forwarder facilities for time sensitive shipments via airfreight and ground carriers
- High-Cube Cold Storage Warehouse (157) – facilities typified by temperature-controlled environments for frozen food or other perishable products.

As shown in Figure 1, the trip generation rate per 1,000 square feet of high-cube warehouse varies significantly across these types. The DEIR used the category with the lowest trip rate.

[1] Institute of Transportation Engineers (2020).

2

Figure 1: Weekday Daily Trips for Different Types of High-Cube Warehouses



Source: *Trip Generation Manual 10th edition*

No justification is given for the choice to use the lowest trip generation category. In fact, it appears that the category is unknown now. The DEIR uses only the term "high-cube warehouse" which could be in any of the categories and the DEIR expressly recognizes that the proposed project may include cold storage.

The DEIR states:

> As the proposed project is a speculative warehouse development which could accommodate cold storage and accompanying Transport Refrigeration Units (TRU), this analysis considers two project scenarios: a cold warehouse project scenario and a dry warehouse project scenario. (p. 3.6-47)

So, at minimum, the Cold Storage Warehouse trip generation rate should have been used to be conservative as it is 51% higher and possible Cold Storage Warehouse usage is analyzed elsewhere in the DEIR.

A 2019 study of warehouse trip generation was done by WSP for the Western Riverside Council of Governments ("COG").[2] This study was based on counts at 16 warehouses, segmented between 11 fulfillment centers and 5 parcel hubs. The average rate across the 11 fulfillment centers was 2.13 per 1000 square feet, i.e., 50% higher than the rate used in the DEIR.

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[2] https://wrcog.us/AgendaCenter/ViewFile/Agenda/_02212019-292

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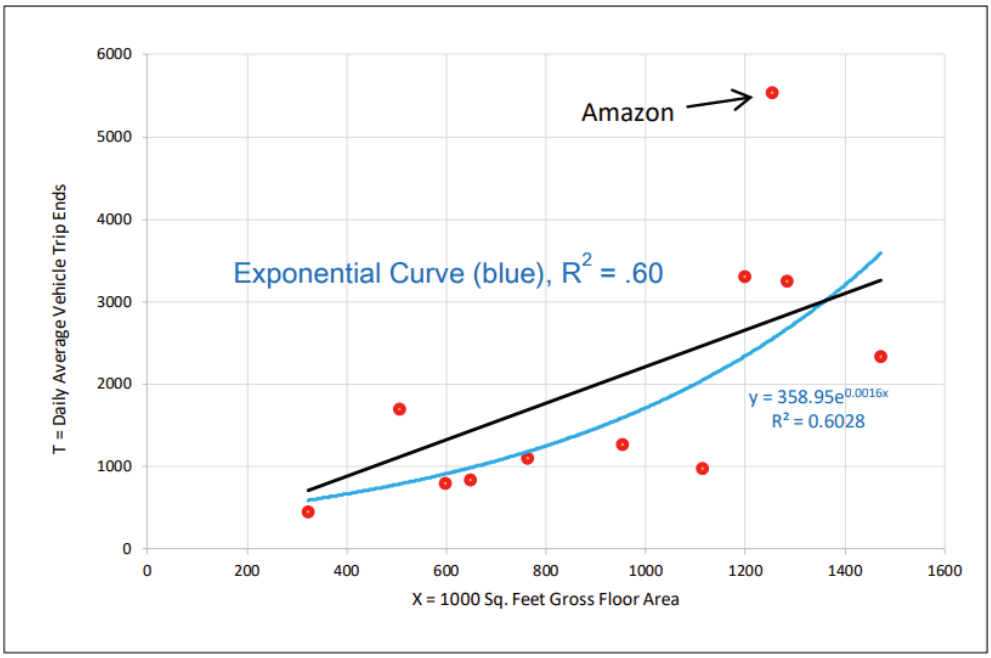
The data in the Western Riverside COG study are much more variable than the average rates suggest. As shown in the figure below, the different fulfillment center sites have wildly different trip generation rates, with an Amazon facility having an especially high rate.

Figure 2: Western Riverside COG Warehouse Trip Generation Study Exhibit 1

Exhibit 1: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Fulfillment Center)



Other businesses are copying many of Amazon's logistics methods, so the higher rate could be applicable to many new operations. For example, the trip generation at the Walmart site in the study also is higher than the average used in the DEIR. If the Amazon rate were applied to the proposed Giovanonnii Logistics Center warehouses, project trip generation would be three times as high as estimated in the DEIR.

As shown in the figure below, the observed trip generation rates at two of parcel hub sites in the study are even higher, i.e., about ten times the rate used in the DEIR.

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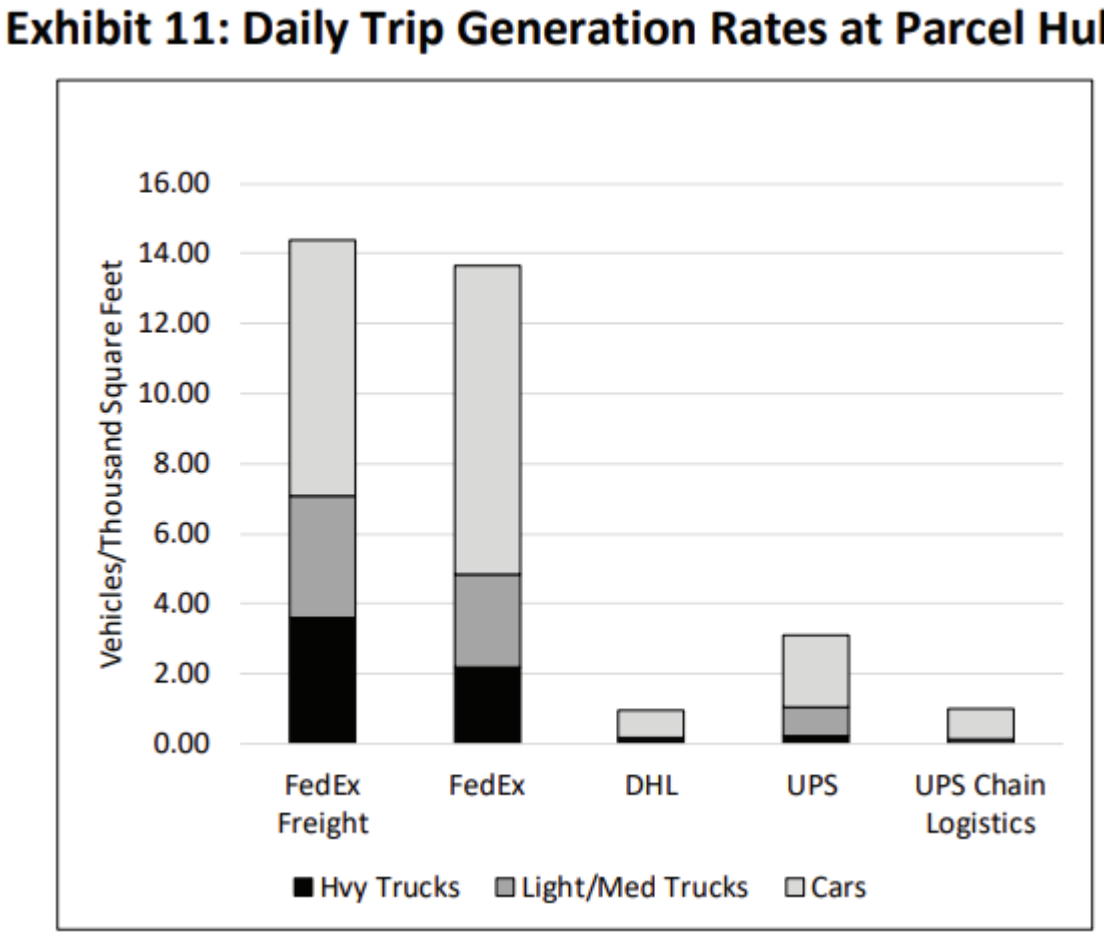
Figure 3: Western Riverside COG Warehouse Trip Generation Study Exhibit 11



The DEIR estimated a total of 2,832 daily trips at buildout. (Table 3-12-5, p. 3.12-12) The DEIR also estimated a total of 3,643 workers at buildout. If it is assumed:

- Workers make round trip commutes (number of workers x 2.0),
- Each worker works a 5-day week (x 5/7), and
- Most workers commute in single-occupant vehicles (x 95%), then

The 3,643 workers would make 4,944 commute trips on the average day, or more than 2,000 more than the trip generation estimate in the DEIR. And this represents commute trips only. It does not include any truck trips or trips associated with local delivery operations. The DEIR is trying to have it both ways – asserting a high employment count as an economic benefit and asserting a low trip generation estimate that implicitly assumes considerably lower employment.

In the Western Riverside study, the only warehouse site counted with over 2000 employees was the Amazon site which generates over 5000 trips per day.

Truck trip generation also would likely be much higher than assumed in the DEIR. The DEIR states that "the number of truck trips was … validated using local vehicle classification counts conducted in June 2021." (DEIR Appendix F, p. 13) The classification counts tell us only about the truck percentages in existing traffic today in the facility of the proposed project. These percentages tell us nothing about

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truck trip generation for the proposed facility. This apparently is the basis for the 0.22 truck trip rate in the DEIR, but this application of the traffic count data is invalid.

In the Western Riverside study, the average truck generation per 1000 square feet was 0.454 for conventional warehouses and 0.379 for fulfillment centers, i.e., about twice the 0.22 rate assumed in the DEIR. 2

Project Area Does Not Have Short Average Commute Distances as Asserted in DEIR

The DEIR states:

> For this study, the regional average VMT is defined as the nine county Bay Area average. As reported by the City of Vallejo in their CEQA Transportation Impact Analysis Guidelines (dated October 2020), the Nine County Bay Area Average VMT per employee is 23.00 miles per employee. According to Statewide Travel Demand Model estimates, the proposed project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles. Because this per capita VMT rate is lower than the significance threshold of 23.0 miles, the proposed project would be considered to have a less than significant VMT impact. It is noted that a more conservative methodology sometimes used by OPR for other employment-based land uses (such as office buildings) states that a project generating a VMT that is 15 percent or more below the regional average VMT, or 19.55 miles, is presumed to have a less than significant VMT impact. If this methodology were applied, the project would be considered to have a less than significant VMT impact since the VMT per employee of 16.24 miles is less than the threshold of 19.55 miles (p. 3.12-17) 3

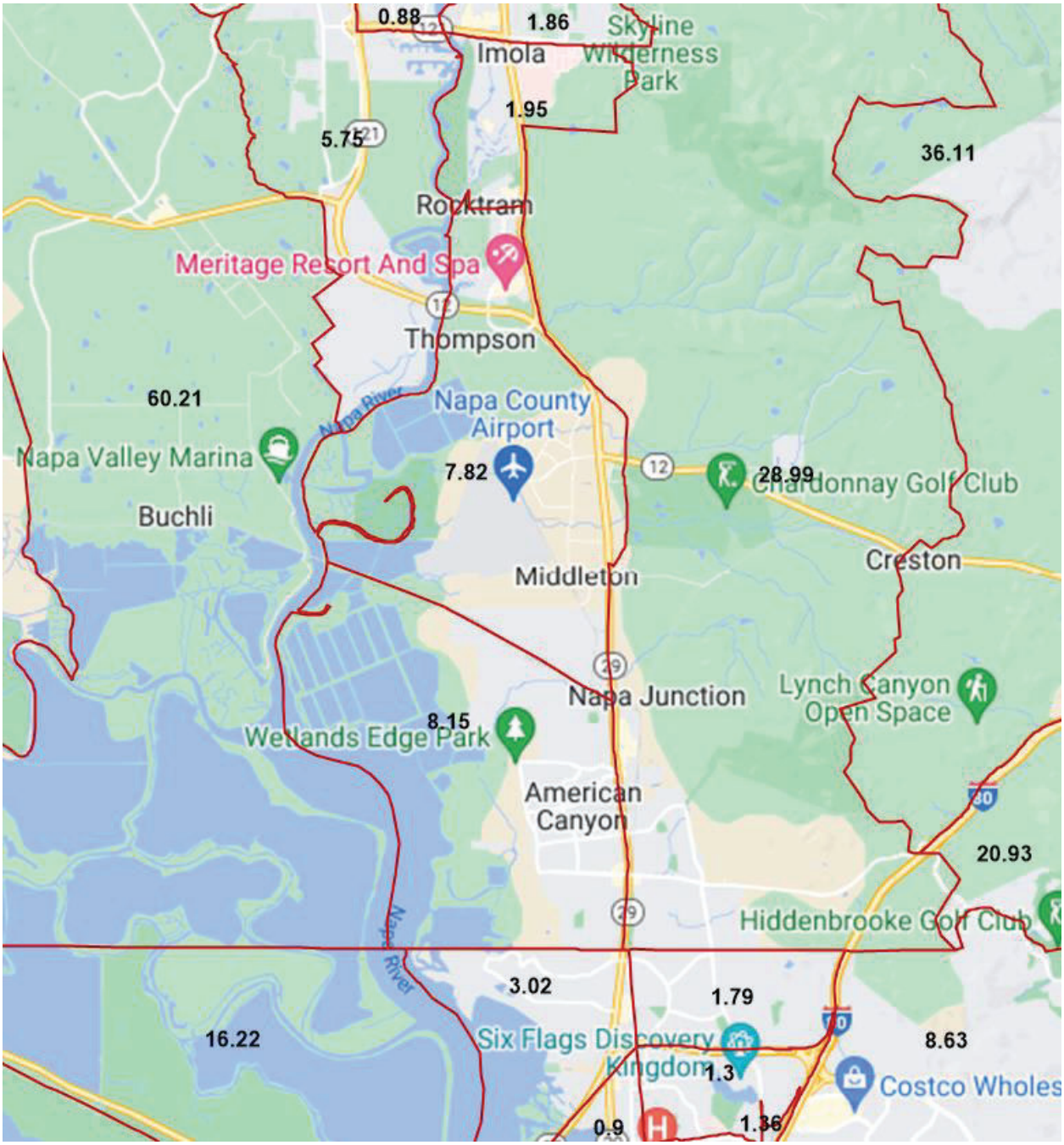
Regional travel demand models are commonly used to estimate VMT. However, the statewide model is too coarse to reliably estimate VMT for any particular project. The Caltrans statewide model homepage states:

> This model is not an appropriate tool for individual project level analysis.[3]

Most of the California Statewide Travel Demand Model (CSTDM) files are not available without making a special request to Caltrans. The TAZ layer is available for download. Figure 4 shows the TAZs in the vicinity of the project along with the area of each TAZ.

[3] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/data-analytics-services/statewide-modeling/california-statewide-travel-demand-model

Figure 4: CSTDM TAZs in the Vicinity of the Proposed Project Along with TAZ Areas (Square Miles)



The proposed project is between the American Canyon label and the airport logo, i.e., near the border between two TAZs, each sized about 8 square miles. In calculating model VMT, some workers would live close enough that both workplace and residence would be inside the same TAZ. Any trip completed within a single TAZ is assigned an arbitrary intrazonal trip length that cannot be determined without examining the model files. The model distance could be as small as a quarter mile, but the actual trips could be several miles in length. The travel distance in the model between any two TAZs is determined by where artificial "centroid connectors" are arbitrarily placed within each TAZ In the case of these two

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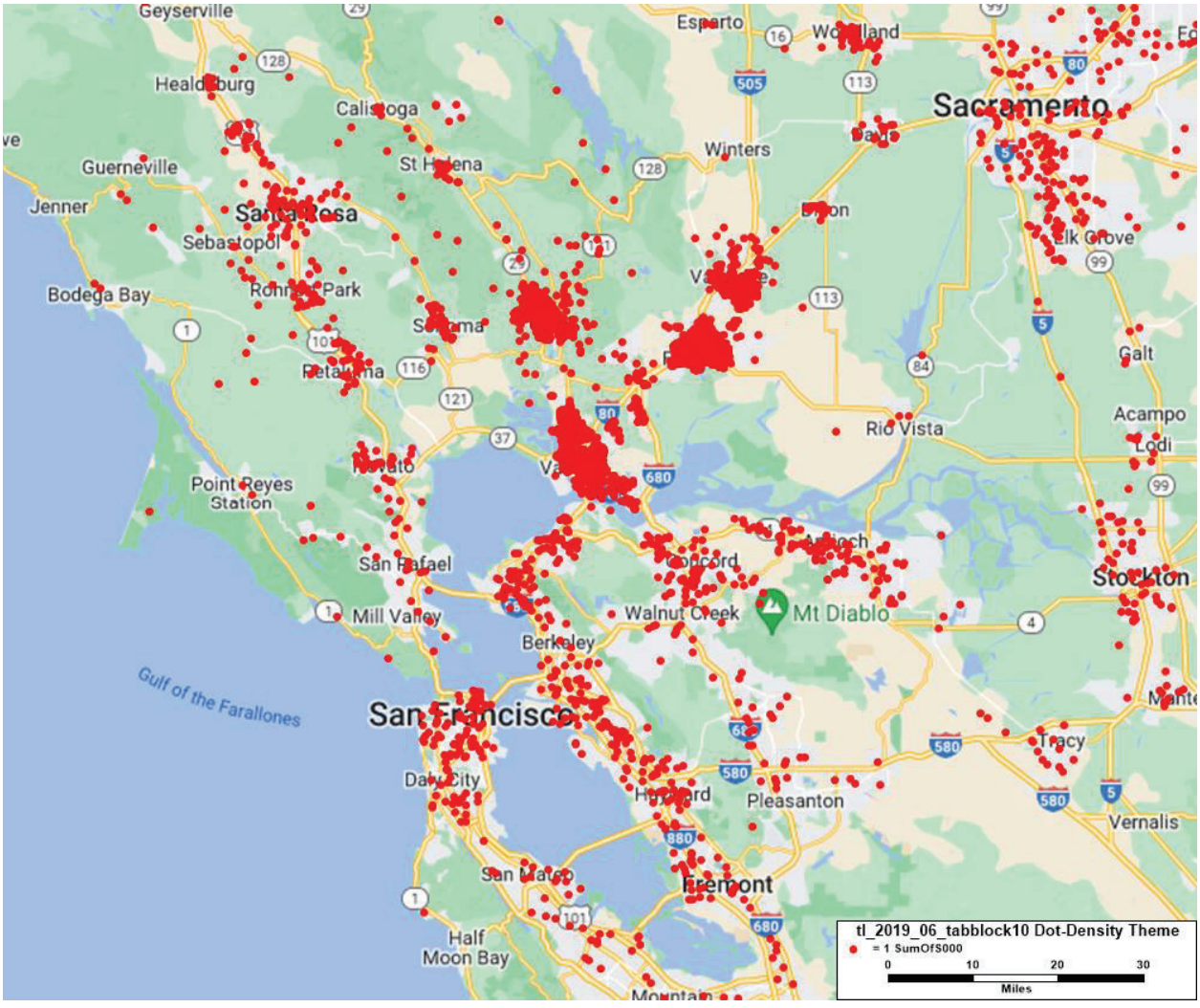
8-square-mile TAZs, it could be as little as a mile or as much as five miles or more. There is no way to know without examining the model files. The TAZs to the east and west are huge – 29 square miles and 60 square miles. The model travel distances to those TAZs are similarly dependent on the arbitrary placement of the centroid connectors. Model distances to more distant TAZs are similarly arbitrary. Multiplying the number of trips between pairs to TAZs by all these arbitrary distances is not a reliable way of estimating total project trip length or calculating average project trip length – especially when large TAZs are involved. In any event, it is impossible to know how the DEIR arrived at 16.24 as the Project VMT rate using the CSTDM, because neither the DEIR nor its technical appendices contain any detail, analysis or calculations supporting that figure.

It is much more accurate to look at existing commuting data. The U.S. Census Bureau publishes Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) data that provide detailed geographic data about workers, jobs, and commutes at the Census Block level. Census Blocks are much smaller than TAZs with 236 Census Blocks in American Canyon City alone.

As shown in Figure 5, there are many long commutes today into American Canyon City.

Figure 5: Home Locations of 2019 American Canyon City Workers (Each Dot Represents 1 Worker)



Average (mean) commute distances to American Canyon City jobs were estimated from these LODES data by:

- calculating the direct ("crow flies") distance between the centers of each Census block,
- eliminating commutes of over 100 miles where the data may be spurious and would inflate the average, and
- multiplying by 110% to account for actual routing along roads

The resulting mean one-way commute distance is 22.0 miles.

However, to compare to daily VMT, this one-way commute distance needs to be factored further:

- x 2.0 to account for round trips,
- x 5/7 to account for 5-day work week, and
- x 95% to account for non-single-occupant auto commutes.

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Resulting mean commute VMT per employee per day is 29.9, i.e., much higher than either the 16.24 estimate for the project or the 23.00 nine-county average cited in the DEIR.

The LODES data are segmented across 3 earnings groups:

- $1250/month or less
- $1251/month to $3333/month
- greater than $3333/month

As the lowest income category represents an annual income of only $15,000, most of these workers are either part-time and/or service workers at the bottom of the pay scale. The average one-way commute VMT for the two higher income categories working in American Canyon City is 31.3. This is almost twice the 16.24 value citied in the DEIR. Therefore, the project does not satisfy a low-VMT screen and additional VMT analysis should have been done.

The Project Should Mitigate Employee Commuting VMT

The DEIR states that one of the objectives of the proposed project is to: "Improve American Canyon's jobs-housing ratio by adding new employment opportunities. " (p. ES-2) This would make more sense if the anticipated employment were a tenth of the 3,643 the DEIR asserts it will be. The tenants will not be able to fill that many warehouse jobs with the local workforce. Instead, employment at that scale in a limited number of job classifications could only be achieved through the long commutes already taking place and illustrated in Figure 5.

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Any employment site with 3,643 employees should have a comprehensive transportation demand management (TDM) program. TDM is challenging in the project area because as the DEIR states:

- Existing [transit] stops are not within an acceptable walking distance of the site … (p. 3.12-15)
- Given the nature of the study area and the surrounding industrial land use, it is reasonable to assume that very few project patrons and employees will desire to walk to reach the project site. (p. 3-12-16)

Employer-sponsored vanpools can be very effective in situations like this one where many employees working set shifts are concentrated at one location, but where the workforce is dispersed over a wide area.

Given the long existing commutes to American Canyon City, the applicant also should address workforce housing. The DEIR notes that the issue of "housing for project employees" was raised during the 30-day public review process. (p. ES-3) It does not appear that this issue has been addressed by the applicant. 4

DEIR Underestimates of Trip Generation and Trip Length Cause Underestimated GHG

The GHG emission estimates in DEIR Appendix B are based on the trip generation and trip length assumptions discussed above. The combination of underestimating trip length and trip generation causes the DEIR to also underestimate project GHG. The DEIR takes an unrealistically low average VMT per employee number of 16.24 miles discussed above and translates it to an "average of 8.12 miles per one-way vehicle trip." (p. 3.6-48) This is even lower than the CalEEMod default value. As discussed above, the actual average commute distance today to American Canyon is almost twice that far. A more realistic and higher average auto trip length would also cause higher estimated GHG emissions. 5

A higher trip generation rate, and especially a higher truck trip generation rate, would translate into higher estimated GHG emissions. As discussed above, depending on the type of warehouse operation, the actual trip generation rate could be three times as larger as assumed in the DEIR or even larger than that. This further causes the DEIR to underestimate project GHG.

Sincerely,

Norman L. Marshall

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Resume

NORMAN L. MARSHALL, PRESIDENT

nmarshall@smartmobility.com

EDUCATION:

Master of Science in Engineering Sciences, Dartmouth College, Hanover, NH, 1982
Bachelor of Science in Mathematics, Worcester Polytechnic Institute, Worcester, MA, 1977

PROFESSIONAL EXPERIENCE: (33 Years, 19 at Smart Mobility, Inc.)

Norm Marshall helped found Smart Mobility, Inc. in 2001. Prior to this, he was at RSG for 14 years where he developed a national practice in travel demand modeling. He specializes in analyzing the relationships between the built environment and travel behavior and doing planning that coordinates multi-modal transportation with land use and community needs.

Regional Land Use/Transportation Scenario Planning

Portland Area Comprehensive Transportation System (PACTS) – the Portland Maine Metropolitan Planning Organization. Updating regional travel demand model with new data (including AirSage), adding a truck model, and multiclass assignment including differentiation between cash toll and transponder payments.

Loudoun County Virginia Dynamic Traffic Assignment – Enhanced subarea travel demand model to include Dynamic Traffic Assignment (Cube). Model being used to better understand impacts of roadway expansion on induced travel.

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Vermont Agency of Transportation-Enhanced statewide travel demand model to evaluate travel impacts of closures and delays resulting from severe storm events. Model uses innovate Monte Carlo simulations process to account for combinations of failures.

California Air Resources Board – Led team including the University of California in $250k project that reviewed the ability of the new generation of regional activity-based models and land use models to accurately account for greenhouse gas emissions from alternative scenarios including more compact walkable land use and roadway pricing. This work included hands-on testing of the most complex travel demand models in use in the U.S. today.

Climate Plan (California statewide) – Assisted large coalition of groups in reviewing and participating in the target setting process required by Senate Bill 375 and administered by the California Air Resources Board to reduce future greenhouse gas emissions through land use measures and other regional initiatives.

Chittenden County (2060 Land use and Transportation Vision Burlington Vermont region) – led extensive public visioning project as part of MPO's long-range transportation plan update.

Flagstaff Metropolitan Planning Organization – Implemented walk, transit and bike models within regional travel demand model. The bike model includes skimming bike networks including on-road and off-road bicycle facilities with a bike level of service established for each segment.

Chicago Metropolis Plan and Chicago Metropolis Freight Plan (6-county region)— developed alternative transportation scenarios, made enhancements in the regional travel demand model, and used the enhanced

model to evaluate alternative scenarios including development of alternative regional transit concepts. Developed multi-class assignment model and used it to analyze freight alternatives including congestion pricing and other peak shifting strategies.

Municipal Planning

City of Grand Rapids – Michigan Street Corridor – developed peak period subarea model including non-motorized trips based on urban form. Model is being used to develop traffic volumes for several alternatives that are being additional analyzed using the City's Synchro model

City of Omaha - Modified regional travel demand model to properly account for non-motorized trips, transit trips and shorter auto trips that would result from more compact mixed-use development. Scenarios with different roadway, transit, and land use alternatives were modeled.

City of Dublin (Columbus region) – Modified regional travel demand model to properly account for non-motorized trips and shorter auto trips that would result from more compact mixed-use development. The model was applied in analyses for a new downtown to be constructed in the Bridge Street corridor on both sides of an historic village center.

City of Portland, Maine – Implemented model improvements that better account for non-motorized trips and interactions between land use and transportation and applied the enhanced model to two subarea studies.

City of Honolulu – Kaka'ako Transit Oriented Development (TOD) – applied regional travel demand model in estimating impacts of proposed TOD including estimating internal trip capture.

City of Burlington (Vermont) Transportation Plan – Led team that developing Transportation Plan focused on supporting increased population and employment without increases in traffic by focusing investments and policies on transit, walking, biking and Transportation Demand Management.

Transit Planning

Regional Transportation Authority (Chicago) and Chicago Metropolis 2020 – evaluated alternative 2020 and 2030 system-wide transit scenarios including deterioration and enhance/expand under alternative land use and energy pricing assumptions in support of initiatives for increased public funding.

Capital Metropolitan Transportation Authority (Austin, TX) Transit Vision – analyzed the regional effects of implementing the transit vision in concert with an aggressive transit-oriented development plan developed by Calthorpe Associates. Transit vision includes commuter rail and BRT.

Bus Rapid Transit for Northern Virginia HOT Lanes (Breakthrough Technologies, Inc and Environmental Defense.) – analyzed alternative Bus Rapid Transit (BRT) strategies for proposed privately-developing High Occupancy Toll lanes on I-95 and I-495 (Capital Beltway) including different service alternatives (point-to-point services, trunk lines intersecting connecting routes at in-line stations, and hybrid).

Roadway Corridor Planning

I-30 Little Rock Arkansas – Developed enhanced version of regional travel demand model that integrates TransCAD with open source Dynamic Traffic Assignment (DTA) software, and used to model I-30 alternatives. Freeway bottlenecks are modeled much more accurately than in the base TransCAD model.

South Evacuation Lifeline (SELL) – In work for the South Carolina Coastal Conservation League, used Dynamic Travel Assignment (DTA) to estimate evaluation times with different transportation alternatives in coastal South Caroline including a new proposed freeway.

Hudson River Crossing Study (Capital District Transportation Committee and NYSDOT) – Analyzing long term capacity needs for Hudson River bridges which a special focus on the I-90 Patroon Island Bridge where a microsimulation VISSIM model was developed and applied.

PUBLICATIONS AND PRESENTATIONS (partial list)

DTA Love: Co-leader of workshop on Dynamic Traffic Assignment at the June 2019 Transportation Research Board Planning Applications Conference.

Forecasting the Impossible: The Status Quo of Estimating Traffic Flows with Static Traffic Assignment and the Future of Dynamic Traffic Assignment. *Research in Transportation Business and Management* 2018.

Assessing Freeway Expansion Projects with Regional Dynamic Traffic Assignment. Presented at the August 2018 Transportation Research Board Tools of the Trade Conference on Transportation Planning for Small and Medium Sized Communities.

Vermont Statewide Resilience Modeling. With Joseph Segale, James Sullivan and Roy Schiff. Presented at the May 2017 Transportation Research Board Planning Applications Conference.

Assessing Freeway Expansion Projects with Regional Dynamic Traffic Assignment. Presented at the May 2017 Transportation Research Board Planning Applications Conference.

Pre-Destination Choice Walk Mode Choice Modeling. Presented at the May 2017 Transportation Research Board Planning Applications Conference.

A Statistical Model of Regional Traffic Congestion in the United States, presented at the 2016 Annual Meeting of the Transportation Research Board.

MEMBERSHIPS/AFFILIATIONS

Associate Member, Transportation Research Board (TRB)

Member and Co-Leader Project for Transportation Modeling Reform, Congress for the New Urbanism (CNU)

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Napa-Solano Residents For Responsible Growth (NSRRG)

Note to Reader: This letter includes the attachment from James Clark (CLARK), Shannon & Wilson Inc. (S&W), Scott Cashen (CASHEN), and Smart Mobility (SM).

Response to NSRRG-1
The organization provided general introductory remarks, summarized the proposed project and asserted the Draft EIR failed to comply with CEQA requirements and expressed general opposition to the proposed project. The organization referenced four attachments from its consultants.

Responses to the four attachments are provided. As will be discussed in the following responses, there is no evidence to support the organization's claims that the Draft EIR failed to comply with CEQA requirements.

Response to NSRRG-2
The organization provided a statement of interest. No response is necessary.

Response to NSRRG-3
The organization provided general background regarding CEQA. No response is necessary.

Response to NSRRG-4
The organization asserted the Draft EIR failed to adequately describe the proposed project, alleging the project description is inconsistent and unstable, and the buildout horizon changed based on the topic.

The organization's specific comments in this regard are addressed in Responses to NSRRG-5a through NSRRG-5c.

Response to NSRRG-5a
The organization alleged the Draft EIR used inconsistent buildout assumptions, first citing a statement in Draft EIR Chapter 2, Project Description, page 2-9 to the effect the Draft EIR would assume Phase 1 would buildout first followed by Phase 2 and then citing a subsequent statement indicating that, as a practical matter, the proposed project would likely buildout over a period of years, if not decades. The organization alleged a prolonged construction schedule that extends over several years increases the potential for construction-related impacts to aquatic resources.

Buildout assumptions are addressed in Master Response 3.

Response to NSRRG-5b
The organization alleged the Draft EIR used a 20-month buildout period for construction air quality modeling instead of an 18-month period as stated in the Draft EIR. The organization also alleged the construction HRA assumed a 24-month buildout, which is inconsistent with 18-month buildout period stated in the Draft EIR.

The text in Draft EIR Chapter 2, Project Description, page 2-9 has been revised to state 20 to 24 months for consistency. The change is noted in Final EIR Section 5, Errata. The change simply brings the text on page 2-9 into alignment with the construction air quality analysis and does not change any conclusions or mitigation measures.

Health risk is measured on an annual basis (i.e., 12-month increments). Hence, a 12-month buildout period for each phase is the closest period available for each phase.

Refer to Master Response 3 for further discussion of buildout assumptions.

Response to NSRRG-5c
The organization alleged that the Draft EIR's air quality analysis used smaller building square footages than disclosed in Chapter 2, Project Description.

The construction air quality modeling evaluated Phase 1 and Phase 2 at 2.4 million square feet. Although there were discrepancies with the Phase 1 building square footage, all 2.4 million square feet were captured in the modeling. This is evidenced through the modeling summary and output files included in Appendix B to the Draft EIR (see pages 1, 34, 103, and 111). The Draft EIR disclosed a significant construction air quality impact would occur and set forth mitigation measures to reduce the impact to a level of less than significant. Hence, the discrepancies did not materially alter the conclusions and, thus, are harmless.

Response to NSRRG-6
The organization alleged the Draft EIR's hydrological analysis failed to evaluate construction and operation of Phase 2.

As indicated in Draft EIR Section 3.8, Hydrology and Water Quality, page 3.8-10, which was based in part on the modeling described in Appendix F to the Draft EIR, the evaluation of construction and operational water quality addressed both Phase 1 and Phase 2. The analysis described construction and operational activities have the potential to cause stormwater pollution and set forth MM HYD-1a, which applies to both Phase 1 and Phase 2.

It should be noted that because Phase 2 has not been designed, it was not possible to prepare hydrology calculations as was done for Phase 1. Hence, a qualitative analysis was done for Phase 2's operational impacts. When Phase 2 is designed, the applicant will commission a hydrology study that will include calculations that will be submitted to the City for review and approval.

Response to NSRRG-7
The organization alleged the Draft EIR's biological analysis failed to adequately describe the existing baseline conditions.

To preface this response, as discussed on Draft EIR Section 3.3, Biological Resources, pages 3.3-20 and 3.3-21, three separate biological consulting firms (HBG, Monk & Associates, and LSA Associates) assessed the project site between 2016 and 2021. The studies included biological resource reports, habitat assessments, botanical field surveys, and an aquatic resource delineation. Additionally, FirstCarbon Solutions (FCS) peer reviewed these biological firms' work prior to release of the Draft EIR and determined it to be adequate. In sum, the project site is perhaps the most biologically studied site in American Canyon in the last decade and, thus, there is an abundance of information about the baseline biological conditions of the project site.

With that in mind, the Draft EIR used this abundance of information to describe the existing biological conditions in Draft EIR Section 3.3, Biological Resources, on pages 3.3-1 through 3.3-7. This discussion included (1) climate; (2) hydrology; (3) topography and soils; (4) plant communities; (5) wildlife; (6) special-status plant and wildlife species; and (7) wetlands descriptions. Draft EIR Exhibit 3.3-1 provided a soils map and Exhibit 3.3-2 provided a plant communities map. Photographs of the project site were provided in Draft EIR Exhibit 2-3. By any objective standard, this constitutes an adequate description of the existing baseline conditions of the project site and is supported by substantial evidence.

Response to NSRRG-8
The organization reiterated Comments S&W-5a through S&W-5c about the wetland delineation.

Refer to Response to S&W-5a through Response to S&W-5c.

Response to NSRRG-9
The organization reiterated Comments S&W-5a through S&W-5c about the wetland delineation.

Refer to Response to S&W-5a through Response to S&W-5c.

Response to NSRRG-10
The organization reiterated Comments S&W-5a through S&W-5c about the wetland delineation.

Refer to Response to S&W-5a through Response to S&W-5c.

Response to NSRRG-11
The organization reiterated Comment CASHEN-2 about vernal pools and Comments CASHEN-5a and CASHEN-5b about rare plants.

Refer to Response to CASHEN-2, CASHEN-5a, and CASHEN-5b.

Response to NSRRG-12
The organization asserted that the Draft EIR failed to disclose, analyze, and mitigate potentially significant environmental impacts. No specific examples were provided.

Refer to Response to NSRRG-13 through Response to NSRRG-36.

Response to NSRRG-13
The organization asserted that the Draft EIR failed to disclose or adequately analyze transportation impacts and reiterated Comments SM-2 and SM-3

Refer to Response to SM-2, Response to SM-3, and Master Response 4.

Response to NSRRG-14
The organization asserted the VMT threshold is not based on substantial evidence and noted it differed from a VMT threshold used for the SDG Commerce 217 Distribution Center Project.

VMT is addressed in Master Response 4.

Response to NSRRG-15
The organization alleged the VMT analysis provided no justification the threshold of 23 miles per employee and improperly used the California Statewide Travel Demand Model. The organization referenced the VMT analysis for a 217,000-square-foot wine distribution warehouse (SDG Commerce 217 Distribution Center Project) less than 2 miles, which employed a different methodology and thresholds.

The VMT analysis is addressed in Master Response 4.

Response to NSRRG-16
The organization reiterated Comment SM-2 about trip generation and Comment SM-3 about VMT.

Refer to Response to SM-2 and Master Response 4.

Response to NSRRG-17
The organization asserted that the Draft EIR failed to adequately analyze GHG impacts.

Refer to Response to NSRRG-18 through Response to NSRRG-20.

Response to NSRRG-18
The organization cited BAAQMD guidance for evaluation of GHG emissions and stated that the VMT threshold for that analysis is not supported by substantial evidence.

VMT is addressed in Master Response 4.

Response to NSRRG-19a
The organization describes the approach taken in Impact GHG-2 of the Draft EIR to address the proposed project's consistency with applicable plans adopted to reduce GHG emissions. The organization argues the consistency analysis against the ARB's 2017 Scoping Plan, the Metropolitan Transportation Commission (MTC) Plan Bay Area 2050, and the City's Energy Efficiency Climate Action Plan (EECAP) is inappropriate because it is not clear whether any of these plans are "qualified" pursuant to CEQA Guidelines Section 15183.5(b).

The organization is incorrect in its assertion the consistency analysis contained in Impact GHG-2 must utilize a plan that is "qualified" pursuant to CEQA Guidelines Section 15183.5(b). As identified under Impact GHG-1, the EECAP is not considered "qualified" pursuant to CEQA Guidelines Section 15183.5(b). As such, the EECAP is not capable of satisfying Criterion B of the BAAQMD's significance thresholds utilized in Impact GHG-1. While the EECAP is not "qualified" pursuant to CEQA Guidelines Section 15183.5(b) and thus cannot satisfy an analytical pathway for analyzing GHG emission impacts under Impact GHG-1, it is still necessary to identify applicable plans adopted for the purpose of reducing GHG emissions under Impact GHG-2 and analyze the proposed project's consistency with those plans, whether those plans are considered "qualified" or not.

One of the primary benefits of having a "qualified" plan for the reduction of greenhouse gases prepared pursuant to CEQA Guidelines Section 15183.5 is the ability to streamline the cumulative impact analysis in environmental documents for later development projects. As subdivision (b)(2) of Section 15183.5 explains, "[a] plan for the reduction of greenhouse gas emissions, once adopted

following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the proposed project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable, notwithstanding the project's compliance with the specified requirements in the plan for the reduction of greenhouse gas emissions, an EIR must be prepared for the project."

The Draft EIR for the Giovanni Logistics Center project has not attempted to use a qualified plan for the reduction of greenhouse gases for such streamlining purposes. Rather, the Draft EIR includes a full section on the subject of Greenhouse Gas Emissions and Energy (refer to Section 3.6, Greenhouse Gas Emissions and Energy).

Another benefit of relying on a qualified plan for the reduction of greenhouse gases is the ability to rely on the policies of such a plan as sufficient mitigation for GHG-related impact. As subdivision (b) of Section 15183.5 explains, "a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program."

The City of American Canyon has not done so here. Rather, Section 3.6 includes mitigation measures that have been formulated independent of any qualified plan for the reduction of greenhouse gases.

Section 15183.5, then, is simply not relevant to the discussion of GHG emissions in the EIR.

The Draft EIR's discussion of Impact GHG-2 explores the broader question of whether the proposed project would conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. This broader question applies to a universe of planning documents larger than the limited universe of GHG reduction plans that are "qualified" under Section 15183.5. Notably, CEQA Guidelines Section 15064.4, subdivision (b)(3), requires lead agencies, in assessing the significance of impacts from GHG emissions, to consider "[t]he extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." Plans for the reduction of GHG emissions that are qualified pursuant to Section 15183.5 are just one example of the kinds of Statewide, regional, or local "regulations or requirements" that should be considered in this context. Section 15064.4, subdivision (b)(3), further provides that "[i]n determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies[.]" Such strategies are embodied in documents such as the ARB 2017 Scoping Plan. Indeed, the California Supreme Court, in *Cleveland National Forest Foundation v. SANDAG* (2017) 3 Cal.5th 497, 519, stated that planning agencies "must ensure that CEQA analysis stays in step with evolving scientific knowledge and State regulatory schemes."

In summary, the commenter incorrectly suggests the City erred by considering the proposed project's consistency with the ARB's 2017 Scoping Plan, the MTC Plan Bay Area 2050, and the City 's

EECAP. All three of these plans, though not "qualified" under Section 15183.5, were adopted for the purpose of reducing the emissions of GHGs.

Notably, moreover, significance criterion b—the potential the proposed project would conflict with any applicable plan, policy or regulation of an agency adopted to reduce greenhouse gas emissions—was not the sole significance criterion in Section 3.6. Rather, the City applied another entirely separate criterion, which is consistent with the questions posed about GHGs in the Initial Study checklist found in Appendix G to the CEQA Guidelines: whether the proposed project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Additionally, Section 3.6 also applied two more significance criteria that, though expressly focused on energy usage, indirectly implicated GHG emissions: (i) whether the project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, and (ii) whether the project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, it cannot be fairly argued that the City evaded a good faith consideration of GHG-related impacts by focusing on consistency with plans that fall short of being "qualified" under Section 15183.5.

Response to NSRRG-19b

The organization states that even if the plans identified under Impact GHG-2 were considered "qualified" pursuant to CEQA Guidelines Section 15183.5(b), the "analysis is riddled with holes and cannot support a finding of no significant impact. With respect to the MTC Plan Bay Area, the Draft EIR's analysis simply makes no sense . . . " The organization quotes a segment of the analysis contained in Impact GHG-2 and states that vague assertions that the proposed project is consistent with the overall goals of the MTC Plan Bay Area to support a finding of consistency.

As discussed in Impact GHG-2 of the Draft EIR, the MTC's Plan Bay Area is a high-level regional planning document that takes into account local government planned development areas to focus growth. The MTC does not stipulate specific actions that individual land use development projects must take to reduce GHG emissions; therefore, the fact that the proposed project is located within a planned development area for focused growth makes it generally consistent with the overall growth scenario and subsequent regional GHG emission forecasts that rely on the MTC's Plan Bay Area. Although the Draft EIR arguably need not have considered the proposed project's consistency with Plan Bay Area, there was certainly no harm in doing so. The analysis provided additional relevant information for the public and City decision-makers.

Response to NSRRG-19c

The organization comments the Draft EIR's GHG analysis does not sufficiently support a finding of no significant impact related to consistency with the ARB's 2017 Scoping Plan due to the presence of inapplicable measures contained in the 2017 Scoping Plan as they relate to individual land use development projects.

As discussed in Impact GHG-2 of the Draft EIR, the proposed project is analyzed for consistency with all applicable plans adopted for the purpose of reducing GHG emissions. As such, the EECAP is the most applicable plan adopted for this purpose as it identifies local actions that individual land use

can implement or otherwise demonstrate consistency with. The City found it prudent also to provide a consistency analysis for not just the EECAP but also the MTC Plan Bay Area as well as the ARB's 2017 Scoping Plan. As noted in Response to NSRRG-19a, CEQA Guidelines Section 15064.4, subdivision (b)(3), provides that "[i]n determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies[.]" The fact that those regional and Statewide plans contain many measures that are not applicable to the proposed project does not make the City's consideration of these plans a useless exercise. Notably, Table 3.6-6 identified one measure from the 2017 Scoping Plan—the Sustainable Freight Action Plan—that did apply to the proposed project, and with which the proposed project is consistent. (Draft EIR, page 3.6-67.) On this issue, the Draft EIR explained that "[t]his measure applies to owners and operators of trucks and freight operations. While the proposed project is industrial in nature and would support truck and freight operations, neither the proposed project's design nor nature would prevent truck fleet owners and operators from utilizing zero-emission or near-ZEVs by 2030. Moreover, as required by MM GHG- 1e, the proposed project would design and construct all automobile and truck parking areas to meet the Tier 2 electric vehicle (EV) charging infrastructure requirements of CALGreen. MM GHG- 1e would further accelerate the possible adoption of EVs and support this measure."

As with consideration of MTC Plan Bay Area, consideration of consistency with the 2017 Scoping Plan was a useful exercise because, by finding that the proposed project did not conflict with any policies or measures found in the Scoping Plan, the City was able to find the proposed project would not conflict with those two plans.

Response to NSRRG-19d
The organization purports the EECAP is not considered "qualified" pursuant to CEQA Guidelines Section 15183.5(b). The organization further states the solar-ready roof and water efficiency measures included in the proposed project are not binding or enforceable and therefore cannot support a finding of consistency with the EECAP.

Please refer to Response to NSRRG-19a for a response to the "qualified" aspect of this comment. The solar-ready roof and water efficiency measures included in the proposed project are enforceable and mandatory in that the proposed project would be required to be consistent with the California Building Standards Code (CBC) and CALGreen standards, which require such measures, as discussed in Draft EIR Section 3.6, Greenhouse Gas Emissions and Energy, Section 3.6.3, Regulatory Framework.

Response to NSRRG-20
The organization cited the energy analysis and reiterated prior comments about the VMT significance threshold being unsubstantiated.

VMT is addressed in Master Response 4.

Response to NSRRG-21
The organization reiterated Comments CLARK-3 through CLARK-7 about the air quality analysis.

Refer to Response to CLARK-3 through Response to CLARK-7.

Response to NSRRG-22

The organization reiterated Comments CLARK-4 through CLARK-6 about the HRA, though with references to two CEQA decisions, *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 518–522, and *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal.App.4th 1344, 1369–1371. The organization cited the first of these cases for the proposition that "CEQA mandates discussion, supported by substantial evidence, of the nature and magnitude of impacts of air pollution on public health." The organization cited the second case for the proposition that "an EIR must analyze the impacts from human exposure to toxic substances."

As is explained in Response to CLARK-4 through Response to CLARK-6, the analyses in the EIR meet the standards of these two court cases, in that the EIR adequately considered potential health effects of toxic air contaminants through the preparation of an HRA considering the effects of both on-site and off-site project emissions consistent with the BAAQMD's December 2020 Health Risk Assessment Modeling Protocol. Those responses explain why the technical critique offered by Clark & Associates failed to point out any actual flaws in the City's analyses.

On the issue of potential effects associated with *regional* pollutants, the Draft EIR had the following to say about its strategy for complying with *Sierra Club v. Fresno* on pages 3.2-30–3.2-31:

> In *Sierra Club v. County of Fresno* (*Friant Ranch, LP*) (2018) 6 Cal.5th 502, 510, 517- 522, the California Supreme Court held generally that an EIR should "make a reasonable effort to substantively connect a project' s air quality impacts to likely health consequences." A possible example of such a connection would be to calculate a project' s "impact on the days of nonattainment per year " (*Id*. at pp. 521). But the court recognized that there might be scientific limitations on an agency's ability to make the connection between air pollutant emissions and public health consequences in a credible fashion, given limitations in technical methodologies (*Id*. at pp. 520- 521). Thus, the court acknowledged that another option for an agency preparing an EIR might be "to explain why it was not feasible to provide an analysis that connected the air quality effects to human health consequences" (*Id*. at p. 522).
>
> Here, the BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of emissions in the Air Basin. At present, the BAAQMD has not provided any methodology to assist local governments in reasonably and accurately assessing the specific connection between mass emissions of ozone precursors (e.g., ROG and NO_X) and other pollutants of concern on a regional basis and any specific effects on public health or regional air quality concentrations that might result from such mass emissions. The City has therefore concluded that it is not feasible to predict how mass emissions of pollutants of regional concern from the proposed project could lead to specific public health consequences, changes in pollutant concentrations, or changes in the number of days for which the SFBAAB will be in nonattainment for regional pollutants.
>
> Ozone concentrations, for instance, depend upon various complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground- level ozone concentrations related to the NAAQS and

CAAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare air quality management plans that detail regional programs to attain the Ambient Air Quality Standards (AAQS). However, if a project within the BAAQMD exceeds the regional significance thresholds, the proposed project could contribute to an increase in health effects in the basin until the attainment standards are met in the Air Basin.

On the other hand, it is technically feasible to predict with reasonable accuracy the potential localized health consequences of localized pollutants such as TACs and $PM_{2.5}$. As discussed below, the consultants who prepared this section prepared a Health Risk Assessment (HRA) that addresses the potential for additional incidences of cancer resulting from both the construction-related emissions and the operational emissions of the proposed project.

Response to NSRRG-23
The organization reiterated Comment CLARK-4 about building downwash.

Refer to Response to CLARK-4.

Response to NSRRG-24
The organization reiterated Comment CLARK-7 about feasible mitigation.

Refer to Response to CLARK-7 and Response to SWAPE-2e.

Response to NSRRG-25
The organization reiterated Comments S&W-12 through Comment S&W-16b about MM BIO-3a through MM BIO-3d.

Refer to Response to S&W-12 through Response to S&W-16b.

Response to NSRRG-26
The organization reiterated Comments S&W-6a through Comment S&W-11 about wetland impacts.

Refer to Response to S&W-6a through Response to S&W-11.

Response to NSRRG-27
The organization reiterated Comments S&W-6a through S&W-6b, Comments SW&-12 through S&W-16b, and CASHEN-6 about wetlands.

Refer to Response to S&W-6a through Response to S&W-6b, Response to S&W-12 through Response to S&E-16b, and Response to CASHEN-6.

Response to NSRRG-28
The organization reiterated Comments CASHEN-7a through CASHEN-7c about the Swainson's hawk.

Refer to Response to CASHEN-7a through Response to CASHEN-7, as well as Master Response 1.

Response to NSRRG-29
The organization reiterated Comments CASHEN-8 and CASHEN-16 about the golden eagle.

Refer to Response to CASHEN-8 and Response to CASHEN-15, as well as Master Response 1.

Response to NSRRG-30
The organization reiterated Comments CASHEN-9 and CASHEN-17 about the northern harrier.

Refer to Response to CASHEN-9 and Response to CASHEN-17.

Response to NSRRG-31
The organization reiterated Comment CASHEN-11 about the ferruginous hawk.

Refer to Response to CASHEN-11.

Response to NSRRG-32
The organization reiterated Comments CASHEN-20a through CASHEN-20c about MM BIO-4.

Refer to Response to CASHEN-20a through Response to CASHEN-20c.

Response to NSRRG-33
The organization reiterated Comment CASHEN-14 about MM LU-3.

Refer to Response to CASHEN-14.

Response to NSRRG-34
The organization reiterated Comments CASHEN-13 about cumulative impacts to biological resources.

Refer to Response to CASHEN-13.

Response to NSRRG-35a
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with Municipal Code Section 19.42.202 D.5, which states that a project will not be materially detrimental to the general health, safety, and welfare. The organization reiterated its previous comments about the alleged deficiencies of the HRA.

Refer to Response to CLARK-3 through Response to CLARK-7

Response to NSRRG-35b
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with Municipal Code Sections 19.41.050 C and 19.42.020 D1, which requires projects to be consistent with General Plan policies. The organization alleged the proposed project is inconsistent with Circulation Policy 1.1, citing its previous comments about the VMT analysis.

VMT is addressed in Master Response 4.

Response to NSRRG-35c
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with General Plan Natural and

Historic/Cultural Resources Policy 8.21, which requires evaluation and mitigation for impacts to sensitive natural resources. The organization cited its previous comments about the biological resources analysis.

Refer to Response to CASHEN-2 through Response to CASHEN-20c.

Response to NSRRG-35d
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with General Plan Natural and Historic/Cultural Resources Policy 8.31, which requires a 100-foot buffer for riparian zones. The organization alleged that the Draft EIR does not show the 100-foot buffer for No Name Creek.

Refer to Response to S&W-16a.

Response to NSRRG-35e
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with General Plan Natural and Historic/Cultural Resources Policy 8.41, which requires development projects to incorporate all reasonable mitigation measures to avoid significantly impacting vernal pools. The organization reiterated previous comments about the alleged deficiencies of the functional assessment of wetlands.

Refer to Response to S&W-5a through Response to S&W-7.

Response to NSRRG-35f
The organization asserted the City may not make required findings to approve the posed project entitlements because the proposed project is in conflict with General Plan Natural and Historic/Cultural Resources Policy 8.42, which requires preservation, where possible, of habitat for special-status species. The organization alleged the proposed project is inconsistent with this Policy, citing its previous comments about foraging habitat.

Foraging habitat is addressed in Master Response 1.

Response to NSRRG-35g
The organization asserted the City may not make required findings to approve the proposed project entitlements because the proposed project is in conflict with General Plan Natural and Historic/Cultural Resources Policy 8.43, which encourages activities to control alien plants. The organization reiterated previous comments about invasive plant species.

Refer to Response to CASHEN-12.

Response to NSRRG-36
The organization cited comments in its letter that the Draft EIR is wholly inadequate under CEQA and must be revised and recirculated.

As indicated in Response NSRRG-1 through Response to NSRRG-35g, none of the alleged deficiencies is supported by substantial evidence and, therefore, there is no legal basis to revise and recirculate the Draft EIR.

Response to CLARK-1
The commenter provided introductory remarks and no further response is required.

Response to CLARK-2
The commenter re-states the project description and provides the project site plan. No further response is required.

Response to CLARK-3
The commenter states the Draft EIR concludes significant and unavoidable impacts would occur related to Consistency with an Air Quality Management Plan and Cumulative Criteria Pollutant Emissions. The commenter asserts the Draft EIR's conclusions are not supported by substantial evidence and there are other project impacts and feasible mitigation measures that were not discussed in the Draft EIR. The comment concludes that a revised Draft EIR should be prepared to address these issues they identified.

The Draft EIR impact analysis is based on the City-approved Project Description and applicant provided site plans and information. This information was provided by architects, engineers, and planners with extensive knowledge of the proposed project and project operations. As described in Impact AIR-1, the Draft EIR considered project impacts in relation to the applicable AQP, the BAAQMD 2017 Clean Air Plan. As described in Impact AIR-2, the Draft EIR considered the cumulative impact of criteria pollutant emissions from the proposed project. The commenter does not provide a specific example of what significant impacts were not addressed. Furthermore, all potential mitigation measures were considered and ultimately, the mitigation measures included in the Draft EIR would be only measures that could feasibly be implemented by the City. The commenter does not elaborate on what specific feasible mitigation measures the City did not consider in the Draft EIR. See also Response to comment SWAPE-2e, in which the City addressed a long list of proposed additional mitigation measures suggested by another commenter.

Response to CLARK-4
The commenter states the air dispersion modeling tool used to model the proposed project's health risk impacts (AERMOD) does not account for the impact of building downwash. The commenter explains that building downwash could increase health risk impacts on nearby sensitive receptors and should be considered in a revised Draft EIR.

As disclosed in Section 3.2, Air Quality, as well as Appendix B of the Draft EIR, the HRA modeling on-site and off-site project emissions is consistent with the BAAQMD's December 2020 Health Risk Assessment Modeling Protocol, which states that "Building downwash for point sources that are within the area of influence of a building must be considered when running AERMOD. A building is considered sufficiently close to a stack to cause wake effects when the distance between the stack and the nearest part of the building is less than or equal to five times the lesser of the building

height or the projected weight of the building (PBW) . . . "[3] Because of the frequent mobilization of equipment and vehicles across the approximately 161-acre site during both construction and operation of the proposed project, project emissions were included in the HRA modeling as area sources rather than point sources. In addition, during Phase 1 construction, no building was present on-site that would create the downwash effect described by the commenter. Because the BAAQMD recommends the consideration of building downwash in air dispersion modeling when modeling point sources and because the proposed project did not include point sources, building downwash was not considered in the HRA modeling.

Moreover, as shown in Draft EIR Section 3.2, Air Quality, tables 3.2-14 and 3.2-15, the proposed project would not exceed applicable thresholds for health risks at the maximally impacted receptor or community wide. The Draft EIR considered both construction and operation when determining impacts related to health risks on nearby sensitive receptors. Furthermore, the HRA concluded that the main source of a cumulative community health risk within 1,000 feet of the project site are existing sources, not the proposed project. Thus, the addition of any building downwash impacts would be minimal and would not lead to exceedances of BAAQMD health risk thresholds.

Response to CLARK-5
The commenter states the Draft EIR must assess the impact for all toxic air compounds (TACs) that would be released during construction and operation of the project. The commenter describes types of TACs that could be emitted by the proposed project, the health risks those TACs pose to humans, and that the Draft EIR did not adequately consider all TACs that could be emitted. The commenter explains that only analyzing diesel particulate matter (DPM) emissions as part of the health risk analysis deems the Draft EIR incomplete and the City should prepare a revised Draft EIR.

The commenter is incorrect in asserting that "the City's analysis ignores the presence of TACs being emitted with diesel exhaust during the construction and operational phases of the project without making any attempt to quantify the impacts." The Draft EIR considered DPM as the primary TAC to contribute to health risks because of the proposed project's anticipated truck traffic and a 10-year ARB research program demonstrated that exhaust from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk. In addition, as described in the Draft EIR and by the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is exhaust from diesel-fueled engines. Moreover, as described in the ARB's Consolidated Table of California Office of Environmental Health Hazard Assessment (OEHHA)/ARB Approved Risk Assessment Health Values, the cancer potency factor of 1.1 attributed to DPM, which was utilized in the HRA prepared for the proposed project, considers all speciated TACs included in DPM.[4] Therefore, the use of the cancer potency factor of 1.1 for DPM in the HRA incorporated consideration of the additional diesel-related TACs that would be emitted during project construction and operation.

[3] Bay Area Air Quality Management District (BAAQMD). 2020. BAAQMD Health Risk Assessment Modeling Protocol. December. Website: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en. Accessed August 2, 2022.

[4] California Air Resources Board (ARB). 2020. Table 1: Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. October 2. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/healthval/contable.pdf. Accessed August 2, 2022.

Response to CLARK-6

The organization summarizes the requirements of MM AQ-2d and suggests the City should mandate the proposed project utilize newer model year heavy-heavy-duty (HHD) truck fleets. The organization explains it is possible to estimate emissions from on-road mobile sources in California using the ARB EMFAC model and presents their analysis for how using model year 2018 HHD trucks would reduce emissions from the proposed project truck operations.

As noted in the Draft EIR, the reason model year 2014 HHD trucks were used as the basis for MM AIR-2d is because this is the first model year that would result in a reduction in trucking emissions, assuming a worst-case scenario of 100 percent of trucks accessing the site to be that specific model year. More stringent and alternative trucking mitigation measures were considered for the proposed project but were ultimately determined to be financially infeasible due to the size of the proposed project and the anticipated volume of trucks. At present, few potential end users for the proposed project have entire fleets that, on an overall basis, meet the emissions profile for model years of 2018 or later. This economic reality reflects the substantial cost associated with the purchase of each new truck. Fleets typically contain trucks purchased in different years. Older trucks are gradually retired. Operators purchase new trucks with the expectation and need to get many years of use from each truck in order to justify the cost of the purchase. Because 2014 is now eight years in the past (as opposed to only four), and because some additional time will pass before the proposed project can be approved and become operational, the City determined that requiring the use of a fleet that meets the emissions profile for model year 2014 during project operation was a reasonable, if aggressive, mitigation measure. The City reasonably concluded that to require fleets to meet the emissions profiles for even newer model year trucks would be infeasible. The objective of MM AIR-2d is to require the proposed project to result in emission reductions from trucking activities without imposing unrealistic and infeasible burdens on future end users and the proposed project itself. The commenter's suggestion to alter the required minimum model year from 2014 to 2018 is unrealistic in the current marketplace and would place unreasonable financial burdens on the applicant and future tenants. If the City approves the proposed project, the City will want the project to succeed in the marketplace and thereby benefit the local and regional economies, generating employment and taxes that can fund government services.

Response to CLARK-7

The commenter lists mitigation measures recommended by the ARB and Air Districts that reduce operational nitrogen oxide (NO_X) and GHG emissions that were not included in the Draft EIR. The organization states the Draft EIR did not consider feasible mitigation measures that would further reduce NO_X and GHG emissions.

Only operational criteria pollutant emissions were found to have a significant unavoidable impact after mitigation. As such, no additional mitigation is required for construction criteria pollutant emissions, toxic air contaminant emissions, or GHG emissions because they would be less than significant after mitigation. Table 3-2 provides an analysis of the feasibility of implementing the additional mitigation measures suggested by the commenter. As indicated in the table, the proposed mitigation measures are either (1) not necessary; (2) not feasible; (3) already included as mitigation; or (4) included as new mitigation measures.

Table 3-2: Feasibility Analysis of Proposed Additional Mitigation Measures

Proposed Mitigation Measure	Analysis
Include contractual language in tenant lease agreements that requires tenants to use the cleanest vehicle technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment on-site.	**Already Included as Mitigation:** The fleet operator would be required to comply with MM Air-2d (truck fleets must meet or exceed model year 2014 for all heavy-duty trucks during operation of the proposed project), existing regulations such as Advanced Clean Trucks, ARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation, and Periodic Smoke Inspection Program. Transition to zero-emission fleet would advance with the technology and regulation. Furthermore, MM GHG-1d requires that parking areas for passenger vehicles shall be designed to accommodate EV charging stations, and each loading dock at the project site is required to be outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while goods are being loaded and unloaded from trucks.
Include contractual language in tenant lease agreements that requires all TRUs entering the project site be plug-in capable.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, it would be speculative to place restrictions on on-site equipment. Furthermore, imposing onerous requirements on the potential equipment of future unknown users could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may also be technologically infeasible due to the performance needs of the end user. However, to support the transition to plug-in capable TRUs, MM GHG-1d requires that each loading dock at the project site be outfitted with at least one 240-volt outlet to accommodate truck and TRU charging and/or electrical power connection while goods are being loaded and unloaded from trucks.
Include contractual language in tenant lease agreements that requires future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, no information is known about what types of light- and medium-duty vehicles would be used as part of business operations. Imposing onerous requirements on the potential vehicles of future unknown users could create hardships for future employees and visitors of the project site, could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may also be technologically infeasible due to the performance needs of the end user.
Include contractual language in tenant lease agreements that requires all TRUs, trucks and cars entering the project site be zero-emission.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, it would be speculative to place restrictions on fleet equipment. Furthermore, imposing onerous requirements on the potential fleet of future unknown users could put the project at a competitive disadvantage by limiting the universe of

Proposed Mitigation Measure	Analysis
	potential future end users, and may be technologically infeasible due to the performance needs of the end user. An absolute prohibition on the use of vehicles with internal combustion engineers could create hardships for future employees and visitors of the project site. The State of California is the appropriate level of government for creating incentives and/or mandates regarding the electrification of the State vehicle fleet.
Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering or on the project site to be model year 2019 or later, expedite a transition to zero-emission vehicles, and be fully zero-emission beginning in 2030.	**Not Feasible:** Project end users are unknown at the time of Final EIR publication and, thus, it would be speculative to place restrictions on fleet equipment. Furthermore, imposing onerous requirements on the potential fleet of future unknown users could put the project at a competitive disadvantage by limiting the universe of potential future end users, and may be technologically infeasible due to the performance needs of the end user. However, MM AIR-2d does require that truck fleets meet or exceed model year 2014 for heavy-duty trucks used during project operation, and MM AIR-2g requires that the project applicant provide information on available incentives to support the advanced deployment of clean fleets.
Include contractual language in tenant lease agreements that requires the tenant be in, and monitor compliance with, all current air quality regulations for on-road trucks including ARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation, Periodic Smoke Inspection Program (PSIP), and the Statewide Truck and Bus Regulation.	**Not Feasible:** ARB regulations are enforced by the State and local agencies, and operators must comply with State rules and regulations to legally operate in California. The measure would be onerous and difficult to enforce due to the unknown future operators of the proposed project and may put the project at a competitive disadvantage through the requirement of additional leasing terms, while not providing effective or quantifiable air quality or GHG emission reduction benefits.
Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than 5 minutes while on-site.	**Already Included as Mitigation:** MM AIR-2e limits idling to no more than 5 minutes of idling in accordance with State law.
Include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.	**Already Included as Mitigation:** MM GHG-1d requires the proposed project to be powered with 100 percent carbon-free electricity. This requirement could be met by installing on-site solar photovoltaic systems.
Have truck routes clearly marked with trailblazer signs, so that trucks will not enter residential areas.	**Not Necessary:** Both Devlin Road and Green Island Road are designated truck routes. Thus, whichever way trucks turn, they would be on a truck route that connects to SR-29. Hence, this mitigation measure would not reduce emissions.
Limit the daily number of trucks allowed at the proposed project to levels analyzed in the CEQA document. If higher daily truck volumes are anticipated to visit the site, the City as the Lead	**Not Necessary:** As explained in Master Response 4, the traffic analysis conducted for the proposed project utilized the best available research studies to develop conservative estimates of the number of truck trips that

Proposed Mitigation Measure	Analysis
Agency should commit to reevaluating the proposed project through CEQA prior to allowing this land use or higher activity level.	would be expected to occur as a result of the proposed land uses for the project. The modeling for the project appropriately reflects the proposed land uses and anticipated traffic associated with the proposed land use. The transportation impact for the proposed project was found to be less than significant. CEQA only requires mitigation for significant impacts, therefore further mitigation is not necessary.
Ensure that any check-in point for trucks is well inside the project site to ensure that there are no trucks queueing outside of the facility.	**Not Effective:** This mitigation measure does not reduce emissions. However, the proposed project site plan does include adequate on-site roads and parking to ensure that any truck queueing would not be expected to occur outside of the facility.
Establish overnight parking within the industrial building where trucks can rest overnight.	**Not Effective and Not Feasible:** This mitigation measure does not reduce emissions, and because the potential end users of the facility are unknown, it would be onerous to require that a portion of the interior warehouse space be dedicated to truck parking.
Establish area(s) within the project site for repair needs.	**Not Effective:** This mitigation measure does not reduce emissions. Furthermore, as the potential end users of the project site are unknown, could put the project at a competitive disadvantage by limiting the universe of potential future end users, it would be onerous to require the establishment of a repair center when the operational details of the end user are unknown. However, it should be noted that the proposed project site plans do include adequate truck parking to ensure that vehicles potentially needing repair would be able to park on-site while repairs were being completed, in the event such an occurrence was a part of the future project operations.

Response to CLARK-8

The commenter suggests the on-site diesel-powered generator usage could increase compared to the Draft EIR analysis and result in further DPM emissions due to usage during extreme heat events (EHE) and subsequent Public Safety Power Shutoffs (PSPS). The commenter describes what an EHE is and how they occur, as well the resulting impacts on diesel generator usage.

As described in the Draft EIR, the BAAQMD regulates backup emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process.[5] The Draft EIR states the proposed project would include three backup diesel generators and three diesel-fueled fire pumps, each assumed to be rated at 50 horsepower and operate for a 4-hour maintenance period one day per month, totaling an estimated 48 hours of operation per year. In addition, the project applicant would be required to submit a permit application for each generator

[5] Bay Area Air Quality Management District (BAAQMD). 2016. New Source Review Permitting Guidance. Website: http://www.baaqmd.gov/permits/permitting-manuals/nsr-permitting-guidance. Accessed May 18, 2021.

to the BAAQMD and ensure compliance with the permit requirements. The regulation and permitting of backup generators is the jurisdiction of the BAAQMD. Renewable permits are issued by the BAAQMD, and compliance with permitting conditions is enforced by the air district. As such, compliance with the permit would satisfy all requirements of the BAAQMD and would not warrant a revised Draft EIR. It should be further noted that the commenter does not provide substantiating evidence to support the claim that backup (emergency) generators will be utilized on an increasing basis into the future, and this is a speculative assertion without supporting evidence.

Response to CLARK-9
The organization concludes that their facts identified in the comment letter demonstrates a revised Draft EIR should be prepared and must re-evaluate the significant impacts that would occur. As stated in Response to CLARK-3 through CLARK-8, none of the organization's statements change the validity of the Draft EIR and a revised Draft EIR is not warranted.

Response to CLARK-10
The organization's credentials are presented, and no further response is required.

Response to S&W-1
The comment consists of a cover letter. No response is necessary.

Response to S&W-2
The comment consists of the Table of Contents. No response is necessary.

Response to S&W-3
The commenters provided introductory remarks. No response is necessary.

Response to S&W-4
The commenters provided a list of documents supporting their comments. No response is necessary.

Response to S&W-5a
The commenters summarized the methodology Monk & Associates used to delineate the aquatic sources/wetlands on the project site. No response is necessary.

Response to S&W-5b
The commenters reviewed the Monk & Associates 2016 wetland jurisdictional delineation appended to the Draft EIR for consistency with the delineation methodology referenced in Comment S&W-5a. The commenters noted what they regard as errors in data points such as miscalculated absolute percent cover and incorrectly identified hydric soil indicators. The commenters noted data point (DP) DP-40, -97, -98, -105, and -110 incorrectly identified *Helminthotheca echioides* as Facultative Upland (FACU) when it should have been identified as Facultative (FAC). The commenters pointed out this error would change the findings at these data points from an upland to a wetland.

The City acknowledges the 2016 Monk & Associates delineation contains some minor errors mentioned by the commenter. *Helminthotheca echioides* was misidentified as FACU at those data points. DP-40, -98, -105, and -110 were also incorrectly identified as uplands. For DP-97 *Helminthotheca echioides* was misidentified, which would change the hydrophytic vegetation indicator from a "no" to a "yes"; however, this data point was lacking wetland hydrology and hydric

soils, so the conclusion that DP-97 was an upland is correct. The errors at issue, however, do not undermine the analysis or conclusions in the Draft EIR. The Draft EIR did not rely on the Monk & Associates 2016 wetland jurisdictional delineation report. Instead, wetland impacts were calculated using the United States Army Corp of Engineers (USACE) Approved Jurisdictional Delineation dated October 25, 2016.

Response to S&W-5c
The commenters noted the Approved Jurisdictional Delineation (AJD) was valid for 5 years and has since expired. The commenters stated the proposed project would need to obtain an updated AJD. The project applicant submitted an application to the USACE prior to the AJD expiring and received confirmation from the USACE Project Manager, Mr. Bryan Matsumoto, (via a phone call to HBG) that, because the application was submitted prior to the AJD expiring, the USACE will be using the AJD dated October 25, 2021, to process the permit. The AJD therefore remains valid and sufficient for the USACE.

The commenters also stated they reviewed Google Earth aerial imagery and it is their opinion, based on Google Earth aerial imagery, that wetland conditions may not have been identified in Monk & Associates 2016 wetland jurisdictional delineation report. The commenters do not indicate what year the Google Earth aerial imagery was reviewed, so the City is unable to confirm if this is a valid point. Nonetheless, the Draft EIR did not rely on the Monk & Associates 2016 wetland jurisdictional delineation report. Wetland impacts were calculated using the USACE AJD dated October 25, 2016. It should also be noted the USACE must submit a proposed AJD to the EPA for review prior to the USACE officially approving the jurisdictional delineation. This means that not only did the USACE review the Monk & Associates 2016 wetland jurisdictional delineation report and conduct their own site visit and analysis, but also that the EPA reviewed the USACE's determination and approved the AJD.

Response to S&W-6a
The commenters stated that Phase 1 will impact 0.496-acre of wetlands and Phase 2 will impact 3.7-acres, and that the Draft EIR based its assessment on Phase 1 and 2 being constructed concurrently over an 18-month period as the worst-case scenario. The commenters suggested a prolonged construction period that extends beyond 18 months and extends over several years (multiple nesting seasons, multiple "rainy seasons") increases the potential for construction-related impacts to aquatic resources (e.g., water quality issues and in-air construction noise) and requests an explanation to support this assumption.

Constructing Phase 1 and 2 concurrently over an 18-month period would impact 0.496-acre of wetlands for Phase 1 and 3.7 acres of wetlands for Phase 2 for a total of 4.196 acres of wetlands, which is the worst-case scenario, meaning the maximum acreage of wetland impacts would be 4.196 acres. The "worst-case scenario" assumption is not linked to the number of months it would take to complete each Phase but rather is a function of the acreage of wetland impacts. Phase 2 wetland impacts were assessed based on a full buildout with a maximum impact of 3.7 acres of wetlands. It is possible that, once Phase 2 has gone through the entitlement process, the site plan may be modified to reduce impacts to under 3.7 acres, just as Phase 1 has avoided impacts.

The project construction would occur over at least two nesting periods. If nesting does occur in the project vicinity and construction has commenced, it should be assumed the nesting bird(s) are habituated to the ambient level of noise and disturbance emanating from the project site. Therefore, a prolonged construction period that extends beyond 18 months would not increase construction-related impacts. It should be noted that if construction takes 18 months to complete or longer, all mitigation measures outlined in the Draft EIR would apply for the entirety of the construction period, including additional nesting bird surveys if construction is paused for more than seven (7) days. Therefore, there is no basis to assume new impacts would occur if Phases 1 and 2 take two months to complete or 24 months, or if it is split to where Phase 1 is constructed first and then Phase 2 is begins the following year. Regardless, for consistency and to address the commenters concerns, MM BIO-4 is revised to include the following language:

If construction activities are discontinued for more than 7 days, an additional nesting bird survey shall be performed.

The change is noted in Section 5, Errata.

See also Master Response 3.

Response to S&W-6b

The commenters stated the Draft EIR does not include a functional assessment of the wetlands or a functional impact analysis. The commenters suggested a wetland impact analysis is incomplete without a functional assessment that evaluates hydrologic, water quality, and habitat functions of the site wetlands.

Functional assessments were conducted to determine plant and animal communities supported on the project site, and these functional assessments were used in the impact analysis and subsequent mitigation requirements. The Draft EIR acknowledges the project site contains one upland plant community described as Annual Grassland, and two wetland plant communities, Seasonal Wetlands and Vernal Pools, as shown in Draft EIR Section 3.3, Biological Resources, Exhibit 3.3-2. Plant communities are assemblages of plant species growing in an area of similar biological environmental factors. One of the functions of wetlands are the plant communities they support. To determine whether the wetlands or uplands supported special-status plants, in support of CEQA and agency requirements, Helm Biological Consulting (HBC) conducted botanical survey assessments during spring 2021. As described in their rare plant survey, HBC identified the three plant communities. In addition to this plant communities assessment/rare plant survey conducted by HBC, the Draft EIR acknowledges that, based on a spring season site reconnaissance survey conducted on April 16 and May 24, 2021, HBG determined the site was suitable foraging habitat for State listed threatened Swainson's hawk and golden eagle. HBG also made an assessment of the potential for the wetlands to support each animal species noted in the CNDDB as occurring within a 10-mile radius of the project site, or that is known to occur in the general vicinity based on the knowledge of HBG Biologists. Over 40 animals were included in this assessment, as is discussed in the HBG report (Draft EIR, Appendix C), and this information was used to assess impacts to wetlands and species that could be using the wetlands or uplands. Therefore, a number of "functional" assessments were conducted

to determine CEQA impacts and recommend mitigation measures to offset these impacts to less than significant.

The Regional Water Quality Control Board (RWQCB) State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) requires approved mitigation plans contain performance standards that assess whether the proposed project is achieving its objectives. Performance standards, according to the Procedures, must be based on objective and verifiable attributes using a functional assessment method, such as the California Rapid Assessment Method (CRAM). The purpose of the CRAM referenced in the Draft EIR in Section 3.3, Biological Resources, on page 3.3-34 is to satisfy this requirement. The Performance Standards listed in the Draft EIR in MM BIO-3d on page 3.3-33 are based on completed biological assessments (plant survey, wetland delineation, general habitat assessment etc.), and they include objective and verifiable attributes based on completed assessments and structured to assess whether the proposed project is achieving its objectives. Once CRAM is completed and the RWQCB has reviewed and commented on the mitigation plan, the Performance Standards may be modified to include additional attributes and performance standards, if warranted, to satisfy the Procedures.

Response to S&W-7
The commenters noted discrepancies in wetland acreages, shapes of wetlands, and numbering of each individual wetland when you compare the Monk & Associates 2016 wetland delineation maps and data to the USACE's AJD and the Draft EIR. One discrepancy noted is the Draft EIR provides the impact area to W-89 as 189 square feet while the AJD map has it listed as 195 square feet.

The Draft EIR impact calculation of 189 square feet is correct. The impact is based on the limit of fill material placed within the wetland. Based on calculations made by HBG, the fill material would impact 189 square feet and would avoid 6 square feet of W-89.

The commenters also noted that IW-9 was not included on the AJD map, which was used in the Draft EIR. The commenters questioned whether or not the USACE omitted IW-9 purposely or if it was an oversight, because there was not a data point supporting this change.

It is common for the USACE to request edits to a wetland delineation map after reviewing wetland delineation report data and conducting a site visit(s). The USACE may increase or decrease wetland area, which may change a wetland shape, add wetland areas that were missed, and/or remove areas mapped as wetlands that the USACE may determine not to meet the definition of a wetland. When the USACE staff conducts site visits to verify wetland delineation, they will often take data to verify changes they request. The data may be in the form of a wetland data sheet(s), notes, and/or photographs. The fact that Monk & Associates updated the numbering of all the wetlands on the AJD map based on this change, and the fact that the EPA had to review the data prior to the USACE finalizing the AJD, makes it very unlikely this was an oversight by the USACE.

Response to S&W-8
The commenters stated that treated stormwater would be delivered to newly created wetlands on the Wetland Preserve. The commenters suggested without a pre- and post-project water budget

analysis for the wetlands, the determination that additional wetlands would not be impacted is not supported.

The main source of hydrology for the unimpacted wetlands is direct precipitation and a significant amount of water flow from a culvert near the northeastern boundary which flows east to west toward No Name Creek. In addition, the site generally slopes from east to west across the Phase 1 and 2 project sites. The Phase 2 project also has topography that slopes from south to north. With the main sources of hydrology being direct precipitation and waterflow from a culvert near the northeastern boundary, and the topography of the site generally sloping from east to west, there is no basis to assume that proposed project development would indirectly impact the wetland hydrology of the remaining wetlands.

With respect to wetland mitigation, new wetlands would be created/established up and downstream of the remaining wetlands. As part of the Wetland Mitigation and Monitoring Plan that would be submitted to the RWQCB during the application review process, a water budget analysis would be conducted to ensure that the position of created/established wetlands do not indirectly impact the hydrology of existing wetlands.

Response to S&W-9

The commenters stated that the project proposed the use of specialized bio soils in the bioretention facility to remove pollutants. The commenters referenced a statement in the Draft EIR in Section 3.8, Hydrology and Water Quality, Section 3.8.6 that suggests that the Wetland Preserve would facilitate the natural sequestration of pollutants of stormwater that is leaving the project site.

The proposed project would not discharge untreated stormwater into the Wetland Preserve or created/established wetlands or the remaining unimpacted wetlands. Instead, all stormwater would be treated to City of American Canyon and RWQCB standards prior to being discharged off-site into the Wetland Preserve. The use of specialized bio soils in bioretention facilities are a standard practice that allow them to function optimally to remove solids and sequester contaminants in site-specific runoff before stormwaters leave the site. The fact that wetland preserve would contain biosoils is not an indication that water quality control is an intended primary function of the preserve.

Response to S&W-10a

The commenters suggested that the USACE “requires” a 100-foot buffer around vernal pools and references the draft Mitigation and Monitoring Guidelines for Vernal Pools that was released for public comment in 2016.

The USACE currently does not require buffers around vernal pool preserves or mitigation sites. The stated objective of the USACE’s draft Mitigation and Monitoring Guidelines for Vernal Pools is to provide “guidance” to select appropriate compensatory mitigation sites, construct compensatory vernal pools and complexes, and establish a monitoring program that will adequately assess compliance with the performance standards established in the mitigation plan. Within the guidance under “Construction Technique,” a minimum 100-foot buffer around a vernal pool preserve or mitigation site is suggested. These are guidelines, not requirements. More importantly, these

guidelines have not been finalized or incorporated into the South Pacific Division Final Regional Compensatory Mitigation and Monitoring Guidelines. Specific to this project site and the Wetland Preserve, the two unimpacted vernal pools' main source of hydrology are direct precipitation and surface water flow from a culvert near the northeastern boundary, which flows east to west toward No Name Creek. Therefore, the surface hydrology feeding the two unimpacted vernal pools and the proposed created/established vernal pool would not be impacted by the proximity of the proposed development to the vernal pools. In addition, although the bioretention basins may require periodic maintenance, the bioretention basins would also provide a minimum 100-foot buffer from the two unimpacted vernal pools.

Response to S&W-10b
The commenters noted that the buffer areas surrounding the unimpacted IW-7, -8, -9, and -10 appear to show an approximately 100-foot buffer and are labeled as "Proposed Landscaped Area." The commenters stated it is unclear if the buffer adjacent to IW-7, -8, -9, and -10 will consist of native or ornamental vegetation or if it will be intensely maintained as manipulated landscaped areas. The commenters stated indirect impacts through a disturbed or landscaped buffer are not discussed.

The final buffer widths would be determined during the permitting process with the RWQCB. The landscaping within the buffers would consist of native grasses and shrubs, approved by the RWQCB, that would require no maintenance once established. The mitigation plan would include temporary watering until the grasses and/or shrubs are established and then watering would cease. Maintenance may include invasive low intensity tasks such as removing trash and replacing grasses or shrubs as needed. Establishing a buffer with native grasses and or shrubs is not anticipated to indirectly impact the unimpacted wetlands IW-7, 8, 9, and 10. Therefore mitigation measures are not required.

Response to S&W-10c
The commenters suggested that development surrounding the unimpacted wetlands IW-7, -8, -9, and -10 will isolate these wetlands from the remaining wetland complex to the north, and that this disconnection and overall reduction in buffer widths is not analyzed or discussed.

Wetlands IW-7, -8, -9, and -10 are currently hydrologically isolated from the wetlands to the north, which was determined by Monk and Associates, verified by the USACE and EPA and reflected in the AJD. This hydrological isolation is an existing condition, and therefore does not warrant a discussion or mitigation measure. Given the small area of these wetlands, the currently isolated nature of the wetlands, and the non-native annual grasses surrounding these wetlands, the reduced buffer would not have an adverse effect on the hydrology or plant composition to wetlands IW-7, -8, -9, and -10. Therefore, mitigation measures are not required.

The Draft EIR does analyze and discuss in Impact BIO-4 in Section 3.3, Biological Resources, page 3.3-37 how the proposed development would impact the movement of any native resident or migratory fish or wildlife species, migratory wildlife corridors or use of wildlife nursery sites on the site. Although this analysis does not specifically reference IW-7, 8, 9, and 10, it does reference sensitive habitats and "wetlands," which would include IW-7, 8, 9, and 10.

Response to S&W-11

The commenters referenced language in the Procedures that requires compensatory mitigation to be developed using a watershed profile and requires that the watershed profile include information sufficient to evaluate direct, secondary (indirect), and cumulative impacts of project. The commenters stated that the Draft EIR does not address impacts to wetland functions associated with reduced buffer widths, increased noise, lights, and traffic compared to existing conditions.

Refer to Response S&W-6b, Response to S&W-10a through Response to S&W-10c regarding impacts to wetland functions associated with reduced buffer widths.

HBG determined that an increase in noise, lights and traffic generated by the project compared to existing conditions would not result in significant direct, indirect or cumulative impacts to wetland functions, and therefore do not require mitigation under CEQA Guidelines. This assessment is based on the following:

The project site is currently surrounded an all four sides by commercial development and is bisected by a new road and public trail extension, all of which generates noise, light, vehicle traffic and pedestrian noise and traffic. The entire northern boundary of the Wetland Preserve directly abuts the recently-constructed Napa Logistics Park commercial warehouse development. This development exposes the Wetland Preserve to vehicle and semi-truck noise, lights and traffic 24 hours a day 7 days a week. The eastern boundary of the Wetland Preserve abuts railroad tracks and commercial development and is less than 1,200 linear feet from SR 29, which generates a significant amount of traffic noise 24 hours a day 7 days a week. The western boundary of the Wetland Preserve is adjacent to a wine distribution warehouse and an ongoing construction site for a new warehouse that is part of the Napa Logistics Park project. The existing wine distribution warehouse and ongoing construction of the new Napa Logistics Park warehouses also exposes the Wetland Preserve to noise, light and traffic. The southern and southwestern boundary of the project site is bounded by railroad tracks, commercial development and Green Island Road. Green Island Road is a route semi-trucks use to deliver and receive goods from the many warehouses that currently surround the project site and Wetland Preserve. In addition, the City of American Canyon recently completed the Devlin Road and Vine Trail Extension Project. This project consists of a new road bisecting the project site and Wetland Preserve connecting Green Island Road with Devlin Road abutting the Napa Logistics Park commercial development. The new Devlin Road Extension and Vine Trail Extension directs semi-truck traffic, vehicle traffic and pedestrians through the project site bisecting the Wetland Preserve generating noise, light, vehicle traffic and pedestrian noise and traffic. Although the proposed project would increase noise, light and traffic, the Wetland Preserve is surrounded on all four sides by commercial development, and bisected by a road and pedestrian trail. Therefore, the avian and terrestrial species that use the wetlands and uplands within the Wetland Preserve have habituated to the significant level of noise, light, traffic and pedestrian disturbances that currently exist and the levels of disturbances that the proposed project would not result in significant direct, indirect or cumulative impacts to wetland functions, and therefore do not require mitigation under CEQA Guidelines.

The commenters also stated that the Draft EIR does not address cumulative wetland impacts that incorporate current development trends in the area and continued aquatic habitat fragmentation.

As discussed on pages 4-5 and 4-6 of the Draft EIR, the proposed project would potentially contribute to the cumulative loss of biological resources in the City of American Canyon and the effects of ongoing urbanization in the region. The proposed project, in conjunction with other development planned in the City of American Canyon and Napa County, would contribute to the cumulative loss of ruderal/annual grassland and wetland habitat for resident and migratory wildlife species and federal and State listed plants and animals. Compliance with the mitigation measures outlined in Draft EIR Section 3.3, Biological Resources, would reduce the impact of the proposed project's contribution to the cumulative impacts to less than significant. Therefore, a mitigation measure specific to cumulative wetland impacts is not required.

Response to S&W-12
The commenters suggested that they are unable to evaluate if the proposed mitigation will adequately replace lost wetland functions because the Draft EIR does not provide assessment of wetland functions, water budget analysis, and, in general, information necessary to determine whether the wetlands can be successfully created.

Refer to Response to S&W-6b and Response to S&W-8 regarding impacts to wetland functions and water budget analysis.

Response to S&W-13a
The commenters suggested that creating vernal pools is difficult and successful wetland creation is largely driven by ability to provide appropriate hydrology, and referenced federal and State guidelines which also speak of the difficulty in creating vernal pools. The commenters stated a hydrologic analysis that demonstrates wetland creation potential in the proposed mitigation area is not provided in the Draft EIR.

Establishing an appropriate hydroperiod (i.e., the timing and duration of inundation) is particularly critical to vernal pool ecosystems and can be difficult to create. Topographic and geologic factors can have a significant effect on vernal pool hydroperiod. The topography within the Wetland Preserve is relatively flat, which, topographically, makes this area ideal for creating/establishing vernal pools; and the United States Geological Survey (USGS) soil survey maps indicate the majority of the Wetland Preserve does support clay soils, which are also ideal for creating vernal pools. To ensure excavated depressions 1 to 3 feet below grade support clay soils and could pond and hold water for a duration long enough to support vernal pools, HBG and HBC conducted an assessment of the soil profile. Using a backhoe, 25 soil pits were dug to approximately 4 feet in depth. Soil texture and color were then recorded throughout the profile for each soil pit. Results indicated a restrictive layer composed of clay soil is found 12-30 inches below the surface. This layer of clay soil supports the existing vernal pool hydrology and would allow the establishment of vernal pools within the Wetland Preserve. Based on the Wetland Preserve's flat topography, restrictive layer of clay soil just below the surface, and the fact that the site currently supports vernal pools, HBG is confident vernal pools can be successfully established and functioning within a 5-year monitoring period. The location of each established vernal pool would be selected based on the soil profile, and water budget analysis referenced to Response to S&W-8.

Response to S&W-13b

S&W suggests that the Procedures and the USACE may require mitigation ratios greater than 1:1 for impacts to vernal pools, and the information in the Draft EIR does not support the conclusion that the proposed established/created wetlands would replace all the wetland functions at the time of Phase 2.

The proposed 1:1 wetland establishment mitigation ratio for permanent wetland impacts meets the federal and State "no-net-loss" of wetland area policy. Typically, the USACE and RWQCB will require a mitigation ratio greater than 1:1 if wetland mitigation is implemented after or concurrent with the start of project construction and if there is a low level of confidence a selected site can support wetlands.

S&W suggests that the Draft EIR does not support the conclusion that the proposed established/created wetlands would replace all the wetland functions at the time of Phase 2.

The impact analysis discussed in the Draft EIR under Impact BIO-2 states "to offset the loss of the 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland or vernal pool area, the applicant shall establish/create 2.57 acres of seasonal wetlands (1:1 ratio) and of 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction." As discussed above in Response to S&W-13a, HBG has a high level of confidence that the Wetland Preserve can support the establishment of vernal pools, and that, when constructed a minimum of 1 year prior to the start of Phase 2 construction, these vernal pools will be functioning (e.g., providing flood storage, avian and terrestrial habitat, provide habitat suitable for vernal pool plants, etc.) similar to the vernal pools that would be impacted by Phase 2. Based on HBG's assessment, the Wetland Preserve is ideal for establishing vernal pools, and the vernal pools will begin functioning as vernal pools within 1 year after construction, and the 1:1 mitigation ratio that was proposed to offset wetland impacts for Phase 2 will be considered adequate.

Response to S&W-14
The commenters suggested that the 1990 Federal Mitigation Memorandum of Agreement between the USACE and EPA requires the applicant to complete a thorough mitigation sequencing wherein impacts to aquatic resources are first avoided, then minimized, and unavoidable impacts mitigated. The commenters stated the Draft EIR does not address how the proposed project completed this sequencing.

The 1990 Federal Mitigation Memorandum of Agreement is a federal process and an agreement, as stated by S&W, between two federal agencies. Although the requirements in this agreement will be assessed by the USACE and EPA during the Clean Water Act Section 404 permitting process, during the design process "practicable" alternatives were assessed to first avoid impacts to wetlands, then minimize impacts to wetlands, and where impacts were unavoidable, mitigation measures were proposed. The term 'practicable' was applied in accordance with 40 Code of Federal Regulations Section 230.3(q) meaning "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." During the design process, alternative site designs proposed to avoid and minimize impacts considered several specific constraints of a practicable project site plan that were needed in order to satisfy the overall project

purpose. These specific site design constraints included the need to: (1) provide sufficient building square footage capable of accommodating large manufacturing, and/or fulfillment and distribution tenants that require large surface and vertical area structures (i.e., high-cube warehouse buildings), (2) provide sufficient area to accommodate loading docks and circulation routes that can accommodate tractor-semitrailers and delivery vans, and parking to accommodate tractor-semitrailers, vans and personnel vehicles, (3) provide sufficient space to comply with Statewide General Permit for Stormwater Discharges Associated with Industrial Activities, (4) provide for water, sewer, and electric utilities sufficient for an industrial facility, or in an area where those utilities may be practicably extended to the project site, and (5) provide sufficient area to implement wetland mitigation to offset unavoidable impacts to aquatic resources.

Considering these constraints, the proposed Phase 1 design avoided 0.350 acres of wetlands and both Phase 1 and Phase 2 designs minimized impacts to existing wetlands within the Wetland Preserve area by positioning the bioretention basins between the Wetland Preserve and warehouse development.

Response to S&W-15a
The commenters stated that the proposed 5 years of mitigation monitoring is the minimum requirement in the State's Procedures. The commenters referenced the 10-year monitoring guidelines for vernal pools suggested in the draft Mitigation and Monitoring Guidelines for Vernal Pools.

The guidelines that the commenters referenced are in draft form and have not been finalized or incorporated into the South Pacific Division Final Regional Compensatory Mitigation and Monitoring Guidelines, and currently the USACE does not require 10 years of monitoring for vernal pools. Regardless, as discussed previously in Response to S&W-13a, the Wetland Preserve can support the establishment of vernal pools, and once constructed, these vernal pools will provide functions (e.g., provide flood storage, avian and terrestrial habitat, provide habitat suitable for vernal pool plants, etc.) similar to the vernal pools impacted within a short period of time. Based on HBG's assessment, the Wetland Preserve is ideal for establishing vernal pools, and the vernal pools will begin functioning as vernal pools within 1 year after construction, a 5-year monitoring period is sufficient to determine whether the vernal pools have met the performance standards and have replaced the functions of the vernal pools impacted.

Response to S&W-15b
The commenters summarized the Draft EIR MM BIO-3d and suggests that without an understanding of the impacted wetland functions, there is not a basis for establishing mitigation goals or ecological performance standards.

Refer to Response to S&W-6b.

Response to S&W-15c
The commenters suggested that the Draft EIR does not describe use of reference wetlands in the mitigation approach, which is needed to define the performance standards.

The Draft EIR acknowledges in MM BIO-3d that the Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the California State Water Resources Control Board (State Water Board) Procedures. The Procedures require the use of "reference aquatic resources," as correctly stated by S&W. Therefore, MM BIO-3d requires, by referencing the Procedures in MM BIO-3d, the use of "reference aquatic resources" to assist in developing performance standards.

Response to S&W-16a
The commenters stated that City policy requires riparian corridors to be protected by an adequate buffer width and references the buffer guidelines for vernal pools suggested in the draft Mitigation and Monitoring Guidelines for Vernal Pools.

Although No Name Creek is referenced as a creek on the USGS map, it does not support riparian vegetation and is a seasonal wetland, therefore the City riparian corridor policy does not apply. As shown on the Draft EIR Exhibit 3.3-2 Plant Communities map, the area where No Name Creek occurs is labeled as a Seasonal Wetland Community, and it is also labeled as a wetland on the USACE AJD. Thus, the City's riparian corridor buffer policy does not apply on this project site. With respect to the vernal pool buffer comment please refer to Response to S&W-10a.

Response to S&W-16b
The commenters suggested that the lack of project buffer impact analysis makes it difficult to evaluate if the proposed buffer plantings referenced on the Draft EIR Exhibit 3.3-4 are adequate compensation to replace the lost buffer.

The purpose of the proposed tree and shrub plantings referenced on the Draft EIR Exhibit 3.3-4 is to provide vertical structure within the Wetland Preserve to enhance its habitat value. Currently there are no trees within the Wetland Preserve and few shrubs. The tree and shrub plantings were not proposed as "mitigation" or proposed to provide a "buffer" between the project site and the Wetland Preserve. With respect to buffers around unimpacted wetlands and vernal pools, please refer to Response to S&W-10a through Response to S&W-10-c and Response to S&W-11.

Response to S&W-17
The commenters summarized the resources used in their groundwater review. No response is necessary.

Response to S&W-18a
The commenters summarized the findings of the Water Supply Assessment and noted that the City of American Canyon does not use groundwater as part of its municipal water supply. No response is necessary.

Response to S&W-18a
The commenters summarized the findings of the Water Supply Assessment. No response is necessary.

Response to S&W-18c
The commenters summarized the findings of the Water Supply Assessment. The commenters noted that the Water Supply Assessment indicated that the proposed project would be required to comply with the City's Zero Water Footprint Policy and the Draft EIR did not address this requirement.

The Draft EIR's water supply analysis, which was based on the Water Supply Assessment, concluded that adequate water supplies would be available to serve the project and no mitigation was necessary. Hence, the Draft EIR's analysis did not rely on the City's Zero Water Footprint Policy to reach this CEQA conclusion.

The neighboring Napa Logistics Park Project, which involves similar types of end users as the proposed Giovannoni Logistics Center, achieved compliance with the Zero Water Footprint Policy. Therefore, it would be expected that the proposed project could achieve compliance as well. Regardless, how the applicant achieves compliance with the City's Zero Water Footprint Policy is outside the scope of the Draft EIR.

Response to S&W-19
The commenters stated that the loss of pervious surface coverage would not have a significant effect on groundwater recharge and, thus, would not change the groundwater budget for the basin. No response is necessary.

Response to S&W-20
The commenters summarized the resources used in their high-level stormwater review. No response is necessary.

Response to S&W-21
The commenters summarized the findings of their stormwater review and noted that Phase 2 does not appear to benefit from Devlin Road in terms of stormwater retention and, therefore, the stormwater basins and bioretention will likely have to be larger than Phase 1.

Phase 2 encompasses 113 acres and would support up to 1.3 million square feet. By virtue of having more square footage than Phase 1, it will likely have more impervious surface coverage and, thus, need larger basins and bioretention areas.

Response to S&W-22
The commenters reiterated their findings. Refer to Response to S&W-5 through Response to S&W-21.

Response to S&W-23
The commenter listed the references used. No response is necessary.

Response to S&W-24
The commenter provided his curriculum vitae. No response is necessary.

Response to CASHEN-1
The commenter provided introductory remarks. No response is necessary.

Response to CASHEN-2
The commenter disputed the Draft EIR's conclusion that the proposed project would not have any impact on vernal pool fairy shrimp. The commenter stated that the project site provides potential habitat for vernal pool fairy shrimp habitat and alleged that the 2016-2017 surveys for this species that did not find presence of this species are outdated. The commenter claimed that thousands of vernal pool shrimp were detected in vernal pools located 2,700 feet northwest of the project site.

Generally, when surveys are older than 5 years the United States Fish and Wildlife Service (USFWS) may request new surveys to be conducted, or they may not. Nonetheless, the referenced vernal pool branchiopod protocol surveys were less than 5 years old when the Draft EIR was released and, from a biological standpoint, the surveys were reliable and sufficient to support the conclusion that federally listed threatened vernal pool fairy shrimp do not occur on the project site. As the commentor notes, thousands of vernal pool fairy shrimp have occurred within 2,700 feet of the project site for many years, but the surveys show they have not become established within the project site. This indicates that the on-site seasonal wetland and vernal pool habitats are likely not sufficient to support vernal pool fairy shrimp. Therefore, no impacts to vernal pool fairy shrimp would result from construction of the proposed project.

Response to CASHEN-3
The commenter claimed that the Draft EIR failed to evaluate the following Bird Species of Conservation Concern: California gull, savannah sparrow, and marbled godwit. The commenter also stated that the Draft EIR failed to evaluate impacts to cackling geese, which likely occur on the project site because they have been detected at the neighboring Napa Logistics Park.

Marbled godwit, California gull, and savannah sparrow have all been documented within or flying over the project site by biologists with HBG and Monk & Associates. Marbled godwit is an abundant wintering shorebird found along the shoreline of San Francisco Bay, ocean beaches, and wetlands. They nest in the Northern Plains and are not included on CDFW's Special Animals List (latest update in July 2022). There is no reason that impacts to this abundant species needs to be a topic for evaluation in the EIR. California gull is a common wintering species in the San Francisco Bay Area that nests at primarily inland bodies of water in the American west. It is considered a CDFW Watch List species with respect to nesting colonies, none of which occur on or near the project site. By mentioning savannah sparrow, it appears that the commenter is referring to Bryant's savannah sparrow, a subspecies of the widespread and common savannah sparrow, which is considered a species of special concern in California primarily because of its limited range. The Bryant's subspecies of savannah sparrow occupies tidal marshes, moist grasslands and some adjacent ruderal areas within a narrow coastal strip between Humboldt Bay and Morro Bay, and would not be expected within the Giovannoni project site in American Canyon.

Cackling goose (*Branta hutchinsii*) is a goose species once considered conspecific with the common Canada goose (*Branta canadensis*). Cackling goose is a common species; however, the Aleutian subspecies of cackling goose was listed as endangered under the federal Endangered Species Act until its recovery to a population of over 100,000 individuals and its delisting from the Act in 2001. The Aleutian subspecies remains on the CDFW Watch List.

Note that MM BIO-4 requiring nesting surveys for all bird species during the breeding season would ensure significant impacts to all nesting bird species would not occur.

Response to CASHEN-4
The commenter disputed the Draft EIR's conclusion that the short-eared owl does not occur on the project site because of lack of suitable habitat. The commenter claimed that the project site does in fact provide suitable habitat including voles, freshwater marshes, and ungrazed grassland and noted that one was observed during a survey at the neighboring Napa Logistics Park.

The Draft EIR Appendix C.1 Biological Resources Report determined the project site did not support suitable habitat for the short-eared owl (a California Species of Special Concern and USFWS Bird Species of Conservation Concern), at least in part because the property is currently surrounded on all four sides by commercial development or heavily trafficked roadways and is bisected by a new road and public trail extension that create disturbances, all of which would not be conducive to nesting by this sensitive species. Although nesting by this species is not likely for this reason, nesting by short-eared owl, a species that resembles northern harrier in its habitat requirements and foraging habits (northern harrier by day and short-eared owl at night), is possible. For this reason, recommended nesting surveys for northern harrier (see MM BIO-1c) should include concurrent searches for nesting short-eared owl and mitigate for the presence of nesting birds, if found. Refer to Response to CDFW-8a for revised wording of MM BIO-1c, which now provides for the possibility of finding nesting short-eared owl as well as northern harrier. Implementation of MM BIO-1c would ensure potential impacts to short-eared owl, as well as those for northern harrier, would be less than significant.

Response to CASHEN-5a
The commenter noted that the Draft EIR concluded that the proposed project would not impact rare plants and stated that the rare plant surveys that were the basis of this conclusion are invalid because they were conducted in 2021, which was a drought year.

The Draft EIR did not rely solely on HBC's 2021 botanical surveys. Referenced in the Draft EIR Appendix C.1 Biological Resources Report, the biological evaluation also considered plant data in the aquatic resources delineation prepared by Monk & Associates, and Biological Resource Reports prepared by Monk & Associates for the Devlin Road and Vine Trail Extension Project and the Green Island Road Reconstruction and Widening Project. In addition, HBG's biological evaluation considered plant data in the CNDDB to determine whether populations of endangered, threatened, or rare species have occurred on the site historically or are currently known to exist in the project vicinity. All of this data was sufficient to analyze the proposed project's potential impacts to plant species. The data relied on included data taken in wet years as well as drought years.

Response to CASHEN-5b
The commenter claimed the rare plant surveys did not encompass the blooming periods of all target species, including Napa bluecurls and pappose tarplant and, thus, the Draft EIR's conclusion that the proposed project would not impact rare plants are not supported by sufficient evidence.

The blooming periods listed in Appendix A of the 2021 HBC rare plant survey report are general approximations provided by the California Native Plant Society and may vary depending on weather

patterns. Because of blooming periods varying from year to year, and in accordance with the CDFW's protocol, HBC conducted visits to several reference sites with known special-status plants targeted for field surveys to determine whether those special-status plants were identifiable at the times of year the botanical field surveys took place. HBC conducted botanical surveys during the spring of 2021 and survey dates were chosen based on the reference sites and when the special-status plants would likely be in bloom or otherwise visible. Because of significant early fall rainfall in 2020, lack of spring rainfall in 2021 and warm weather, the flowering periods were several months in advance of normal blooming periods. The last rainfall event that was not trace amounts, occurred on March 18, 2021. Based on the weather patterns leading up to the spring surveys for 2021 and based on the reference sites known to support the target plants, the dates HBC conducted the surveys on were reliable and sufficient to capture blooming periods or a visual image of the target species.

Response to CASHEN-6

The commenter noted the Draft EIR indicated that the proposed project would impact 3.7 acres of palustrine emergent wetlands, seasonal wetlands, and vernal pools but did discuss the ecological functions of wetlands or evaluate indirect impacts on wetlands outside the development footprint. The commenter claimed that the proposed Wetland Preserve would function as an island surrounded by urban development and would be subject to human disturbance. The commenter also noted MM LU-3 seeks to reduce the avian attractants and, thus, would further diminish the Wetland Preserve's functions. The commenter alleged that because of these reasons, MM BIO-2 and MM BIO-3 would not reduce the proposed project's impacts on wetlands to a less than significant level.

Functional assessments were conducted to determine plant and animal communities supported on the project site, and these functional assessments were then used in the impact analysis and subsequent mitigation requirements. Refer to Response to S&W-6b for further discussion.

As shown in Draft EIR Exhibit 3.3-3, the Wetland Preserve would contain No Name Creek, which is hydrologically connected to the Napa Logistics Park Wetland Preserve to the north. It would also be contiguous to wetland areas within the Biaggi Bros. property to the west. Thus, the commenter's claims that the Wetland Preserve would be an island are his opinion not supported by evidence.

With respect to the commenter's suggestion that MM LU-3 seeks to reduce the avian attractants and, thus, would further diminish the Wetland Preserve's please refer to CASHEN-14 for further discussion on the implications of MM LU-3.

Response to CASHEN-7a

The commenter noted the MM LU-3 would incorporate measures to reduce bird attractant potential of the wetland area and, therefore, it is reasonable to assume the wildlife hazard reduction measures required under MM LU-3 would include measures to reduce the attraction of Swainson's hawks to the Wetland Preserve. The commenter referenced the Draft EIR's discussion of Swainson's hawk foraging habitat and disputed the statement that there have been a limited number of occurrences of the species within a 10-mile radius of the project site. The commenter claimed that both the California Natural Diversity Database and eBird database have numerous records of Swainson's hawk occurrences within 10 miles of the project site.

With respect to the commenter's suggestion that MM LU-3 would include measures to reduce the attraction Swainson's hawks to the Wetland Preserve, refer to Response to CASHEN-14. The California Natural Diversity Data Base is a reliable source of scientific data and was used to determine the number of occurrences of Swainson's hawk within a 10-mile radius of the project site. The commenter references the eBird data base, which shows multiple sightings of Swainson's hawk in the project area; but a knowledgeable person's interpretation of the eBird data would recognize that the multiple sightings of Swainson's hawk are of multiple observers seeing the same bird(s) over and over. Based upon the limited number of known Swainson's hawk to occur within a 10-mile radius of the project site, the acreage of existing foraging habitat currently protected, and the addition of a 45-acre open space area providing suitable foraging habitat for the species, there is more than sufficient foraging habitat near the project site. Accordingly, the proposed project would not result in significant impacts to foraging habitat nor affect the nesting populations of Swainson's hawk near the project site either directly, indirectly, or cumulatively. Therefore, no mitigation is warranted for Swainson's hawk foraging habitat. Refer to Master Response 1—Impacts to Swainson's Hawk/Golden Eagle Foraging Habitat, for further discussion.

Response to CASHEN-7b
The commenter alleged that the Draft EIR's biological survey on included a single survey for the Swainson's hawk and did not adhere to Swainson's hawk survey protocol, which require three independent surveys to be completed.

Two surveys were conducted to analyze project impacts, not one as suggested by the commenter. The Draft EIR acknowledges in Section 3.3, Biological Resources, page 3.3-4 that HBG conducted spring season site reconnaissance surveys on April 16 and May 24, 2021, and HBG drove about 10 miles of local roads surrounding the project site during both the April and May 2021 field reviews to inspect trees for raptor nest structures. No Swainson's hawk nest structures were observed during either reconnaissance. The Draft EIR also acknowledges, by referencing Appendix C.1 Biological Resources Report, that the analysis relied on CNDDB data of Swainson's hawk locations, and Biological Resource Reports prepared by Monk & Associates for the Devlin Road and Vine Trail Extension Project and the Green Island Road Reconstruction and Widening Project. This data was sufficient to analyze potential impacts the project may have on Swainson's hawk. Some mitigation measures developed in the Giovannoni Draft EIR were in part based on the mitigation requirements spelled out in the Monk & Associates environmental reports, which were certified by the City of American Canyon for projects that have been constructed or a currently in construction. Implementation of MM BIO-1a and MM BIO-4 would ensure project impacts to Swainson's hawk are less than significant.

Response to CASHEN-7c
The commenter disputed a statement that there is sufficient Swainson's hawk foraging habitat in the project vicinity such that the development of the proposed project would not cause a significant loss of this habitat. The commenter referenced CDFW mitigation guidelines for Swainson's hawk foraging habitat and claimed that the proposed project would result in an unmitigated significant impact in this regard.

Swainson's hawk foraging habitat mitigation is addressed in Master Response 1 (Impacts to Swainson's Hawk/Golden Eagle Foraging Habitat).

Response to CASHEN-8

The commenter noted that the Draft EIR indicated that a golden eagle was spotted during a field survey and indicated the development of the proposed project would result in the loss of golden eagle foraging habitat.

Development of the proposed project would remove some foraging area for this species. Development of the proposed project would also provide and preserve in perpetuity approximately 45 acres of open space that would include habitat currently suitable for foraging by the golden eagle, as indicated by the observation of a golden eagle foraging on the site in spring 2021. The adjacent Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides foraging habitat for golden eagle. Between these two preservation areas abutting and directly adjacent to the project site, approximately 82 acres of suitable habitat would be available for the golden eagle. In addition, there are several large open space preserves within 2 and 5 miles of the project site that combined provide approximately 2,000 acres of suitable foraging habitat. Based upon the limited number of golden eagle records within a 10-mile radius of the project site, there is sufficient foraging habitat in and within the vicinity of the project site. Based upon the limited number of known golden eagle to occur within a 10-mile radius of the project site, the acreage of existing foraging habitat currently protected, and the addition of a 45-acre open space of suitable golden eagle foraging habitat as part of the project, the proposed project would not result in significant impacts to foraging habitat directly, indirectly, or cumulatively. Therefore, no mitigation is warranted for golden eagle foraging habitat.

Importantly, the Golden Eagle Protection Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle . . . [or any golden eagle], alive or dead, or any part (including feathers), nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Regulations further define "disturb" as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 Code of Federal Regulations [CFR] 22.6). Although the proposed project would result in a net loss of foraging habitat, such a net loss occurring in the particular area in which the project site is located would not result in a "take" as defined by the Golden Eagle Protection Act.

For further discussion refer to Master Response 1 (Swainson's Hawk/Golden Eagle Foraging Habitat Mitigation).

Response to CASHEN-9

The commenter claimed that the northern harrier forages and may nest at the project site. The commenter claimed that MM BIO-1c would do nothing to mitigate loss of habitat and the potential

loss of breeding territory. The commenter claimed that the proposed Wetland Preserve would not mitigate the loss of habitat for the species because it does not contain the requisite habitat.

Development of the proposed project would remove some foraging and breeding habitat for this species. Development of the proposed project would also provide and preserve in perpetuity approximately 45 acres of open space that would include habitat currently suitable for foraging and breeding habitat by the northern harrier as indicated by the observation of a northern harrier foraging in the site. The adjacent Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides foraging habitat for northern harrier and there are several large open space preserves within 2 and 5 miles of the project site that combined provide approximately 2,000 acres of suitable foraging and breeding habitat. Based upon the number of known northern harrier to occur within a 10-mile radius of the project site, the acreage of existing northern harrier habitat currently protected, and the addition of a 45-acre open space area of suitable northern harrier foraging habitat as part of the project, the proposed project would not result in significant impacts to northern harrier directly, indirectly, or cumulatively, therefore no mitigation is warranted for northern harrier foraging or breeding habitat.

The operative significance threshold for impacts to northern harrier, an unlisted species, is whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications. Although the proposed project would result in a net loss of potential northern harrier foraging habitat, such a net loss occurring in the particular area in which the project site is located would not cause a substantial adverse effect on the species. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.)

Response to CASHEN-10
The commenter stated that MM BIO-1d does not require habitat compensation if burrowing owls are detected and stated that the proposed Wetland Preserve would not mitigate the loss of habitat.

Similar to Response to CASHEN-8 and CASHEN-9, based upon the lack of burrowing owls and burrowing owl habitat on the project site, the number of known burrowing owls to occur within a 10-mile radius of the project site and the acreage of existing suitable habitat currently protected within 2 and 5 miles of the project site, the proposed project would not result in significant impacts to burrowing owl habitat directly, indirectly, or cumulatively, therefore no mitigation is warranted for burrowing owl habitat. It should be noted the applicant agrees that, if burrowing owl is ultimately found on the site and burrow eviction/relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant will coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl. Modifications to MM BIO-1d, as shown in the Errata, confirm this requirement.

Also note that mitigation recommendations in the CDFW 2012 Staff Report do not carry the force of law, as burrowing owls are not listed under CESA, and the Staff Report was not subject to any formal rulemaking process. Moreover, the operative significance threshold for impacts to burrowing owl, an unlisted species, is whether the proposed project would have a substantial adverse effect on the

species, either directly or through habitat modifications. Although the proposed project would result in the loss of burrowing owl nests or a net loss of potential burrowing owl foraging habitat, such losses would not cause a substantial adverse effect on the species. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.)

Response to CASHEN-11
The commenter claimed the merlin and ferruginous hawk have been detected north of the project site and stated the project site provides foraging habitat. The commenter alleged MM LU-3 would directly functionally eliminate habitat for these two species.

Merlin and ferruginous hawk are raptor species on the CDFW Watch List with respect to wintering habitat. Both of these raptors are species with widespread winter ranges that include much of the western United States and beyond, including portions of the San Francisco Bay Area and inland valleys. They occur in small numbers throughout and can be found in grasslands, pastures, undeveloped and even developed urban to rural sites, golf courses, etc. Occasional use of the project site by either of these species is likely to occur, but there is nothing peculiar about the property that would warrant protection or mitigation on the basis of the site being an important wintering site for either species. In addition, similar to Response to CASHEN-8 and CASHEN-9, based on the acreage of existing suitable habitat currently protected within 2 and 5 miles of the project site, the proposed project would not result in significant impacts to merlin or ferruginous hawk habitat directly, indirectly, or cumulatively, therefore no mitigation is warranted for merlin or ferruginous hawk habitat. The operative significance threshold for impacts to these unlisted species is whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications. Although the proposed project would result in the loss of potential foraging habitat, such losses would not cause a substantial adverse effect on the species. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.) In addition, implementation of MM LU-3 will not functionally eliminate the habitat for these two species. Refer to Response to CASHEN-14 for further discussion on the implications of MM LU-3.

Response to CASHEN-12
The commenter alleged the proposed project has the potential to introduce invasive plant species or facilitate their spread during construction. The commenter claimed that because the proposed project does not set forth mitigation for invasive plant species, it does not comply with General Plan Policy 8.4.3.

Based on the fact that the majority of the project site, once developed, will consist of hard surfaces (building foundations, asphalt parking lots, access roads etc.) that do not provide a growth medium for plants, the proposed developed portion of the project site could not support invasive plant species even if they were inadvertently introduced during or after construction. The managed landscaped areas within the development could provide a limited opportunity for an invasive plant; however, these areas are managed landscaped areas with planted trees and shrubs that would be managed, by techniques such as weeding, to allow for the growth of the plants, included in the landscape plan once proposed. Therefore, no mitigation is warranted for invasive plant species

during construction or after construction on the developed portion of the project site. If an invasive plant is introduced into the Wetland Preserve, the Draft EIR set forth mitigation measures under MM BIO-3d. MM BIO-3d provides mitigation measures in Draft EIR Section 3.3, Biological Resources, page 3.3-36 to monitor for the establishment of an invasive plant species in wetlands and provides a contingency measure on page 3.3-37 to address invasive plant species should the invasive plant performance standard not be met.

Response to CASHEN-13
The commenter noted that a 0.5-mile radius was used as the geographical area for the Draft EIR's cumulative biological analysis and no justification was provided as to why this was appropriate. The commenter claimed the Draft EIR discussed foraging habitat using a much larger geographical area and, thus, used two different geographical areas for the cumulative analysis. The commenter reiterated previous comments about loss of foraging habitat and Impact MM LU-3 would have on the Wetland Preserve as foraging habitat.

In Chapter 4, Cumulative Effects, the geographic scope for each topic is identified and the rationale for it is explained. For Biological Resources, 0.5-mile was used because of the project site's location between the marshes associated with the Napa River and urban development with the City of American Canyon. Thus, 0.5-mile would encompass this geographical area.

The discussion of the abundance of Swainson's hawk foraging habitat in the project vicinity in Section 3.3, Biological Resources, was a separate analysis. Regardless, much of that foraging habitat is within 0.5-mile of the project site. The discussion of impacts to the ability of the Wetland Preserve to provide foraging habitat is discussed below in CASHEN-7a.

Refer to Master Response 1 for further discussion of foraging habitat.

Response to CASHEN-14
The commenter alleged that MM LU-3 would preclude implementation of MM BIO-2 and MM BIO-3 because it would require modification of the landscape, hazing, or removal of hazardous wildlife species. The commenter suggested that implementation of MM LU-3 would require the use of pyrotechnics, propane cannons or directional sonic/hailing devices, the effects of which were not evaluated in the Draft EIR.

MM LU-3 is patterned after a similar mitigation measure set forth in the Napa Logistics Park Phase 2 EIR to minimize the avian attractant attributes of that project's 37-acre Wetland Preserve. In the case of Napa Logistics Park, the intent was to minimize the avian attractant attributes of where standing water would occur through design practices (i.e., employing certain shapes that are not appealing to avian species). Importantly, hazing or hazardous wildlife species removal was not employed in the Napa Logistics Park. Given that Napa Logistics Park is nearly built out and the Wetland Preserve has been established for several years, there is evidence that the successful implementation of MM LU-3 and MM BIO-2 and MM BIO-3 can be achieved. Furthermore, a Wildlife Hazard Assessment has already been prepared, in accordance with MM LU-3, and demonstrates that the construction of the proposed project would not cause an increase above the existing level of activity of birds or other wildlife, and would not present a hazard to Napa County Airport flight operations. It is predicted that

the overall wildlife activity on the property would remain at or below current levels. The Wildlife Hazard Memo is included in Appendix L of this Final EIR.

Lastly, the commenter's claim that pyrotechnics, propane cannons, or directional sonic/hailing devices would be used is speculative, unsupported by any statements in the Draft EIR.

Response to CASHEN-15
The commenter referenced MM BIO-1a and claimed it violates the Swainson's Hawk Technical Committee survey protocol by allowing construction to commence after the first survey, which may cause impacts on the species. The commenter also alleged that MM BIO-1a only requires a 1,000-foot buffer, whereas CDFW mitigation guidelines call for a 0.25-mile buffer.

There are no trees on the project site and, thus, the Swainson's hawk does not have the potential to nest on-site. Instead, MM BIO-1a applies to Swainson's hawk nesting within the zone of influence, which is generally defined as within 1,000 feet of the project site. Refer to Response to CDFW-5a and Response to CDFW-5b for further discussion.

See also Master Response 1 (Swainson's Hawk/Golden Eagle Foraging Habitat Mitigation).

Response to CASHEN-16
The commenter referenced MM BIO-1b and claimed that it does not require that the surveys adhere to USFWS survey protocol, does not include 1-mile non-disturbance buffer, and does not provide evidence that a reduced buffer would be sufficient to mitigate impacts on golden eagles.

As discussed in Draft EIR Section 3.3, Biological Resources, page 3.3-25, there are no trees on the project site and, thus, the golden eagle does not have the potential to nest on-site. Instead, MM BIO-1b applies to golden eagle nesting within the zone of influence, which is generally defined as within 1,000 feet of the project site. The USFWS Interim Golden Eagle inventory and monitoring protocols provides recommendations for determining and evaluating potential golden eagle use of habitat, including nest sites, roosts, and territories, as well as the rationale for identifying and evaluating foraging locations during breeding and non-breeding periods and buffer recommendations. The purpose of the data gathered is to provide information on the baseline circumstances for evaluation of permit applications and foundation for permit conditions during the National Environmental Policy Act (NEPA) process. A Pre-construction Notification was submitted to the USACE with information regarding golden eagle foraging habitat on the project site, known golden eagle sightings within a 10-mile radius of the project site, proposed 1,000-foot minimum buffer from a nest, and proposed pre-construction surveys that would be implemented prior to the start of construction. Based on the USACE's assessment, initiation of an Endangered Species Act Section 7 consultation for golden eagle was not warranted. Regardless, MM BIO-1b establishes a minimum 1000-foot buffer zone, which means the qualified Raptor Biologist could require a larger buffer than 1000 feet or adhere to the USFWS 1-mile buffer recommendation or establish a buffer greater than 1 mile if it is determined, by the qualified Raptor Biologist, that a larger buffer is warranted. Construction activities vary and may include low disturbance activities such as engineering surveys, high levels of disturbance such as large-scale grading, or there may be areas that may have no disturbances for long periods. The qualified Biologist shall establish an appropriate buffer to avoid

project impacts that could result in nest abandonment, loss of young, and/or injury or mortality of burrowing owls. Implementation of MM BIO-1b would ensure project impacts to golden eagle are less than significant.

Response to CASHEN-17
The commenter referenced MM BIO-1c and claimed that it does not provide evidence that a 500-foot buffer would be sufficient to protect northern harrier nest.

MM BIO-1c states the northern harrier nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest, and that the qualified Raptor Biologist could modify the buffer zone considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier may have acclimated to disturbance. This means the minimum buffer is a 500-foot radius; however, according to MM BIO-1c the qualified Raptor Biologist could increase the buffer radius if deemed necessary to protect the nest. Implementation of MM BIO-1c and MM BIO-4 would ensure project impacts to northern harrier are less than significant.

Response to CASHEN-18a
The commenter referenced MM BIO-1d and claimed that the 100-foot non-disturbance buffer for an occupied burrowing owl nest is inconsistent with CDFW mitigation guidelines, which recommend a 500-meter buffer from occupied burrows and activities causing a high level of disturbance.

As stated above, the CDFW mitigation guidelines recommend a 500-meter buffer from activities causing a high level of disturbance. Construction activities vary and may include low disturbance activities such as engineering surveys, high levels of disturbance such as large-scale grading, or there may be areas within a large construction site, such as the project site, that may have no disturbances for long periods. MM BIO-1d establishes a minimum 100-foot buffer zone, which means the qualified Raptor Biologist could require a larger buffer than 100 feet or 500 meters if it is determined, by the qualified Raptor Biologist, that a larger buffer is warranted based on the location of a nest, reaction of the burrowing owl to the disturbance, and the activity being conducted from the occupied nest to avoid project impacts that could result in nest abandonment, loss of young, and/or injury or mortality of burrowing owls.

Response to CASHEN-18b
The commenter referenced MM BIO-1d and claimed that passive relocation may have adverse impacts associated with loss of habitat, increased stress on burrowing owls, increased depredation, increase energetic costs, and competition for fewer available burrows.

MM BIO-1d does not allow passive relocation of burrowing owls during the breeding season. The passive relocation effort outlined in MM BIO-1d is restricted to relocating owls during the nonbreeding season often referred to as overwintering owls. If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 Staff Report recommended avoidance protocol whereby occupied burrows shall be avoided with a non-disturbance buffer. Therefore, implementation of MM BIO-1d would ensure project impacts to overwintering owls and breeding pairs would be reduced to less than significant.

It should be noted that the applicant agrees that, if burrowing owl is ultimately found on the site and burrow eviction/relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant will coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl. Modifications to MM BIO-1d, as shown in the Errata, confirm this requirement.

The operative significance threshold for impacts to burrowing owl, an unlisted species, is whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications. Although the project could lead to the loss of a burrowing owl nest during the nonbreeding season, such an impact will not cause a substantial adverse effect on the species. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529.)

Response to CASHEN-19
The commenter referenced MM BIO-2 and MM BIO-3 and claimed they failed to demonstrate why the mitigation ratios would be sufficient to mitigate wetland impacts. The commenter reiterated previous comments about MM LU-3 precluding implementation of MM BIO-2 and MM BIO-3.

With respect to the mitigation ratio comment please refer to Response to S&W-13b; with respect to the MM LU-3 comment refer to Response to CASHEN-14.

Response to CASHEN-20a
The commenter referenced MM BIO-4 and claimed it failed to established standards for nest searching techniques, minimum level of effort, and qualifications of the Biologist.

MM BIO-4 does establish standards for conducting pre-construction breeding bird survey. Standards include timeframes when the survey can begin, provides a specific survey geographic range outside of the project site for ground nesting birds, passerines, accipiters, and other raptors. MM BIO-4 establishes a standard for repeating surveys should project construction get delayed, and requires a qualified Biologist to conduct the survey. As correctly stated by CASHEN-20a, actually detecting a physical nest can be difficult especially for ground nesting birds. Typically, an experienced Biologist will mark the nest location but if a nest is not found the qualified Biologist would mark an area where a bird exhibiting nesting behavior is active.

Response to CASHEN-20b
The commenter referenced MM BIO-4 and claimed it failed to provide evidence that buffer sizes would prevent negative impacts to nesting birds. The commenter claimed construction noise levels may reach 90 A-weighted decibel (dBA) at a distance of 50 feet and, thus, a 50-foot buffer would not be sufficient.

To clarify, Draft EIR Section 3.10, Noise, page 3.10-17, disclosed construction noise levels may be as high as 90 dBA maximum noise/sound level (L_{max}) (i.e., instantaneous noise level). Actual average noise levels during construction activities would be lower. Regardless, the buffers outlined in MM BIO-4 are minimum buffers and may be increased should the qualified Biologist determine a larger buffer is warranted to protect a nest. Construction activities vary and may include low disturbance

activities such as pedestrian engineering surveys, high levels of disturbance such as large-scale grading or pile driving, or there may be areas within a large construction site, such as the project site, that may have no disturbances for long periods. MM BIO-4 establishes minimum buffer zone requirements, which means the qualified Raptor Biologist could require a 500-meter buffer for a passerine nest if it is determined, by the qualified Raptor Biologist, that a larger buffer is warranted based on the location of a nest, reaction of the bird species to the disturbance, and the activity being conducted from the occupied nest.

Response to CASHEN-20c
The commenter referenced MM BIO-4 and claimed it does not contain performance standards for validation of the adequacy of the nest buffers or compliance for construction workers.

The MM BIO-4 requires buffer zones to be maintained until it can be documented that either the nest has failed, or the young have fledged, which is the industry standard approach. The Biologist must document the nest has either failed or the young have fledged prior to the buffer being removed. With respect to ensuring construction crews abide by the nesting bird buffers, this would be required to be noted on construction plans and, thus, construction personnel would be aware of this requirement.

Response to CASHEN-21
The commenter provided his curriculum vitae. No response is necessary.

Response to SM-1
The commenter summarized the findings of his review. Refer to Response to SM-2 through Response to SM-5, as well as Master Response 4.

Response to SM-2
The commenter alleged that project trip generation could be much higher than assumed because it used the lowest Institute of Transportation Engineers (ITE) trip rate a warehouse land use. The commenter asserted that a Cold Storage Warehouse trip rate should have been used, which would have resulted in more peak-hour trips. The commenter referenced a study from Western Riverside County that showed that an Amazon warehouse with more than 2,000 employees generated more than 5,000 trips per day. The commenter also claimed that truck trip generation was under counted, citing the same study.

Although the ITE Trip Generation Manual (10th Edition) provides multiple rates for various types of High-Cube land uses, the "High-Cube Transload and Short-Term Storage Warehouse" land use was selected because these rates were based upon a compilation of approximately 100 separate surveys sites whereas the published rates for the other High-Cube land uses (High-Cube Fulfillment Center, High-Cube Parcel Hub, and High-Cube Cold Storage) consisted of five or fewer site surveys each. Therefore, the rates for the "High-Cube Transload and Short-term Storage Warehouse" were applied since they were the most statistically robust data set available when compared with the other remaining options.

Response to SM-3
The commenter claimed that the VMT analysis improperly used the Statewide model, which is too coarse for a particular project. The commenter claimed a regional travel demand model should have

been used and said a one-way commute VMT for the two higher income categories working in American Canyon is 31.3 miles.

The applied commute VMT per employee data of 16.24 miles was obtained from the California Statewide Travel Demand Model (CSTDM), which as noted in above responses produces VMT performance metrics that are directly comparable to those suggested for use in the OPR Technical Advisory, and accounts for local and regional demographic characteristics including the locations of jobs and housing. The alternative methodology suggested by the commenter entails using Longitudinal Employer-Household Dynamics (LEHD) and LEHD Origin-Destination Employment Statistics (LODES) information developed from US Census data, which while informative, does not produce results that can be directly compared to the applied significance threshold. This is evidenced by the substantial amount of factoring and adjusting used by the commenter to develop alternative estimates. The use of data produced by the CSTDM as applied is preferable since it similarly accounts for demographic patterns, more accurately accounts for actual driving distances on roadways, and requires substantially fewer assumptions and factoring adjustments than the approach suggested by the commenter.

Response to SM-4
The commenter stated that the Draft EIR should have required a TDM Program and noted some challenges for the proposed project in this regard.

This Final EIR includes a new mitigation measure, MM AIR-2f, which requires the implementation of a TDM Program. This change is included in Section 5, Errata.

The Draft EIR did discuss project accessibility to transit, bicycles, and pedestrians in Impact TRANS-1 and found that the proposed project would be accessible to these modes of transportation.

Response to SM-5
The commenter reiterated prior remarks about trip generation and alleged that the GHG emissions analysis may be underestimated. Refer to Response to SM-3.

Response to SM-6
The commenter provided his curriculum vitae. No response is necessary.

SECTION 4: RESPONSES TO JUNE 23, 2022, PLANNING COMMISSION MEETING COMMENTS

4.1 - Introduction

City of American Canyon solicited public comments on the Giovannoni Logistics Center Project Draft Environmental Impact Report (Draft EIR) (State Clearinghouse No. 2021010104) on June 23, 2022, at a Planning Commission meeting at American Canyon City Hall. Comments were provided in oral form and summarized in meeting minutes. Although the City of American Canyon is not obligated by the California Environmental Quality Act (CEQA) to provide written responses to oral comments, the City has nonetheless elected to respond to the comments made at the meeting in order to address concerns and questions related to the evaluation of the proposed project's environmental impacts in the Draft EIR. These written responses become part of the Final EIR for the project in accordance with CEQA Guidelines Section 15132.

This section is organized as follows:

- **Section 4.1—Introduction.** Provides an overview of the section.
- **Section 4.2—List of Speakers.** Provides the list of individuals who provided comments at the June 23, 2022, Planning Commission meeting.
- **Section 4.3—Planning Commission Transcript.**
- **Section 4.4—Responses to Planning Commission Comments.** Provides responses to all applicable verbal and written comments received at the Community Meetings.

4.2 - List of Speakers and Authors

A list of the speakers who provided verbal comments on each community meeting is presented below. Each speaker has been assigned a code. Individual comments within each communication have been numbered so comments can be crossed-referenced with responses.

June 23, 2022, Planning Commission Meeting

Speaker

Chris James
Joe Livaich
Planning Commission Chair Crystal Mallare
Planning Commission Vice Chair Tammy Wong
Planning Commissioner Tyrone Navarro

4.3 - June 23, 2022, Planning Commission Meeting Minutes

The meeting minutes are reproduced in the following pages are from the June 23, 2022, Planning Commission Meeting.

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CITY OF AMERICAN CANYON
REGULAR PLANNING COMMISSION MEETING

ACTION MINUTES
June 23, 2022

6:30 P.M. REGULAR MEETING
The meeting was called to order at 6:31 p.m.

CALL TO ORDER

PLEDGE
The pledge of allegiance was recited.

MEETING ANNOUNCEMENT
Chair Mallare made the meeting announcement.

ROLL CALL
Present: Commissioners Eric Altman, Tyrone Navarro, Vice Chair Tammy Wong, Chair Crystal Mallare
Absent: Commissioner Andrew Goff

PUBLIC COMMENT
Chair Mallare opened public comment. Written Comments: None. Oral Comments: None

AGENDA CHANGES
There were no agenda changes.

CONSENT CALENDAR

Minutes of May 26, 2022
Action: Approve the minutes of May 26, 2022

Action: Motion to approve the consent calendar was made by Commissioner Navarro, seconded by Vice Chair Wong and CARRIED by a roll call vote.

PUBLIC HEARINGS

Home2Suites Major Modification to revise Condition 40 of Resolution 2020-02 to substitute undergrounding overhead utilities and poles with two relocated overhead utility poles and two additional riser poles across the Project Frontage

Action: A Resolution of the Planning Commission of the City of American Canyon, California approving a Major Modification to Condition 40 of Resolution 2020-02 for the Home2Suites Design Permit to substitute a utility undergrounding requirement with two relocated overhead utility poles and two additional riser poles across the project Highway 29 frontage at 3701 Main St., APN 059-072-002 (PL22-0007)

Commissioners received a report from Associate Planner William He. Mark Stumm with Home2Suites provided additional information.

Chair Mallare recused herself from the item at 6:51 due to conflict of interest.

Commissioners discussed the item.

City Attorney William Ross provided information related to the end consistency of PG&E to underground utilities and provided direction to the Commission regarding their discretion related to a decision on in this item.

Vice Chair Wong opened Public Comment. Written comment: none Oral comment: Chris James was called to speak. Public comment was closed.

Speakers: Bret Tremblay on behalf of Home2Suites

Commissioners further deliberated on the item.

Action: Motion to continue the Public Hearing to next regularly scheduled Planning Commission meeting with a recommendation to City staff to begin exploring a comprehensive undergrounding plan and if possible, start initiating a conversation for such comprehensive plan with City Council, but most immediately addressing the concerns for the Home2Suites project. was made by Commissioner Altman, seconded by Commissioner Navarro and CARRIED by a roll call vote.

Chair Mallare resumed participation in the meeting at 7:58 p.m.

BUSINESS

Giovannoni Logistics Center Draft Environmental Impact Report (DEIR) Public Review Workshop

Action: Receive and file Giovannoni Logistics Center DEIR and provide comments on its environmental findings and conclusions.

Community Development Director Brent Cooper introduced the applicant Joe Livaich from Buzz Oats Construction and Grant Gruber and Mary Bean from First Carbon Solutions, who prepared the EIR. Grant Gruber from Frist Carbon Solutions shared a presentation.

Chair Mallare opened Public Comments
Written comments: none. Oral comments: Chris James was called to speak. Chair Mallare closed Public Comments

The applicant, Joe Livaich from Buzz Oats Construction provided additional information.

Commissioners discussed the item.

Action: The report was acknowledged and filed.

MANAGEMENT AND STAFF ORAL REPORTS

Active Planning Projects

Action: Review Active Planning Project List

Community Development Director Brent Cooper reported on Active Planning Projects including the hotel at Napa Valley Ruins and Gardens, the Residences at Napa Junction, Home2Suites, Fume Conditional Use Permit, SDG 217 project, General Plan Housing Element outreach, General Plan Notice of Preparation for Environmental Impact report, Napa Cove, Watson Ranch homes at the North end of Summerwood, Napa Junction medical building, Canyon Estates, PG&E, Paoli Watson Lane annexation, Oat Hill residential project.

Associate Planner William He provided an update on PG&E landscaping for their project.

COMMISSIONER ITEMS

Commissioners reported on items of interest.

ADJOURNMENT

The meeting adjourned at 8:44 p.m.

CERTIFICATION

Respectfully Submitted,

Nicolle Jones, Administrative Technician

4.4 - Responses to June 23, 2022, Planning Commission Meeting Comments

4.4.1 - Introduction

Responses to comments made at the June 23, 2022, Planning Commission meeting are provided through both master responses and individual responses. Master responses are provided in Section 2 of this document.

4.4.2 - Responses to Comments

Individual Responses

Responses have been prepared for all comments pertaining to the Draft EIR. An individualized response has been provided to each comment.

Chris James

Summary of Comments
Mr. James noted that that "this has come up so quickly" and lamented that State Route (SR) 29 has been turned into a "concrete thoroughfare." Mr. James expressed concern about air pollution from idling trucks and traffic congestion. He expressed general displeasure with the project vicinity being the "Warehouse District for Napa County."

Response to Comments
The applicant filed the application to develop the Giovannoni Logistics Center Project with the City of American Canyon in November 2020. The environmental review process began in January 2021 with the issuance of the Notice of Preparation (NOP). The Draft EIR was released for public review on May 20, 2022. By the time of the June 23, 2022, Planning Commission meeting, 19 months had elapsed since the filing of the application. When compared to the entitlement timeline of other recent development projects (e.g., Napa Logistics Park Phase 2, Napa Airport Corporate Center, and Broadway District Specific Plan), the timeline for the Giovannoni Logistics Center was equal to, if not a bit more prolonged, than the timelines for those projects. This greater amount of time devoted to the Giovannoni Logistics Center Project demonstrates that the City conducted a deliberate review of the project application and by no means has rushed it through the process.

Air pollution, including diesel particulate matter (DPM) from trucks, was addressed in the Draft EIR in Section 3.2, Air Quality. Mitigation Measure (MM) AIR-2d requires that the truck fleet serving the proposed project meet or exceed the emissions profile of Model Year 2014 heavy trucks. Furthermore, State law limits diesel engine idling to no more than 5 minutes and many truck fleets are equipped with auxiliary power units that allow the diesel engine to be shut off but still allow electrical systems to be powered. The Draft EIR found that impacts on nearby sensitive receptors from DPM emissions would be less than significant.

Lastly, the Green Island Business Park, as well as the Napa County Airport Industrial Area, are the two largest industrially zoned areas in Napa County. This reflects the following: (1) proximity to the SR-12/SR-29 junction; (2) compatibility with the Napa County Airport, the Napa Sanitation District Soscol Water Recycling Facility, and the Devlin Road Transfer Station; (3) the availability of freight rail

service; and (4) the land use restrictions set forth in Measure P, which make it extremely difficult to rezone agricultural, open space, and watershed land in unincorporated Napa County to urban use. Likewise, sensitive receptor land uses such as residential, schools, and convalescent facilities would be incompatible in the Green Island Business Park. In sum, light industrial/heavy commercial land uses (including warehouse) are the highest and best uses for the Green Island Business Park.

Joe Livaich

Note to Reader: Mr. Livaich is a representative of the applicant Buzz Oates

Summary of Comments

Mr. Livaich noted that Buzz Oates is a vertically integrated developer, signifying that it would entitle, develop, and operate the proposed project. He indicated that the types of tenants are "open ended" and could include bio tech, wine-related businesses, and advanced manufacturing.

Response to Comments

None of these issues pertain to the Draft EIR and, thus, no response is necessary.

Planning Commission Chair Crystal Mallare

Summary of Comments

Chair Mallare inquired about how Buzz Oates identifies tenants. Mr. Livaich noted that regional consolidation of separate smaller spaces into a single larger space is a trend Buzz Oates has observed and expects to see played out at the proposed project.

Response to Comments

None of these issues pertain to the Draft EIR and, thus, no response is necessary.

Planning Commission Vice Chair Tammy Wong

Summary of Comments

Vice Chair Wong inquired about how employment was calculated. Mr. Livaich noted employment was calculated using standard employment rates that are based on employees per square feet.

Response to Comments

The methodology used to calculate employment is explained in Response to GSEJA-8a in Section 3, Response to Written Comments.

Planning Commissioner Tryonne Navarro

Summary of Comments

Commissioner Navarro expressed concern about traffic from a project of this size.

Response to Comments

Transportation impacts were evaluated in Draft EIR Section 3.12, Transportation. The analysis found that all of the proposed project's transportation impacts were less than significant and did not require mitigation.

SECTION 5: ERRATA

The following are revisions to the Draft EIR for the Giovannoni Logistics Center Project. These revisions are minor modifications and clarifications to the document, and do not change the significance of any of the environmental issue conclusions within the Draft EIR. The revisions are listed by page number. All additions to the text are underlined (underlined) and all deletions from the text are stricken (~~stricken~~).

5.1 - Changes in Draft EIR

Section 2, Project Description

Page 2-9, First Sentence

A statement on Page 2-9 has been revised to reflect the schedule used in the air quality analysis. The text edit does not change any conclusions in the Draft EIR.

> For the purposes of providing a conservative, worst-case scenario, this Draft EIR assumes that Phases 1 and 2 would be developed concurrently over a period of 20 to 24~~18~~ months.

Section 3.2, Air Quality

Page 3.2-59, Mitigation Measures AIR-2e, AIR-2f, and AIR-2g

Mitigation Measures (MM) AIR-2e, MM AIR-2f, and MM AIR-2g have been added to reduce operational criteria pollutant emissions. However, the residual significance of Impact AIR-1 and AIR-2 remain significant and unavoidable.

MM AIR-2e Prior to the issuance of the certificate of occupancy for each building with dock doors, signage shall be posted identifying idling restrictions and contact information to report violations to the building manager.

MM AIR-2f Prior to the issuance of the certificate of occupancy for each building with a separate end user, the City shall confirm that the end user has prepared a Transportation Demand Management Plan (TDM Plan). The TDM Plan shall be prepared by a qualified transportation consultant and identify strategies to reduce single-occupant vehicle trips. Examples of TDM strategies may include but are not limited to:

- Ridesharing/Ride Matching
- Vanpools
- Transit subsidies
- Preferential parking for rideshare or vanpool vehicles
- Employee lockers
- Secure bicycle parking
- Employee locker rooms
- Provide TDM information in employee breakroom

MM AIR-2g As a part of future lease agreements, the project proponent shall provide all future tenants at the project site information on available California Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) incentive programs, such as the Carl Moyer Program and the Voucher Incentive Program, that support upgrading truck fleets to clean air technology equipment.

Section 3.3, Biological Resources

Page 3.3-24, Last Paragraph, First Sentence

The first sentence has been corrected to indicate that Huffman Broadway Group (HBG) conducted Swainson's hawk nesting surveys in April and May 2021.

> Although eucalyptus and other large trees located within ~~about~~ 0.25 mile from the project site provide potential nesting habitat, no nesting by Swainson's hawk (or any raptor species) was noted during surveys for Swainson's hawk conducted by HBG ~~Helm Biological Consulting~~ in April and May 2021.

Pages 3.3-26 and 3.3-27, Mitigation Measure BIO-1a

MM BIO-1a has been revised to address comments made by the California Department of Fish and Wildlife (CDFW).

MM BIO-1a Pre-construction surveys for Swainson's hawk shall be conducted in the project ~~site~~ vicinity prior to initiation of project construction activities, and each year following initiation of construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with the California Department of Fish and Wildlife (CDFW) "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (CDFW 2000) ~~follow California Department of Fish and Wildlife (CDFW) guidelines for conducting surveys for Swainson's hawk that were developed by the Swainson's Hawk Technical Advisory Committee~~ to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.

If no nesting Swainson's hawk are found during the ~~first non-optional~~ second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

Page 3.3-27, Mitigation Measure BIO-1b

MM BIO-1b has been revised to address comments made by the CDFW.

MM BIO-1b No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project ~~site~~ vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Pre-construction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. ~~survey area for golden eagle be determined by the qualified Raptor Biologist.~~ If active golden eagle nests are identified within any trees within the survey areas ~~a 0.5-mile radius~~ of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased ~~modified~~ by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist. ~~Surveys shall be conducted by a qualified Raptor Biologist.~~

Pages 3.3-27 and 3.3-28, Mitigation Measure BIO-1c

MM BIO-1c has been revised to address comments made by the CDFW.

MM BIO-1c Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and minimum 500-foot radius from the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc., the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be ~~modified~~ increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Raptor Biologist.

Page 3.3-28, Mitigation Measure BIO-1d

MM BIO-1d has been revised to address comments made by the CDFW.

MM BIO-1d Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

- If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the

impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.

- If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.
- If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.

Page 3.3-39, Mitigation Measure BIO-4

MM BIO-4 has been revised to address comments made by the CDFW.

MM BIO-4 If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within ~~15~~ 7 days prior to the onset of construction activity. ~~Nesting bird surveys shall cover the proposed project footprint and adjacent areas.~~ Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters and 1,000 feet from the construction limits for nesting raptors. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if construction activities are delayed by more than 7 days, an additional nesting bird survey shall be performed. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

Section 3.4, Cultural Resources

Page 3.4-22, Mitigation Measure CUL-2b

MM CUL-2b has been revised to strike the phrase 'and historical research' at the request of the Yocha Dehe Wintun Nation.

MM CUL-2b An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, and site documentation, ~~and historical research,~~ with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.

Section 3.7, Hazards and Hazardous Materials

Page 3.7-14, Level of Significance Before Mitigation

The Level of Significance Before Mitigation statement has been corrected.

Level of Significance Before Mitigation

Less than significant impact. ~~Potentially significant impact.~~

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Section 3.12, Transportation

Exhibit 3.12-5

A corrected version of Exhibit 3.12-5 is provided.

Section 5, Alternatives to the Proposed Project

Page 5-11, Phase 1 Only Alternative Heading

The Phase 1 Only Alternative heading has been corrected.

5.6 - Alternative 4~~3~~—Phase 1 Only Alternative

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EXHIBIT B
Applicant Confirmation of Conditions of Approval
Giovannoni Logistics Center Design Permit
(FILE NO. PL20-0042)

As shown by my signature below, I confirm that I understand and agree to abide by the conditions of approval included in the City Council Resolution dated ___ , 2022.

_____ _____
Applicant's signature Date

_____
Applicant's name

_____ _____
1st Property Owner's signature Date

_____
1st Property Owner's name

_____ _____
2nd Property Owner's signature Date

_____
2nd Property Owner's name

This approval shall not be effective until the applicant and property owner execute and return the "Applicant Confirmation of Conditions of Approval" form to the Community Development Department.

Please return signed confirmation to the City of American Canyon Community Development Department, 4381 Broadway, Suite 201, American Canyon, CA 94503

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Applicant's signature Date

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Applicant's name

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1st Property Owner's signature Date

_____
1st Property Owner's name

_____ _____
2nd Property Owner's signature Date

_____
2nd Property Owner's name

This approval shall not be effective until the applicant and property owner execute and return the "Applicant Confirmation of Conditions of Approval" form to the Community Development Department.

Please return signed confirmation to the City of American Canyon Community Development Department, 4381 Broadway, Suite 201, American Canyon, CA 94503

DocuSign Envelope ID: 3D0E19A0-8F07-4030-87A5-997B121BB787

RESOLUTION NO. 2022-29

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE AMERICAN CANYON FIRE PROTECTION DISTRICT APPROVING THE MEMORANDUM OF UNDERSANDING BETWEEN THE AMERICAN CANYON FIRE PROTECTION DISTRICT AND BUZZ OATES LLC.

WHEREAS, the American Canyon Fire Protection District ("District") provides fire protection services to the City of American Canyon ("City"); and

WHEREAS, the commitments shall only take effect in the event the City approves the Giovannoni Logistics Center ("Project") and Buzz Oats LLC ("Applicant") or assignee build and implements the Project; and

WHEREAS, applicant is seeking entitlements from the City of American Canyon for the Project which is anticipated to be an entirely non-residential development project (with up to approximately 2.4 million square feet of high-cube warehouse building space; and

WHEREAS, if approved, the Project will include a 68.8-acre Phase 1, an 85.9-acre Phase 2, and a 44.8-acre open space preserve; and

WHEREAS, the Project will require fire protection services; and

WHEREAS, a fiscal impact analysis of the Project was conducted by Economic & Planning Systems, Inc (EPS). The EPS Study related to the District's ability to provide fire protection services to the Project. EPS projected that the District would face an annual operating deficit to provide fire services to the Project of $158,000; and

WHEREAS, the District charges a one-time fire mitigation fee at the time when the City issues building permits for new development in order to assist in funding fire protection services required by the development authorized by the building permit; and

WHEREAS, both the District and the Applicant have determined that the normal approach of a One-time Fire Mitigation Fee and Aerial Truck Ladder Fee is less desirable than an alternative approach that combines the payment of the One-Time Fire Mitigation Fee with the generation of annual payments on an ongoing basis in lieu of payment of the one-time Aerial Truck Ladder Fee; and

WHEREAS, Both the District and the Applicant have determined that such annual payments could be generated if the Applicant forms a Mello-Roos Community Facilities District or similar public financing mechanism (CFD); and

WHEREAS, for the benefit of the District, the Applicant shall use commercially reasonable efforts to form a Mello-Roos Community Facilities District or similar public financing mechanism (CFD); and

DocuSign Envelope ID: 3D0E19A0-8F07-4030-87A5-997B121BB787

WHEREAS, the assessor's parcel numbers (APNs) for the parcels that make up the Project currently include: 057-090-008, 057-130-034, and 057-130-036. Only Developable Property, estimated to be a total of 156 acres, shall be subject to the Special Tax, and only when that property becomes Developed Property.; and

WHEREAS, developed Property shall be defined in the CFD Rate and Method of Apportionment of Special Tax (RMA) to mean any parcel with a structure for which a building permit has been issued; and

WHEREAS, in consideration for the Applicant's willingness to generate an annual Special Tax, the District shall exempt the Applicant from the District's Aerial Truck Ladder Fee of $.50 per square foot. The Applicant will still be required to pay the one-time Fire Mitigation Fee of $.5512 per square foot or rate then in effect, at the time of issuance of building permits by the City.

NOW, THEREFORE, IT IS HEREBY RESOLVED by the Board of Directors of the American Canyon Fire Protection District approve the Memorandum of Understading between the American Canyon Fire Protection District and Buzz Oats, LLC.

PASSED, APPROVED AND ADOPTED this 25th day of October, 2022, by the following vote:

AYES: Board Member Mark Joseph, Vice-Chair Mariam Aboudamous, and Chair Leon Garcia
NOES: None
ABSENT: Board Members David Oro and Pierre Washington
ABSTAIN: None

DocuSigned by:
Leon Garcia
C9FC4280B5F14AD...

Leon GarciaChairman, Board of Directors

ATTEST:

DocuSigned by:
Geoff Belyea
9D0340973778453...

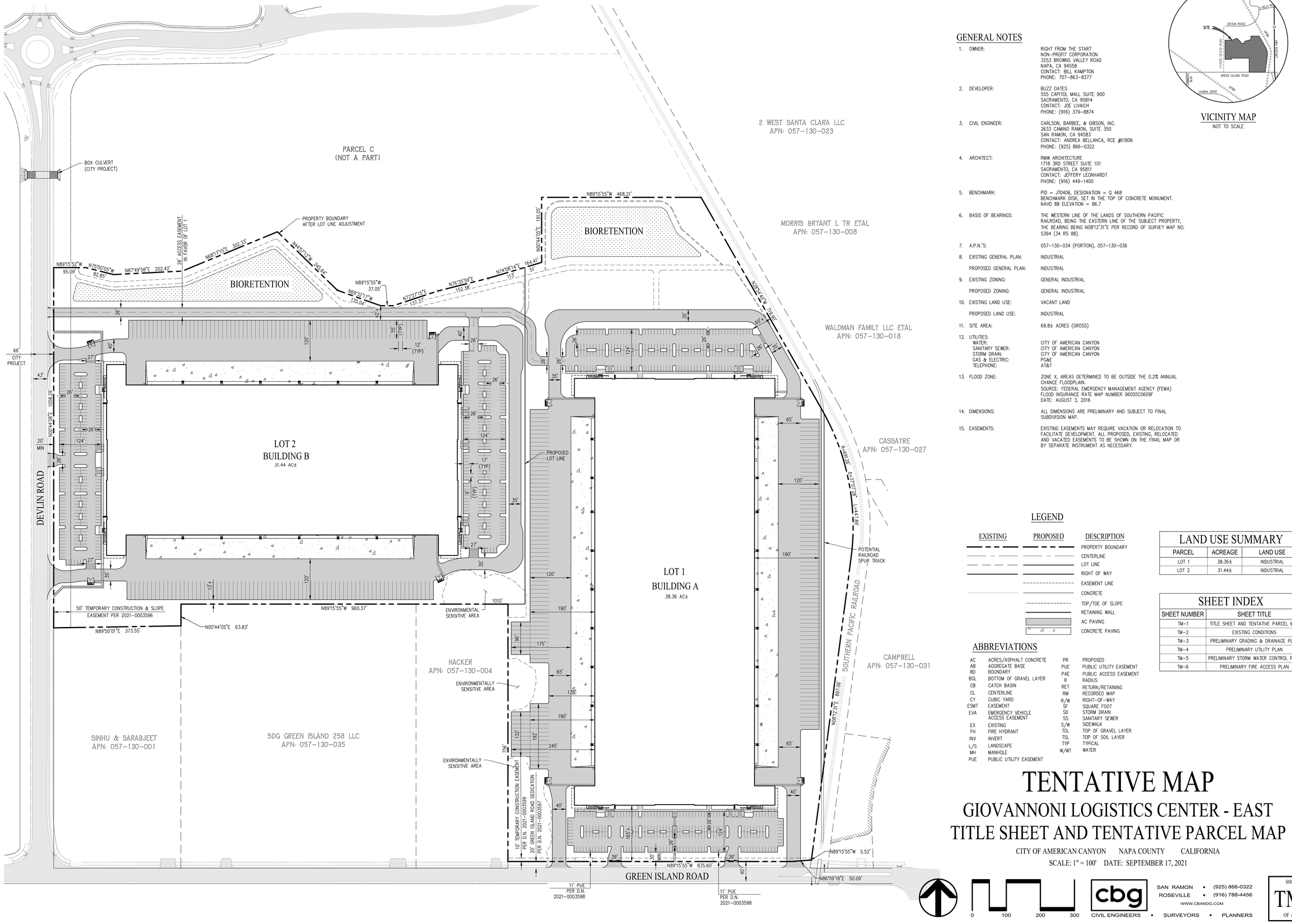
Geoff Belyea, Fire Chief/District Clerk
American Canyon Fire Protection District

APPROVED AS TO FORM:

DocuSigned by:
William D. Ross
285D50133D93421...

William D. Ross, District Counsel

ATTACHMENT 3.A



GENERAL NOTES

1. OWNER: RIGHT FROM THE START
NON-PROFIT CORPORATION
3253 BROWNS VALLEY ROAD
NAPA, CA 94558
CONTACT: BILL KAMPTON
PHONE: 707-863-8377

2. DEVELOPER: BUZZ OATES
555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
CONTACT: JOE LIVAICH
PHONE: (916) 379-8874

3. CIVIL ENGINEER: CARLSON, BARBEE, & GIBSON, INC.
2633 CAMINO RAMON, SUITE 350
SAN RAMON, CA 94583
CONTACT: ANDREA BELLANCA, RCE #61806
PHONE: (925) 866-0322

4. ARCHITECT: RMW ARCHITECTURE
1718 3RD STREET SUITE 101
SACRAMENTO, CA 95811
CONTACT: JEFFERY LEONHARDT
PHONE: (916) 449-1400

5. BENCHMARK: PID = JT0406, DESIGNATION = Q 468
BENCHMARK DISK, SET IN THE TOP OF CONCRETE MONUMENT.
NAVD 88 ELEVATION = 86.7

6. BASIS OF BEARINGS: THE WESTERN LINE OF THE LANDS OF SOUTHERN PACIFIC RAILROAD, BEING THE EASTERN LINE OF THE SUBJECT PROPERTY, THE BEARING BEING N08°12'31"E PER RECORD OF SURVEY MAP NO. 5394 (34 RS 88).

7. A.P.N.'S: 057-130-034 (PORTION), 057-130-036

8. EXISTING GENERAL PLAN: INDUSTRIAL
PROPOSED GENERAL PLAN: INDUSTRIAL

9. EXISTING ZONING: GENERAL INDUSTRIAL
PROPOSED ZONING: GENERAL INDUSTRIAL

10. EXISTING LAND USE: VACANT LAND
PROPOSED LAND USE: INDUSTRIAL

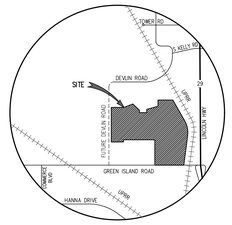
11. SITE AREA: 69.8± ACRES (GROSS)

12. UTILITIES:
WATER: CITY OF AMERICAN CANYON
SANITARY SEWER: CITY OF AMERICAN CANYON
STORM DRAIN: CITY OF AMERICAN CANYON
GAS & ELECTRIC: PG&E
TELEPHONE: AT&T

13. FLOOD ZONE: ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
FLOOD INSURANCE RATE MAP NUMBER 06055C0609F
DATE: AUGUST 3, 2016

14. DIMENSIONS: ALL DIMENSIONS ARE PRELIMINARY AND SUBJECT TO FINAL SUBDIVISION MAP.

15. EASEMENTS: EXISTING EASEMENTS MAY REQUIRE VACATION OR RELOCATION TO FACILITATE DEVELOPMENT. ALL PROPOSED, EXISTING, RELOCATED AND VACATED EASEMENTS TO BE SHOWN ON THE FINAL MAP OR BY SEPARATE INSTRUMENT AS NECESSARY.



VICINITY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY BOUNDARY
		CENTERLINE
		LOT LINE
		RIGHT OF WAY
		EASEMENT LINE
		CONCRETE
		TOP/TOE OF SLOPE
		RETAINING WALL
		AC PAVING
		CONCRETE PAVING

ABBREVIATIONS

AC	ACRES/ASPHALT CONCRETE	PR	PROPOSED
AB	AGGREGATE BASE	PUE	PUBLIC UTILITY EASEMENT
BD	BOUNDARY	PAE	PUBLIC ACCESS EASEMENT
BGL	BOTTOM OF GRAVEL LAYER	R	RADIUS
CB	CATCH BASIN	RET	RETURN/RETAINING
CL	CENTERLINE	RM	RECORDED MAP
CY	CUBIC YARD	R/W	RIGHT-OF-WAY
ESMT	EASEMENT	SF	SQUARE FOOT
EVA	EMERGENCY VEHICLE ACCESS EASEMENT	SD	STORM DRAIN
		SS	SANITARY SEWER
EX	EXISTING	S/W	SIDEWALK
FH	FIRE HYDRANT	TGL	TOP OF GRAVEL LAYER
INV	INVERT	TSL	TOP OF SOIL LAYER
L/S	LANDSCAPE	TYP	TYPICAL
MH	MANHOLE	W/WT	WATER
PUE	PUBLIC UTILITY EASEMENT		

LAND USE SUMMARY

PARCEL	ACREAGE	LAND USE
LOT 1	38.36±	INDUSTRIAL
LOT 2	31.44±	INDUSTRIAL

SHEET INDEX

SHEET NUMBER	SHEET TITLE
TM-1	TITLE SHEET AND TENTATIVE PARCEL MAP
TM-2	EXISTING CONDITIONS
TM-3	PRELIMINARY GRADING & DRAINAGE PLAN
TM-4	PRELIMINARY UTILITY PLAN
TM-5	PRELIMINARY STORM WATER CONTROL PLAN
TM-6	PRELIMINARY FIRE ACCESS PLAN

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

TITLE SHEET AND TENTATIVE PARCEL MAP

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

0 100 200 300

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ROSEVILLE ▪ (916) 788-4456
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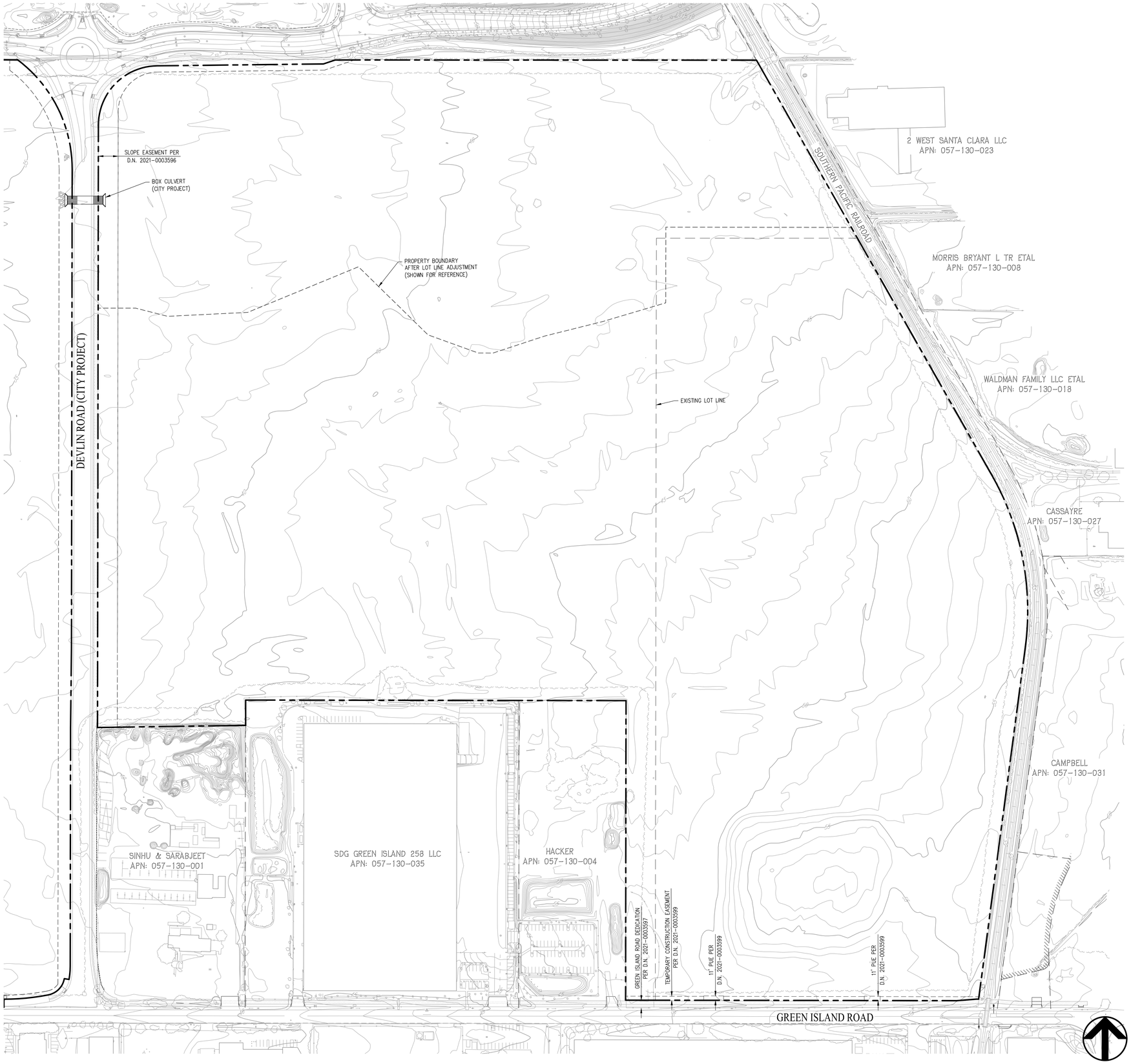
SHEET NO.
TM-1
OF 6 SHEETS



LEGEND

- PROPERTY BOUNDARY
- PROPERTY BOUNDARY AFTERLOT LINE ADJUSTMENT (SHOWN FOR REFERENCE)
- EASEMENT
- EXISTING LOT LONE
- EXISTING RIGHT OF WAY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- CATCH BASIN
- FIRE HYDRANT
- MANHOLE
- STREET LIGHT
- EX 15" SD — STORM DRAIN
- EX 6" SS — SANITARY SEWER
- EX 8" W — WATER LINE
- EX 8" RW — RECYCLED WATER

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

EXISTING CONDITIONS

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

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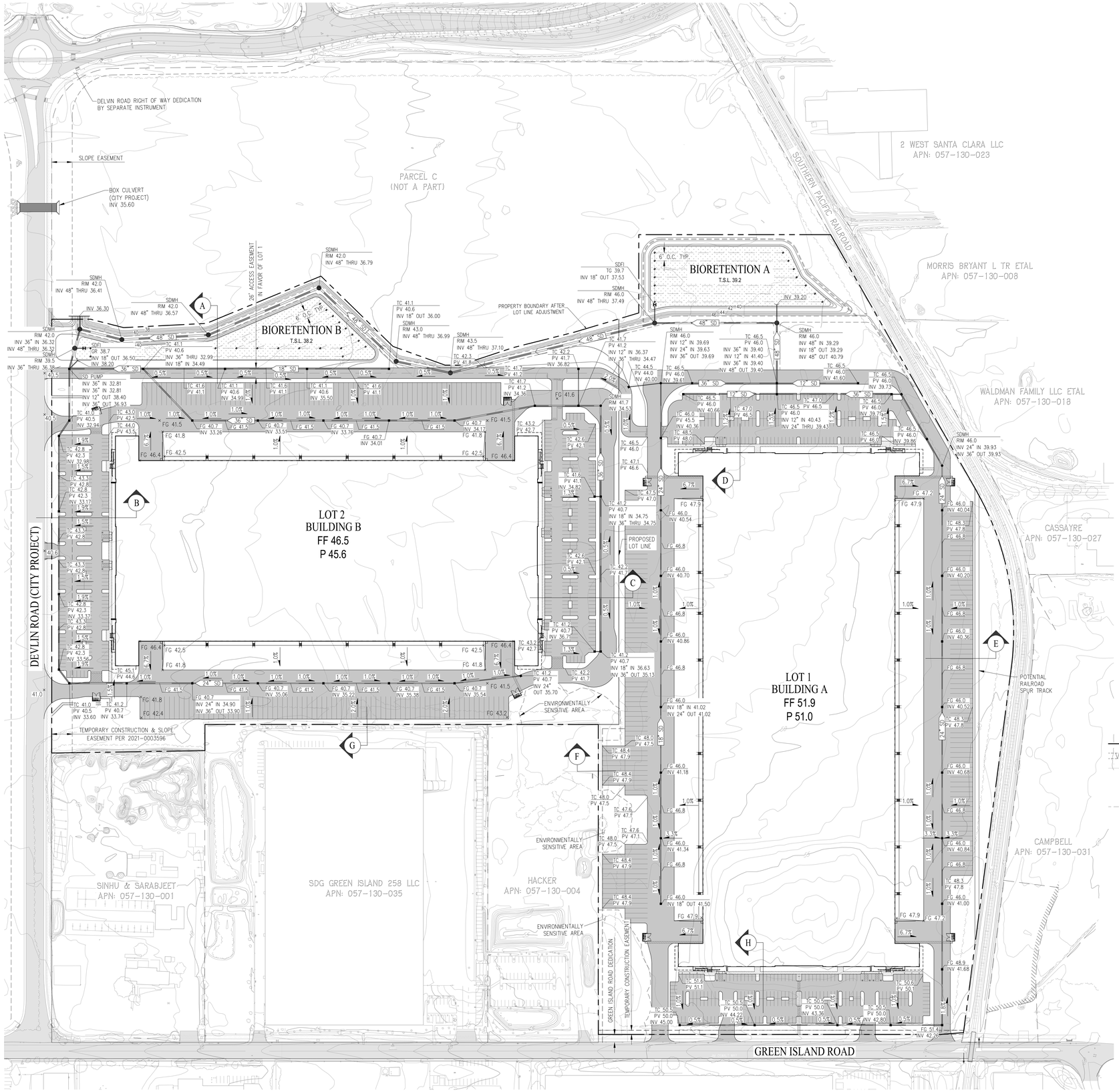
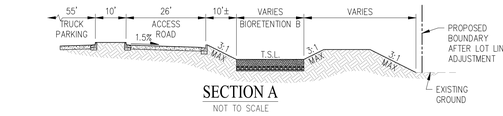
SHEET NO.
TM-2
OF 6 SHEETS





SECTION A
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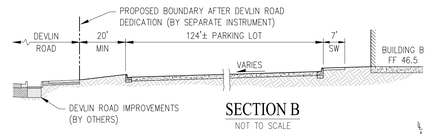

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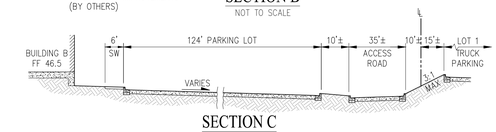

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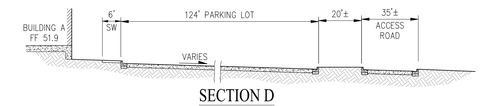

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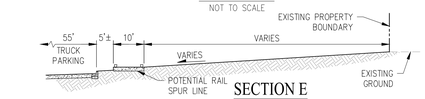

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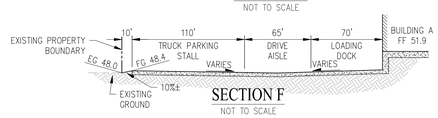

SECTION F
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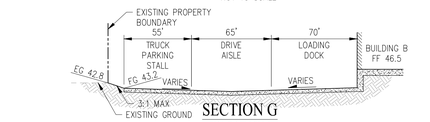

SECTION G
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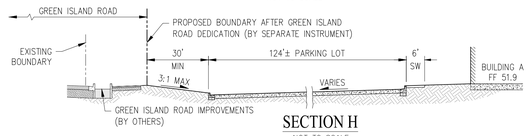

SECTION H
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		SUBDIVISION BOUNDARY
		TOP/TOE OF SLOPE
		CONCRETE
12.0	12.0	SPOT ELEVATION
		FLOW DIRECTION
EX 18" SD	18" SD	STORM DRAIN PIPE
		STORM DRAIN MANHOLE
		DRAINAGE INLET
		AREA DRAIN
		AC PAVING
		CONCRETE PAVING
		STORMWATER QUALITY
		DIRECTION OF OVERLAND RELEASE

PRELIMINARY EARTHWORK SUMMARY

DESCRIPTION	CUT (CY)	FILL (CY)
ROUGH GRADING	139,500	146,900
UTILITY/DEVELOPMENT SPOILS	2,000	--
SUBTOTAL	141,500	146,900
NET (BALANCE)		5,400

EARTHWORK NOTES:

1. ALL SPOIL QUANTITIES ARE PRELIMINARY. QUANTITIES EXCLUDE BUILDING SPOILS, UTILITY SPOILS (BELOW BUILDING), FOOTING SPOILS, RETAINING WALL SPOILS, AND SPOILS FOR LANDSCAPE ELEMENTS AND TREES. CONTRACTOR TO VERIFY ALL SPOILS WITH FINAL UTILITY, ARCHITECTURAL, AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION.
2. DETENTION BASIN/STORMWATER QUALITY BASIN EARTHWORK IS INCLUDED IN THE ROUGH GRADING QUANTITY. THIS INCLUDES CUT TO THE BOTTOM OF THE GRAVEL LAYER.
3. EARTHWORK QUANTITIES DO NOT INCLUDE ANY SHRINK OR SWELL ADJUSTMENT.

STORM DRAIN PIPE NOTES:

1. MINIMUM PIPE SLOPE FOR 24" – 48" SD PIPE IS 0.0007 FT/FT
2. MINIMUM PIPE SLOPE FOR 12" – 18" SD PIPE IS 0.001 FT/FT

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST
PRELIMINARY GRADING & DRAINAGE PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

0 100 200 300

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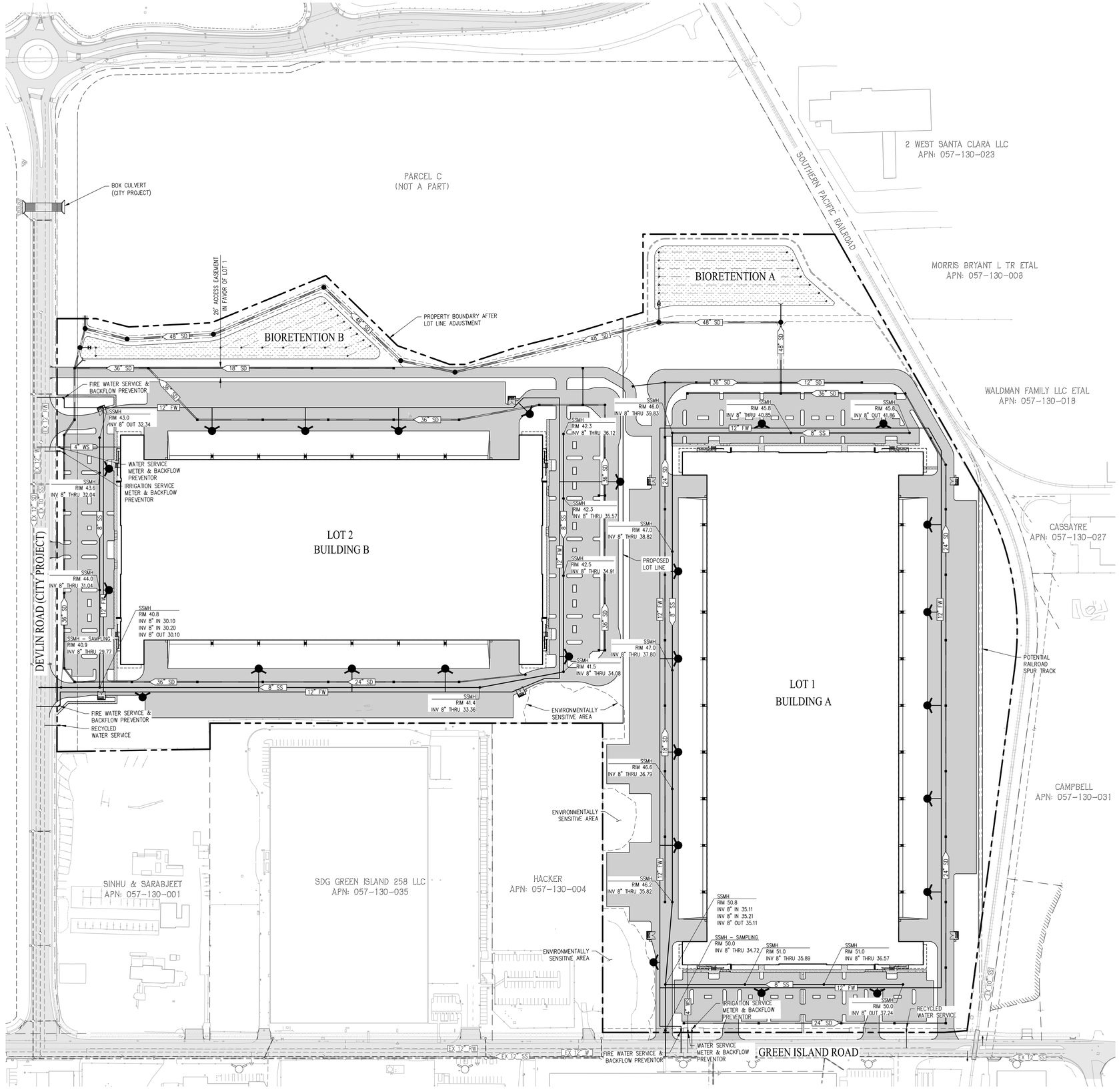
SHEET NO. TM-3 OF 3 SHEETS

F:\2637-000\ACAD\TM\EAST\TM-03E.DWG



LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY BOUNDARY
EX 15" SD	18" SD	STORM DRAIN PIPE
EX 8" SS	6" SS	SANITARY SEWER PIPE
EX 8" W	8" W	DOMESTIC WATER PIPE
EX 12" RW		RECYCLED WATER PIPE
	12" FW	PRIVATE FIRE SERVICE
	4" WS	DOMESTIC WATER SERVICE
●	●	MANHOLE
■	▪	DRAINAGE INLET
		STORMWATER QUALITY
		FIRE HYDRANT

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY UTILITY PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

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SHEET NO.
TM-4
OF 6 SHEETS

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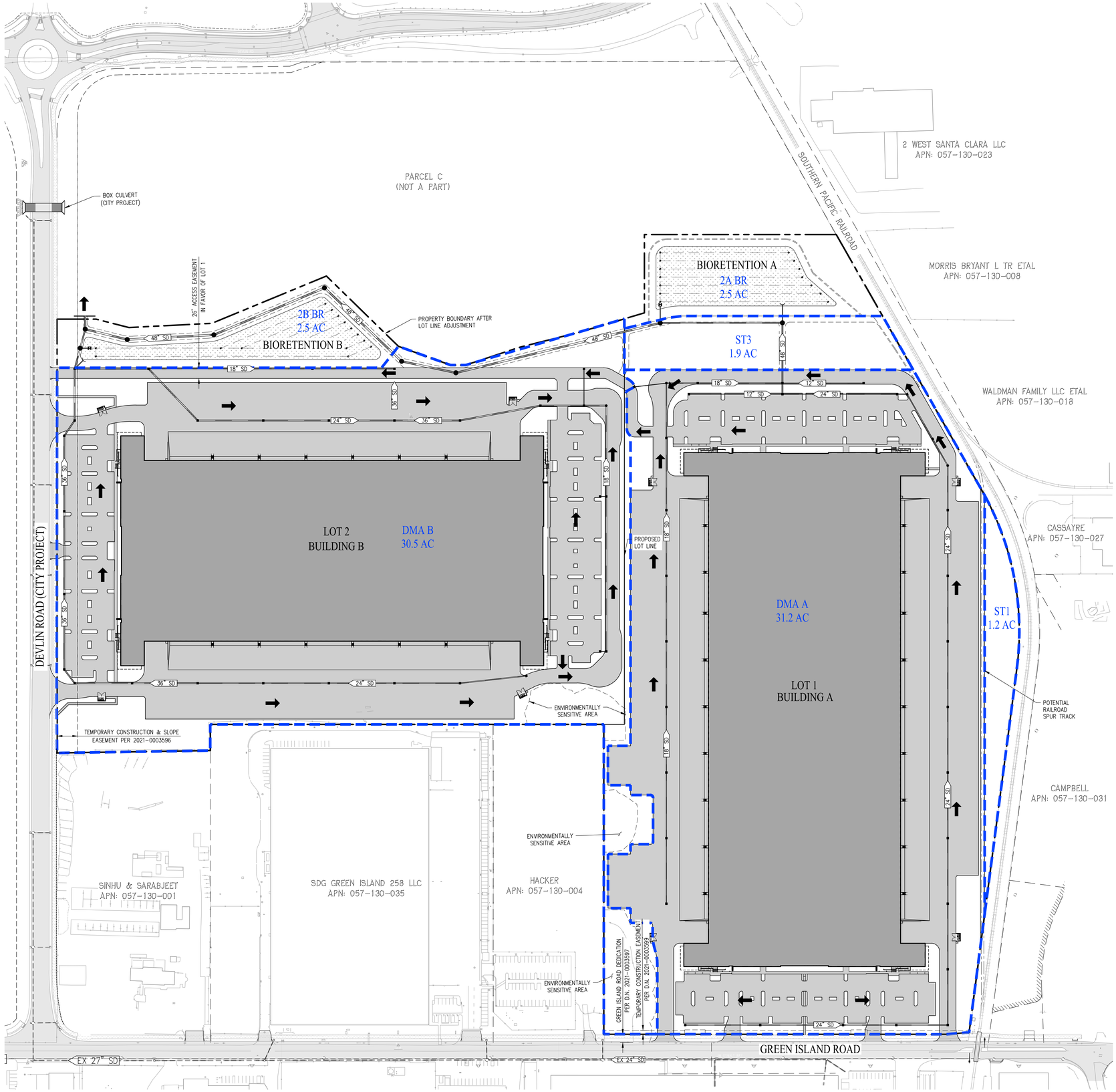
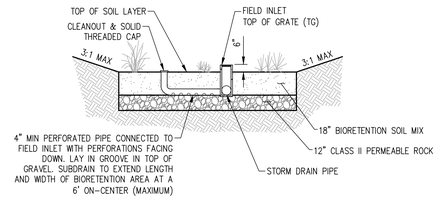


WATER QUALITY TABLE

DRAINAGE MANAGEMENT AREA (DMA)	DRAINAGE AREA (AC)	TREATMENT AREA REQUIRED (SF)	TREATMENT AREA PROVIDED (SF)	BIORETENTION FACILITY
2A EAST	31.2	51,790	55,050	BR A
2B EAST	30.5	45,834	48,070	BR B
ST 1	1.2	–	–	–
ST 3	1.9	–	–	–
2A BR (BR A)	2.5	–	–	–
2B BR (BR B)	2.5	–	–	–
TOTAL	69.8			



TYPICAL BIORETENTION DETAIL

NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY BOUNDARY
		DMA (DRAINAGE MANAGEMENT AREA)
		CONCRETE
		FLOW DIRECTION
EX 18" SD	18" SD	STORM DRAIN PIPE
		STORM DRAIN MANHOLE
		DRAINAGE INLET
		AREA DRAIN
		STORMWATER QUALITY/DETENTION BASIN
		IMPERVIOUS PAVEMENT & SIDEWALK
		BUILDING AREA
		DIRECTION OF OVERLAND RELEASE
	ST	SELF TREATING AREAS

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY STORM WATER CONTROL PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

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SHEET NO.
TM-5
OF 6 SHEETS

F:\2637-000\ACAD\TM\EAST\TM-05E.DWG

PARCEL C
(NOT A PART)

SOUTHERN PACIFIC RAILROAD

2 WEST SANTA CLARA LLC
APN: 057-130-023

MORRIS BRYANT L TR ETAL
APN: 057-130-008

WALDMAN FAMILY LLC ETAL
APN: 057-130-018

CASSAYRE
APN: 057-130-027

CAMPBELL
APN: 057-130-031

DEVLIN ROAD (CITY PROJECT)

26' ACCESS EASEMENT IN FAVOR OF LOT 1

PROPERTY BOUNDARY AFTER LOT LINE ADJUSTMENT

BIORETENTION A

BIORETENTION B

LOT 2
BUILDING B

LOT 1
BUILDING A

PROPOSED LOT LINE

POTENTIAL RAILROAD SPUR TRACK

TEMPORARY CONSTRUCTION & SLOPE EASEMENT PER 2021-0003596

SINHU & SARABJEET
APN: 057-130-001

SDG GREEN ISLAND 258 LLC
APN: 057-130-035

HACKER
APN: 057-130-004

TEMPORARY CONSTRUCTION EASEMENT PER D.N. 2021-0003597

GREEN ISLAND ROAD DEDICATION PER D.N. 2021-0003598

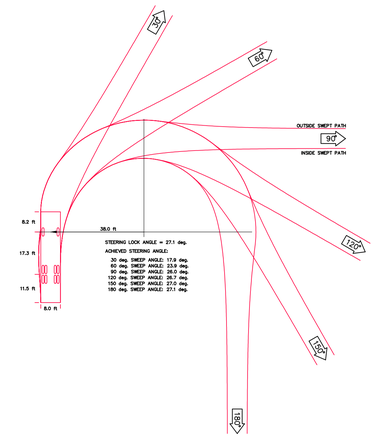
FIRE

GREEN ISLAND ROAD

FH

LEGEND

- PROPERTY BOUNDARY
- FIRE ACCESSIBLE ROADWAY
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT



FIRE TRUCK TURNING TEMPLATE
NOT TO SCALE

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY FIRE ACCESS PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: SEPTEMBER 17, 2021

0 100 200 300

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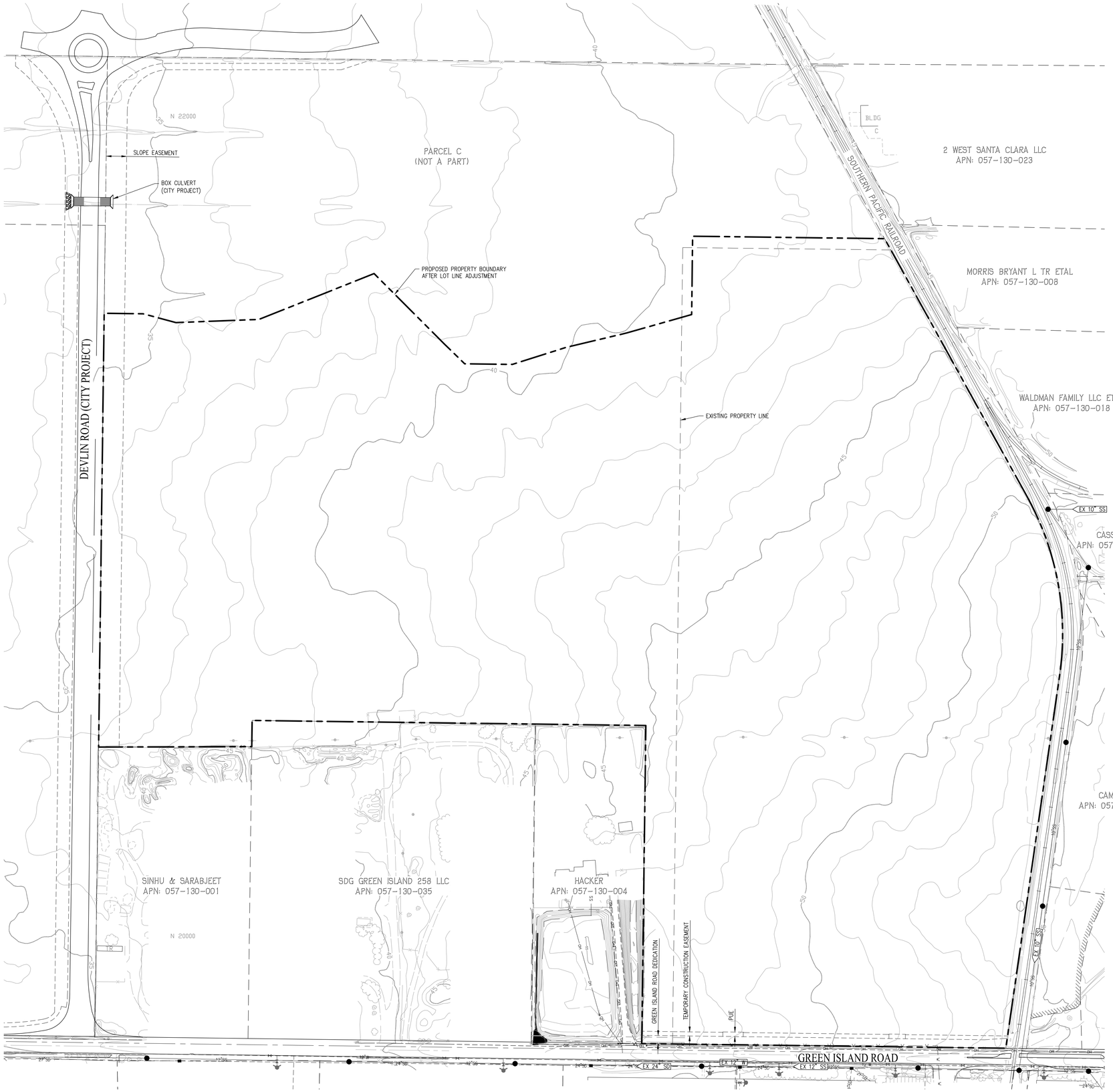
SHEET NO.
TM-6
OF 6 SHEETS



LEGEND

EXISTING

- SUBDIVISION BOUNDARY
- EASEMENT
- EXISTING LOT LONE
- EXISTING RIGHT OF WAY
- CATCH BASIN
- FIRE HYDRANT
- MANHOLE
- STREET LIGHT
- EX 15" SD — STORM DRAIN
- EX 8" SS — SANITARY SEWER
- EX 8" W — WATER LINE
- EX 8" RW — RECYCLED WATER

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

EXISTING CONDITIONS

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

0 100 200 300

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SHEET NO.
TM-2
OF 6 SHEETS

EXHIBIT B
Applicant Confirmation of Conditions of Approval
Giovannoni Logistics Center Tentative Parcel Map
(FILE NO. PL20-0043)

As shown by my signature below, I confirm that I understand and agree to abide by the conditions of approval included in the City Council Resolution dated ___ , 2022.

_____ _____
Applicant's signature Date

_____
Applicant's name

_____ _____
1st Property Owner's signature Date

_____
1st Property Owner's name

_____ _____
2nd Property Owner's signature Date

_____
2nd Property Owner's name

This approval shall not be effective until the applicant and property owner execute and return the "Applicant Confirmation of Conditions of Approval" form to the Community Development Department.

Please return signed confirmation to the City of American Canyon Community Development Department, 4381 Broadway, Suite 201, American Canyon, CA 94503

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RESOLUTION NO. 2022-29

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE AMERICAN CANYON FIRE PROTECTION DISTRICT APPROVING THE MEMORANDUM OF UNDERSANDING BETWEEN THE AMERICAN CANYON FIRE PROTECTION DISTRICT AND BUZZ OATES LLC.

WHEREAS, the American Canyon Fire Protection District ("District") provides fire protection services to the City of American Canyon ("City"); and

WHEREAS, the commitments shall only take effect in the event the City approves the Giovannoni Logistics Center ("Project") and Buzz Oats LLC ("Applicant") or assignee build and implements the Project; and

WHEREAS, applicant is seeking entitlements from the City of American Canyon for the Project which is anticipated to be an entirely non-residential development project (with up to approximately 2.4 million square feet of high-cube warehouse building space; and

WHEREAS, if approved, the Project will include a 68.8-acre Phase 1, an 85.9-acre Phase 2, and a 44.8-acre open space preserve; and

WHEREAS, the Project will require fire protection services; and

WHEREAS, a fiscal impact analysis of the Project was conducted by Economic & Planning Systems, Inc (EPS). The EPS Study related to the District's ability to provide fire protection services to the Project. EPS projected that the District would face an annual operating deficit to provide fire services to the Project of $158,000; and

WHEREAS, the District charges a one-time fire mitigation fee at the time when the City issues building permits for new development in order to assist in funding fire protection services required by the development authorized by the building permit; and

WHEREAS, both the District and the Applicant have determined that the normal approach of a One-time Fire Mitigation Fee and Aerial Truck Ladder Fee is less desirable than an alternative approach that combines the payment of the One-Time Fire Mitigation Fee with the generation of annual payments on an ongoing basis in lieu of payment of the one-time Aerial Truck Ladder Fee; and

WHEREAS, Both the District and the Applicant have determined that such annual payments could be generated if the Applicant forms a Mello-Roos Community Facilities District or similar public financing mechanism (CFD); and

WHEREAS, for the benefit of the District, the Applicant shall use commercially reasonable efforts to form a Mello-Roos Community Facilities District or similar public financing mechanism (CFD); and

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WHEREAS, the assessor's parcel numbers (APNs) for the parcels that make up the Project currently include: 057-090-008, 057-130-034, and 057-130-036. Only Developable Property, estimated to be a total of 156 acres, shall be subject to the Special Tax, and only when that property becomes Developed Property.; and

WHEREAS, developed Property shall be defined in the CFD Rate and Method of Apportionment of Special Tax (RMA) to mean any parcel with a structure for which a building permit has been issued; and

WHEREAS, in consideration for the Applicant's willingness to generate an annual Special Tax, the District shall exempt the Applicant from the District's Aerial Truck Ladder Fee of $.50 per square foot. The Applicant will still be required to pay the one-time Fire Mitigation Fee of $.5512 per square foot or rate then in effect, at the time of issuance of building permits by the City.

NOW, THEREFORE, IT IS HEREBY RESOLVED by the Board of Directors of the American Canyon Fire Protection District approve the Memorandum of Understading between the American Canyon Fire Protection District and Buzz Oats, LLC.

PASSED, APPROVED AND ADOPTED this 25th day of October, 2022, by the following vote:

AYES: Board Member Mark Joseph, Vice-Chair Mariam Aboudamous, and Chair Leon Garcia
NOES: None
ABSENT: Board Members David Oro and Pierre Washington
ABSTAIN: None

DocuSigned by:
Leon Garcia
C9FC4280B5F14AD...

Leon GarciaChairman, Board of Directors

ATTEST:

DocuSigned by:
Geoff Belyea
9D0340973778453...

Geoff Belyea, Fire Chief/District Clerk
American Canyon Fire Protection District

APPROVED AS TO FORM:

DocuSigned by:
William D. Ross
285D50133D93421...

William D. Ross, District Counsel

Appendix J:
Travel Behavior Memorandum

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FEHR PEERS

Memorandum

Date:	June 16, 2022
To:	Joe Livaich, Buzz Oates Construction, Inc.
From:	Kevin Johnson & David Robinson, Fehr & Peers
Subject:	**American Canyon Industrial Warehouse Travel Behavior Data**

WC22-3900

This memorandum describes the travel behavior data collected for the proposed 208-acre high-cube industrial warehouse project (the Project) in American Canyon, CA. Fehr & Peers understands the uniqueness of warehousing and logistics facilities that make them extremely difficult to study with traditional data collection methods. Fehr & Peers combined traffic count data previously collected in San Joaquin County for similar warehousing uses with new mobile device origin-destination data from StreetLight for similar industrial warehouse sites around the Bay Area to provide Buzz Oates Construction, Inc. with detailed trip generation, vehicle origin-destination pattern, and average trip length data. This data will be used to support the ongoing VMT and GHG analyses. In the Draft EIR, heavy duty truck trips were not accounted for in either the VMT analysis or the GHG analysis, which relied in part on the VMT analysis. This omission of heavy-duty truck trips in the VMT analysis is consistent with guidance from the Office of Planning and Research. A primary objective of the analysis in this memorandum is to address whether VMT from such heavy-duty truck trips would be more or less than 15 percent below the regional average for the Bay Area.

Trip Generation Data Collection

The following section describes the traffic count data source used to understand the potential trip generation of the Project.

San Joaquin Countywide Warehousing Data Collection Effort

The data used to estimate the trip generation of the Project is from the San Joaquin Countywide Warehousing Data Collection effort. This data collection effort was undertaken by Fehr & Peers in June 2021 to better understand the travel behavior of existing warehousing buildings across San Joaquin County, as a review of local and regional planning studies revealed a lack of data and understanding of the travel characteristics of these types of facilities. Specifically, there was a lack of local or national trip generation data for warehousing uses, a lack of understanding of the travel patterns and demographics of warehouse users, and a lack of inclusion of these facilities in regional travel forecasting models.

Fehr & Peers coordinated the collection of 72 hours of driveway vehicle classification count data at 39 warehousing buildings across San Joaquin County in June 2021. The data collection was performed by National Data & Surveying Services (NDS) using cameras to count and classify vehicles entering and exiting the individual building driveways. Fehr & Peers staff visited each of the 39 warehousing buildings on one day during the data collection to observe the following:

- Check traffic and weather conditions
- Confirm the placement of the cameras
- Observe activity levels at the surveyed buildings
- Count the number of truck bays
- Classify the buildings
- Observe general operations and travel behavior

Fehr & Peers used this data to develop average trip generation rates per thousand square feet (KSF) for warehousing uses in San Joaquin County. The 39 warehousing buildings, including their occupying tenant, type of warehouse, and square footage, are listed below.

San Joaquin Countywide Warehousing Data Collection					
City	Tenant	Address	# Driveways	Type	Square Feet
Lathrop	California Logistics	11900/11940/11960/11980 S Harlan Rd, Lathrop, CA 95330	3	Warehouse	1,235,000
Lathrop	Tesla, Inc.	701 D'Arcy Pkwy, Lathrop, CA 95330	1	Manufacturing	92,747
Manteca	Ford Motor Company	1260 Phoenix Dr, Manteca, CA 95336	2	Warehouse	608,860
Stockton	Innovel Solutions Inc	2115 Sinclair Ave, Stockton, CA 95215	2	Warehouse	780,393
Tracy	UPS Supply Chain	1150 West Arbor Ave, Tracy, CA 95304	2	Warehouse	795,732
Stockton	Pratt Corrugated Holdings	4727 Fite Ct, Stockton, CA 95215	2	Warehouse	350,892
Stockton	HJ Heinz	1111 Runway Dr, Stockton, CA 95206	2	Warehouse	500,199
Stockton	Prism Team Services, Inc.	1030 Runway Dr, Stockton, CA 95206	3	Warehouse	443,640
Tracy	Leggett & Platt	2015 N. MacArthur Dr, Tracy, CA 95376	1	Warehouse	158,065
Tracy	Orchard Supply Company	2020 N. MacArthur Dr, Tracy, CA 95376	2	Warehouse	346,524
Stockton	Fox Head, Inc.	4611 Newcastle Rd, Stockton, CA 95215	2	Warehouse	388,000
Stockton	General Mills Sales, Inc.	4718 Newcastle Rd, Stockton, CA 95215	2	Warehouse	735,980
Stockton	Amazon.com Services, Inc.	4601 Newcastle Rd, Stockton, CA 95215	2	Warehouse	388,183
Stockton	Pitney Bowes	4733 Newcastle Rd, Stockton, CA 95215	2	Warehouse	186,944
Stockton	Niagara Bottling, LLC	811 Zephyr St, Stockton, CA 95206	1	Warehouse	512,000
Stockton	Homesite Services, Inc.	2516 Station Dr # A, Stockton, CA 95215	1	Warehouse	39,200
Stockton	Masonite Corporation	3632 Petersen Rd #150, Stockton, CA 95215	2	Warehouse	180,000
Stockton	Kraft Foods Group, Inc.	4512 Frontier Way, Stockton, CA 95215	1	Warehouse	351,788
Stockton	Coastal Pacific Food	1015 Performance Dr, Stockton, CA 95206	1	Warehouse	500,004
Tracy	Restoration Hardware	2900 N. MacArthur Dr, Tracy, CA 95376	4	Warehouse	283,712
Tracy	IPC Best Buy	6653 Hopkins Rd, Tracy, CA 95377	5	Warehouse	641,364
Lathrop	Wayfair	5120 Glacier Street, Lathrop, CA 95330	2	Warehouse	1,167,000
Lathrop	Home Depot	18300 S Harlan Rd, Lathrop, CA 95330	1	Distribution Center	953,000
Lodi	Pacific Coast Producers	650 S Guild Ave, Lodi, CA 95240	4	Warehouse	1,500,000
Lodi	Dart Container	1400 E Victor Rd, Lodi, CA 95240	2	Warehouse	340,000
Manteca	Lowes	2226 Roth Rd, Manteca, CA 95336	3	Warehouse	570,000
Stockton	Dollar Tree	1122 Runway Dr, Stockton, CA 95206	1	Warehouse	855,000
Manteca	UPS	600 Spreckels Ave, Manteca, CA 95336	2	Warehouse	560,000
Manteca	Cargill Food	730 Spreckels Ave, Manteca, CA 95336	2	Warehouse	350,000
Stockton	KeHE Distributors	4650 Newcastle Rd, Stockton, CA 95215	2	Warehouse	770,000
Tracy	International Paper	400 Valpico Rd, Tracy, CA 95376	1	Warehouse	375,000
Tracy	Zinus	5731 Promontory Pkwy, Tracy, CA 95377	2	Warehouse	664,333
Tracy	Medline	24550 Hansen Rd, Tracy, CA 95377	3	Warehouse	1,005,500
Tracy	Smuckers	6140 Promontory Pkwy, Tracy, CA 95377	3	Warehouse	403,560
Tracy	Amazon	188 S Mountain House Pkwy, Tracy, CA 95377	4	Warehouse	1,001,449
Tracy	Costco	25501 Gateway Blvd, Tracy, CA 95377	2	Warehouse	1,161,306
Tracy	Safeway	16900 W Schulte Rd, Tracy, CA 95377	4	Warehouse	2,200,000
Tracy	Amazon	1555 N Chrisman Rd, Tracy, CA 95376	3	Fulfillment	1,124,921
Tracy	Crate & Barrel	1605/1705 N Chrisman Rd, Tracy, CA 95304	5	Warehouse	1,225,680

Warehousing Trip Generation Data

The average trip generation rates per KSF of building space from the June 2021 San Joaquin Countywide Warehousing Data Collection effort, stratified by autos, medium-duty trucks, and heavy-duty trucks, are provided in **Table 1**. The trip generation rates were checked for reasonableness against trip generation data from the Institute of Institute of Transportation Engineers (ITE) Trip Generation Manual, which are also provided.

As shown in **Table 1**, the average daily trip generation per KSF of building space for all 39 buildings in San Joaquin County where driveway count data was collected in June 2021 is 0.078 medium-duty truck trips, 0.447 heavy-duty truck trips, and 0.995 auto trips. The average daily total trip generation rate of 1.52 vehicle trips per KSF is generally consistent with ITE trip generation data, being roughly ten percent lower than Code 152 from the 9th Edition and roughly nine percent higher than Code 154 from the 10th Edition. The average AM peak hour and PM peak hour total trip generation rates of 0.18 and 0.21 trips per KSF are both higher than ITE trip generation data and comprise a higher percentage of total daily trip generation. ITE does not provide trip generation rates for warehousing uses by vehicle classification for comparison.

Table 1: San Joaquin County Warehousing Trip Generation Rates per KSF

Source	AM Peak Hour				PM Peak Hour				Daily			
	Autos	Med Trucks	Heavy Trucks	Total	Autos	Med Trucks	Heavy Trucks	Total	Autos	Med Trucks	Heavy Trucks	Total
All 39 Buildings	0.147	0.007	0.028	0.18	0.183	0.005	0.024	0.21	0.995	0.078	0.447	1.52
ITE Trip Generation Manual – 9th Edition (Code 152 – High-Cube Warehouse)	-			0.14	-			0.16	-			1.68
ITE Trip Generation Manual – 10th Edition (Code 154 – High-Cube Transload)	-			0.12	-			0.16	-			1.40

Source: Fehr & Peers.

Trip Length Data Collection

The following section describes the mobile device data obtained from StreetLight used to understand the origin-destination patterns and average trip lengths of heavy-duty truck trips generated by similar industrial warehousing sites around the Bay Area.

Mobile Device Data from StreetLight

Fehr & Peers obtained StreetLight's GPS-based commercial vehicle data product for 23 existing industrial warehousing sites around the Bay Area, including eight sites in Napa County of which four were located within the City of American Canyon. We relied on StreetLight's "O-D to Pre-set Geography" product to analyze travel patterns to and from the land use zone system at the census block group level, which has over 23,000 zones within California.

Zone System

A land use zone system was developed for the 23 existing industrial warehousing sites, each of which included a separate zone for each of the existing buildings or groupings of buildings. The analysis tracked all heavy-duty truck trips starting or ending at one of these zones. The start of trips coming to the zones and end of trips leaving the zones were tagged to the national census block group system, allowing for aggregation to any desired geography such as the city or county level.

The land use zone system consisted of eight industrial warehousing sites in Napa County, which are listed below**,** and include similar existing warehousing sites in full operation during the data collection period. These sites were selected to understand the potential average trip length of heavy-duty truck trips generated by the Project.

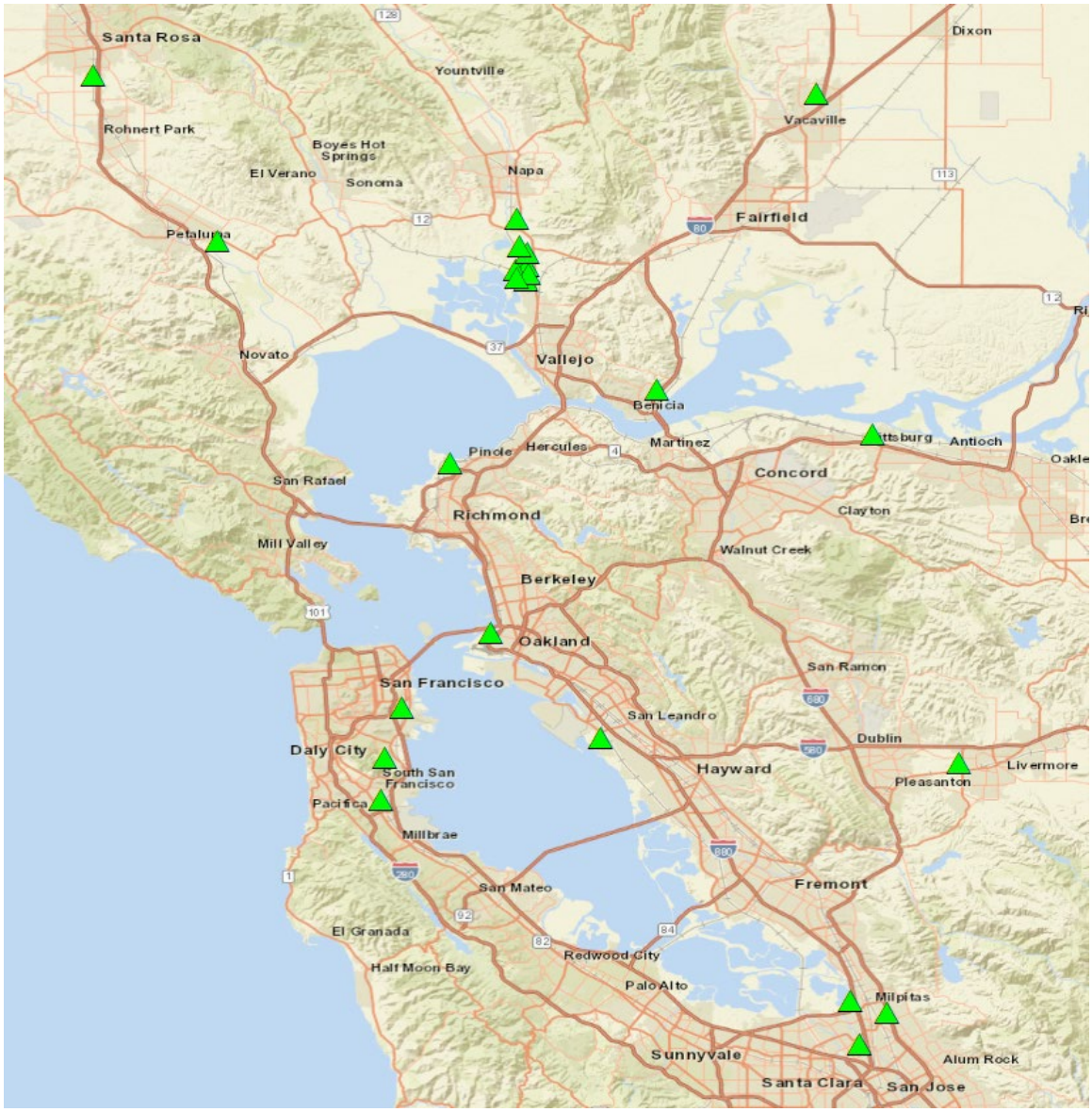
- Biagi Brothers - Napa County
- Valley Wine - American Canyon
- Vin Lux - American Canyon
- WineDirect - American Canyon
- Napa Corporate Center Warehouses - Napa
- American Canyon Warehouses
- Napa County Airport Warehouses
- Wineshipping - Napa County

The land use zone system also consisted of 15 industrial warehousing sites in other parts of the Bay Area, which are listed below**,** and include similar existing warehousing sites in full operation during the data collection period. These sites were selected to understand how the potential average trip length of heavy-duty truck trips generated by the Project compares to the existing average trip length for similar sites around the Bay Area.

- San Francisco County - Bayview Area
- San Mateo County - Brisbane Area
- San Mateo County - Prologis SFO Area
- Santa Clara County - Western Milpitas Area
- Santa Clara County - Milpitas I-680 Area
- Santa Clara County - San Jose Area
- Alameda County - Livermore Area
- Alameda County - Prologis Port of Oakland Area
- Alameda County - San Leandro Area
- Contra Costa County - Pittsburg Area
- Contra Costa County - Richmond Area
- Solano County - Benicia Area
- Solano County - Vacaville Area
- Sonoma County - Petaluma Area
- Sonoma County - Santa Rosa Area

The comparable industrial warehousing sites zone system is illustrated on **Figure 1**.

Figure 1: Comparable Industrial Warehousing Sites Zone System



Data Product

Fehr & Peers obtained the GPS-based origin and destination to pre-set geography data product from StreetLight for heavy-duty truck trips generated by similar industrial warehousing sites around the Bay Area.

Data Periods

Data was obtained for the Fall 2021 (September 1 through November 30) data period.

The data was stratified as described below.

- Day Type – average weekday (Tuesday to Thursday) and average weekend day (Saturday and Sunday)
- Day Part - Early AM, AM Peak Period (6 AM to 10 AM), Mid-Day, PM peak period (3 PM to 7 PM), Late-Night, and Daily 24-Hour

Premium trip metrics were also obtained for the origin-destination data, providing trip length and trip time information.

Data Analysis

The mobile device data from StreetLight was then analyzed to understand overall heavy-duty truck travel patterns at the census block group level. Trip length information was also analyzed to determine an average trip length associated with heavy-duty truck trips generated by the existing industrial warehousing sites.

Average Trip Length Data

StreetLight Data Sample Size

The data obtained from StreetLight included roughly 10,000 heavy-duty truck data samples for the Fall 2021 data period.

Warehousing Average Trip Length Data

The average trip lengths of heavy-duty truck trips generated by the 23 existing industrial warehousing sites over the daily 24-hour period on an average weekday (Tuesday to Thursday) from the Fall 2021 data period are summarized in **Table 2**.

Table 2: Heavy-Duty Truck Average Trip Lengths

Comparable Industrial Warehousing Site	Sample Size (Observed Trips)	Average Trip Length (miles)	Comparison to "All Bay Area Sites"
Biagi Brothers - Napa County	18	19.7	-66%
Valley Wine - American Canyon	80	18.7	-68%
Vin Lux - American Canyon	55	49.7	-15%
WineDirect - American Canyon	29	30.3	-48%
Napa Corporate Center Warehouses - Napa	37	38.7	-34%
American Canyon Warehouses	351	46.1	-21%
Napa County Airport Warehouses	194	28.8	-50%
Wineshipping - Napa County	90	19.7	-66%
Napa County Warehouses	854	35.6	-39%
San Francisco County - Bayview Area	85	41.7	-28%
San Mateo County - Brisbane Area	957	28.1	-52%
San Mateo County - Prologis SFO Area	15	114.4	97%
Santa Clara County - Western Milpitas Area	10	8.8	-85%
Santa Clara County - Milpitas I-680 Area	771	54.1	-7%
Santa Clara County - San Jose Area	749	69.5	19%
Alameda County - Livermore Area	629	91.3	57%
Alameda County - Prologis Port of Oakland Area	61	76.9	32%
Alameda County - San Leandro Area	744	78.2	34%
Contra Costa County - Pittsburg Area	30	48.1	-17%

Table 2: Heavy-Duty Truck Average Trip Lengths

Comparable Industrial Warehousing Site	Sample Size (Observed Trips)	Average Trip Length (miles)	Comparison to "All Bay Area Sites"
Contra Costa County - Richmond Area	196	114.0	96%
Solano County - Benicia Area	320	63.4	9%
Solano County - Vacaville Area	219	38.4	-34%
Sonoma County - Petaluma Area	147	59.9	3%
Sonoma County - Santa Rosa Area	92	44.9	-23%
Other Bay Area Warehouses	5,025	62.0	7%
All Bay Area Warehouses	5,879	58.2	0%
West Tracy Warehouses	3,840	56.1	-4%

Note: This table provides sample size and average trip length data for the daily 24-hour period on an average weekday (Tuesday to Thursday) from the Fall 2021 data period. Green font indicates the heavy-duty truck average trip length for the site is greater than the average trip length for all 23 Bay Area warehouses combined. Red font indicates the heavy-duty truck average trip length for the site is less than the average trip length for all 23 Bay Area warehouses combined.
Source: Fehr & Peers.

As shown in **Table 2**, the average trip length of heavy-duty truck trips generated by the eight existing Napa County industrial warehousing sites in full operation during the data collection period is 35.6 miles, which is roughly 39 percent lower than the average trip length for all 23 Bay Area warehousing sites combined. Furthermore, all eight industrial warehousing sites in Napa County had an observed heavy-duty truck average trip length less than the average trip length for all 23 Bay Area warehousing sites combined. This data suggests that industrial warehousing sites constructed in Napa County are intended to serve a more local area than warehouses built in other parts of the Bay Area.

Data for similar warehousing sites in West Tracy from the San Joaquin Countywide Warehousing Data Collection effort are provided for comparison and reasonableness checking purposes.

Heavy-Duty Truck Distribution Patterns

The heavy-duty truck inbound and outbound origin-destination distribution patterns generated by the 23 existing industrial warehousing sites from the Fall 2021 data period is presented on **Figure 3** and **Figure 4**, respectively.

Figure 3: Heavy-Duty Truck Inbound Distribution Pattern

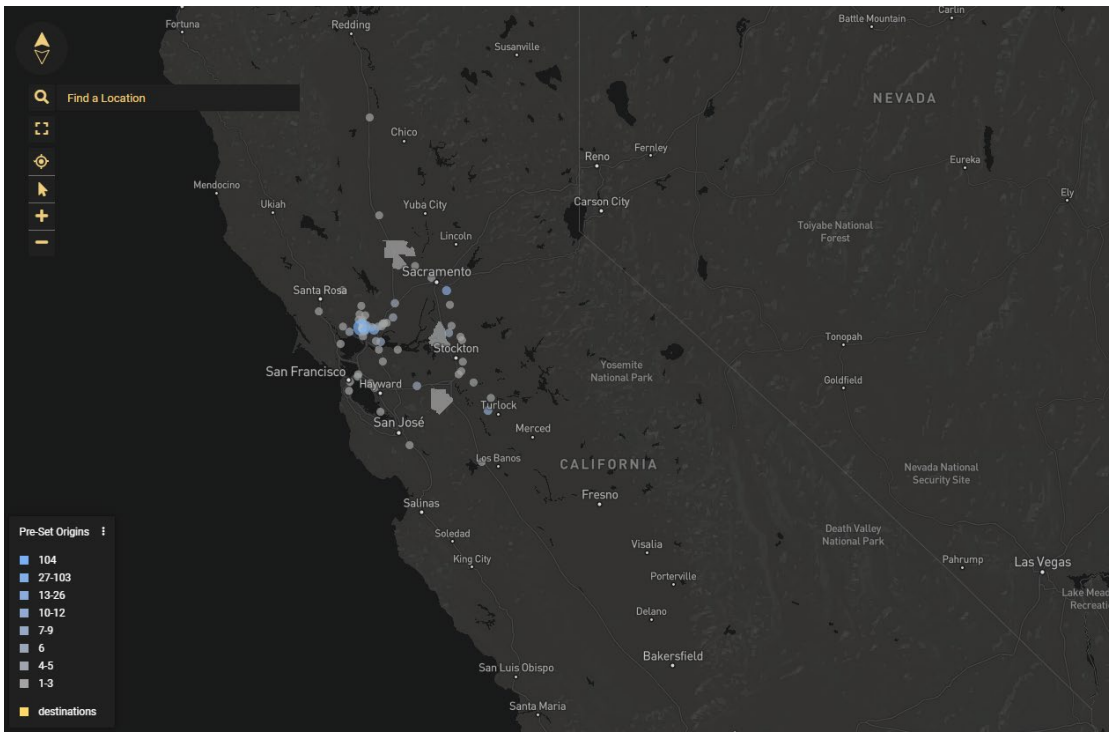


Figure 4: Heavy-Duty Truck Outbound Distribution Pattern

Key Findings

The following key data findings from the American Canyon industrial warehouse travel behavior data collection effort are suitable for use in the ongoing air quality analysis:

- The average daily trip generation per KSF of warehousing building space is 0.078 medium-duty truck trips, 0.447 heavy-duty truck trips, 0.995 auto trips, and 1.52 total vehicle trips.
- The average trip length of heavy-duty truck trips generated by the eight existing Napa County industrial warehousing sites in full operation during the data collection period is 35.6 miles.
- The average trip length of heavy-duty truck trips generated by the eight existing Napa County industrial warehousing sites is roughly 39 percent lower than the average trip length for all 23 Bay Area warehousing sites combined.

Appendix K:
Fire Fiscal Impact Analysis

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MEMORANDUM

To: Joseph Livaich, Buzz Oates Construction, Inc.

From: Jamie Gomes and Sean Fisher

Subject: American Canyon Giovannoni Logistics Center Fire Services Fiscal Analysis; EPS #222024

Date: May 6, 2022

Introduction

Buzz Oates Construction, Inc. (Applicant) retained Economic & Planning Systems, Inc. (EPS) to evaluate the fiscal impacts of the proposed Giovannoni Logistics Center Project (Project) on the American Canyon Fire Protection District (Fire District). The Project is anticipated to be an entirely non-residential development project with up to approximately 2.4 million square feet of buildings that may be constructed. This memorandum summarizes an evaluation of the estimated fiscal impacts of the Project on the Fire District.

This fiscal impact analysis (Analysis) examines the Project's estimated fiscal impact on the Fire District's annual operating budget. Specifically, the Analysis estimates whether projected revenues from the Project will adequately cover the costs of delivering fire and emergency medical services to the Project's structures, employees and visitors. As described in the Draft Environmental Impact Report (EIR) for the Project, this Analysis is based on the assumption that the Fire District will provide these services.

The technical analysis, including data, assumptions, and detailed calculations underlying the Analysis, is provided in **Appendices A** through **D**.

Project Land Uses

The Project entitlement includes the ability to construct up to 5 buildings containing up to approximately 2.4 million building square feet. **Table A-2** in **Appendix A** summarizes the Project's land use plan at buildout.

The Economics of Land Use

Economic & Planning Systems, Inc.
455 Capitol Mall, Suite 701
Sacramento, CA 95814
916 649 8010 tel
916 649 2070 fax

Oakland
Sacramento
Denver
Los Angeles

www.epsys.com

Overview of Results

As shown in **Table 1**, the Project (at buildout) is estimated to generate approximately $198,000 in annual revenues to the Fire District as compared to approximately $306,000 in new Fire District expenditures for an annual estimated deficit of $108,000. Separately, the Project is anticipated to generate approximately $2.5 million in one-time Fire Mitigation Fee revenues for new Fire District capital equipment and facilities.

Table 2 provides more detail regarding the annual revenue and expenditure estimates in this fiscal analysis. The remainder of this memorandum briefly summarizes the methodologies used to derive these annual revenue and expenditure estimates.

Methodology and Assumptions

This section briefly summarizes the underlying methodology and assumptions used to estimate the fiscal impact of the Project on the Fire District. It describes assumptions concerning estimating the cost of fire service delivery and the methodology used to forecast the Project's anticipated revenues to the Fire District.

General Assumptions

The Analysis is based on the Fire District's Budget for Fiscal Year (FY) 2021–22 and information on the Fire District's Fire Mitigation Fee and Fire Services Fee. All costs and revenues are shown in constant 2022 dollars. General fiscal and demographic assumptions are detailed in **Table A-1** in **Appendix A**. This Analysis also used information from the following sources: Project Applicant, County Assessor and Auditor-Controller, and State Department of Finance (DOF).

It is important to note that the actual fiscal impacts of new development in the Project will vary from those presented in this Analysis if development plans or other assumptions (e.g., assessed valuations, building square footages) change from those presented in this Analysis.

General Fund Revenue- and Expenditure-Estimating Assumptions

The primary focus of this Analysis considers only discretionary revenues that will be generated by the Project. Discretionary revenues to the Fire District include the Fire District's share of the ad-valorem property tax plus payment of the Fire Services Fee. Separately, this report also quantifies the total estimated fire mitigation fees payable by the Project.

Table 1
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Summary of Annual Surplus/Deficits (2022$)

Item	Estimated Revenues/Expenditures (Rounded)
Annual Fiscal Impact	
Annual Revenues	$198,000
Annual Expenditures	$306,000
Net Annual Surplus/(Deficit)	**($108,000)**
One Time Fee Revenues	
Fire Mitigation Fee	$2,523,000
Total One Time Revenues	**$2,523,000**
	sum

Source: EPS.

Table 2
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Revenues and Expenditures (2022$)

Item	Estimated Revenues/ Expenditures (Rounded)
Annual Revenues	
Property Taxes	$186,000
Fire Service Fee	$12,000
Total Annual Revenue	**$198,000**
Annual Expenditures	
General Operations Fund	
Personnel	$240,000
Supplies and Services	$48,000
Subtotal General Operations Fund	**$288,000**
Fleet, Facilities, and Equipment Capital Fund	
Facilities	$10,000
Equipment	$8,000
Subtotal Capital Fund	**$18,000**
Total Annual Expenditures	**$306,000**
Net Surplus/(Deficit)	**($108,000)**
One Time Fee Revenues	
Fire Mitigation Fee	$2,523,000
Total One Time Revenues	**$2,523,000**

Source: EPS.

Development Assumptions

Listed below are brief summaries of land use and other development-related assumptions:

- **Land Use:** The Project is entitled to accommodate non-residential development as described above.
- **Employee Estimates:** Using an assumed 1,000 building square foot per employee, EPS estimated the total number of employees that may work within the Project. In estimating certain annual revenues and expenditures (service demands) related to the Project, EPS developed a "persons-served" population estimate to approximate the impacts of an employee in the Project relative to a resident. EPS uses a factor of 0.5 for every employee to derive the Project's persons-served population. **Table A-3** in **Appendix A** shows the estimated persons served anticipated to be generated by the Project.
- **Project Assessed Value:** The estimated assessed valuation of the Project was provided by Project Applicant based on comparable projects. Estimated buildout assessed values for the Project are calculated in **Table D-1** in **Appendix D**.

Revenue-Estimating Methodology

As described in more detail below, EPS used a marginal-revenue case-study approach to estimate Project-related revenues. The marginal-revenue case-study approach simulates actual revenue generation resulting from new development.

Table B-1 in **Appendix B** summarizes estimated annual and one-time revenues resulting from the Project. Ongoing annual revenues include property tax and the Fire Services Fee. One-time revenues include the Fire Mitigation Fee.

Property Tax

Estimated annual property tax revenue resulting from development in the Project is presented in **Table B-2** in **Appendix B**. The Fire District appears to receive approximately 4.8 percent of the total 1-percent ad-valorem property tax that is levied on assessed value. As shown in **Table B-2**, the Project is estimated to generate annual property tax revenue to the Fire District of approximately $186,000.

Fire Service Fee

Table B-3 shows the Project's estimated annual Fire Services Fee revenues of approximately $11,800 based on the Project's building characteristics and equivalent dwelling unit (EDU) calculations (See **Table B-4**) applicable for the Fire Services Fee.

One-Time Fire Mitigation Fee Revenue

Using the Fire District's fee schedule, **Table B-5** calculates the estimated Project's Fire Mitigation Fee payments of approximately $2.5 million.

Expenditure-Estimating Methodology

Average-Cost Expenditures

Expenditure estimates are based on the City's FY 2021-22 budget and EPS's estimates of persons served within the Project – as described earlier. This Analysis estimates expenditure impacts of the Project using an average-cost approach, which uses the City's FY 2021-22 budgeted expenditures on a Fire District-wide basis and calculates an average cost per-persons-served basis to forecast expenditures required to serve new development.

Table C-1 in **Appendix C** shows the two Fire District expenditure categories for which the average-cost method was used – General Operations Fund and Fleet, Facilities, and Equipment Capital Fund.

General Operations Fund

Table C-1 shows the FY 21-22 General Operations fund budget by category of expenditure and EPS's calculation of the average cost per-person-served. As depicted on **Table C-1**, the Analysis incorporates one adjustment to the average-cost approach specifically as it relates to Personnel costs. An adjustment factor of 70% was used for Personnel costs reflecting the fact that certain Fire District personnel costs (e.g., chief, assistant chief, administrative, etc.) are generally fixed and will not incrementally increase as a result of the Project. The adjustment factor in **Table C-1** accounts for the estimated fixed portion of personnel costs. Based on the information in **Table C-1** and on the estimated persons-served in the Project, **Table C-2** calculates the estimated annual expenditures required to serve the Project at buildout is provided in **Table C-2**.

Fleet, Facilities and Equipment Capital Fund

In addition to the General Operations Fund, this Analysis also considers the Fleet, Facilities and Equipment Capital Fund. This fund was included in the Analysis to be comprehensive noting that in the past the Fire District has elected to use a portion of its discretionary revenue to make periodic contributions to fleet, facilities, and equipment (i.e., capital items). With a project of this size and scale that will pay approximately $2.5 million in Fire Mitigation Fees to the Fire District, there may be discussions between the Applicant and Fire District whether the need to include this component in the Analysis is warranted or duplicative. As noted elsewhere in this Analysis, the Fire Mitigation Fee already includes a $0.50 per building square foot fee addition accounting for the size (height) of proposed buildings.

Technical Appendices

The technical calculations used in this Analysis are shown in **Appendices A** through **D** (**Tables A-1** through **D-3**):

- **Appendix A** indicates the proposed land uses and general assumptions used in this Analysis.
- **Appendix B** identifies the projected revenues that will be generated by the Project for the Fire Districts funds.
- **Appendix C** details the estimated expenditures for the Fire District to provide services to the Project.
- **Appendix D** shows the projected assessed value of the Project, which serves as the basis for calculating property tax revenues.

APPENDICES:

Appendix A: General Assumption Tables

Appendix B: Revenue Estimating Tables

Appendix C: Expenditure Estimating Tables

Appendix D: Supporting Tables for Revenue and Expenditure Estimating Tables

APPENDIX A:

General Assumption Tables

Table A-1 General Assumptions A-1

Table A-2 Project Land Uses and Estimated Persons Served A-2

Table A-1
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
General Assumptions

Item	Assumption
General Assumptions	
Fiscal Year	FY 2021-22
General Demographic Characteristics	
American Canyon Fire Department	
Service Population [1]	19,454
District Persons Served	**19,454**

Source: American Canyon Fire Protection District; EPS.

[1] Service population provided by the American Canyon Fire Protection District. As a conservative assumption, no visitor estimates are included in service population estimates.

Table A-2
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Project Land Uses and Estimated Persons Served

Land Use Category	Total Building Square Feet	Square Feet Per Employee	Total Project Employees
Logistics Center Land Uses [1]			
Building A	600,243	1,000	600
Building B	469,512	1,000	470
Building C	715,489	1,000	715
Building D	292,480	1,000	292
Building E	322,240	1,000	322
Total Logistics Center	**2,399,964**		**2,399**
Total Persons Served [2]			**1,200**

Source: Buzz Oates; Colliers International; EPS

[1] Land uses included are based on the preliminary Project site plan dated November 12, 2020.
[2] Persons served is defined as half of total employees based on the assumption that an employee in the District would have an impact on fire service, but at a lower rate than a standard resident.

APPENDIX B:

Revenue-Estimating Tables

Table B-1	Estimated Annual Fire Department Revenues	B-1
Table B-2	Estimated Annual Property Tax Revenues	B-2
Table B-3	Estimated Annul Fire Service Fee Revenues	B-3
Table B-4	Estimated Annual Fire Service Fee EDU Estimates	B-4
Table B-5	Estimated One-Time Fire Mitigation Fee Revenues	B-5

Table B-1
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Annual Fire Department Revenues (2022$)

Revenue Category	Case Study Reference	Estimated Annual Revenue (Rounded)
Annual Revenues		
Property Taxes	Table B-2	$185,715
Fire Service Fee	Table B-3	$11,774
Total Annual Revenues		**$197,489**
One Time Fee Revenues		
Fire Mitigation Fee	Table B-5	$2,522,842
Total One Time Revenues		**$2,522,842**

Source: American Canyon Fire Protection District; EPS.

Table B-2
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Annual Property Tax Revenues (2022$)

Item	Assumption/ Source	Formula	Property Tax Revenues (2022$)
Assessed Value of Project	Table D-1	*a*	$383,994,240
Property Tax Revenue (1% of Assessed Value)	1.0000%	*b = a * 1.00%*	$3,839,942
Estimated Property Tax Allocation [1]			
American Canyon Fire Protection District Allocation	4.8364%	*c = b * 4.84%*	$185,715
Other Agencies/ERAF	95.1636%	*d = b * 95.16%*	$3,654,227
Total Fire District Property Tax		***e = c***	**$185,715**

Source: American Canyon Fire Protection District; Napa County Auditor-Controller; EPS.

[1] Property tax allocation based on existing tax allocation to the American Canyon Fire Protection District for existing TRA 005-029 as provided by the Napa County Auditor Controller.

Table B-3
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Annual Fire Service Fee Revenues (2022$)

Item	Rate per EDU	Estimated EDUs per Building [1]	Fire Service Fee Revenues (2022$)
Fire Service Fee per EDU (FY 2013-14)	$86.38		
Fire Service Fee per EDU (FY 2021-22) [2]	$106.31		
Logistics Center Land Uses			
Building A		25.00	$2,658
Building B		22.25	$2,365
Building C		27.50	$2,924
Building D		17.50	$1,860
Building E		18.50	$1,967
Total Logistics Center		**110.75**	**$11,774**

Source: American Canyon Fire Protection District; Buzz Oates; EPS.

[1] Refer to Table B-4 for details.
[2] Fire service fee escalated to FY 2021-22 based on the annual growth of California CPI.

Table B-4
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Annual Fire Service Fee EDU Estimates (2022$)

Item	Construction Type Factor	Floor Area	Occupancy Hazard Classification Factor [1]	Exposure Factor	Fire Protection System Factor	Required Fire Flow (GPM)	Building EDUs
Assumption	Ordinary Construction	Table A-2	Low Hazard	No Exposure	Yes	[2]	[3]
Logistics Center Land Uses							
Building A	1.50	600,243	0.80	1.00	0.75	12,551	25.00
Building B	1.50	469,512	0.80	1.00	0.75	11,100	22.25
Building C	1.50	715,489	0.80	1.00	0.75	13,703	27.50
Building D	1.50	292,480	0.80	1.00	0.75	8,761	17.50
Building E	1.50	322,240	0.80	1.00	0.75	9,196	18.50
Total Logistics Center		**2,399,964**				**55,312**	**110.75**

Source: American Canyon Fire Protection District; Buzz Oates; EPS.

[1] Hazard factor based on the 2010 California Fire Code Classification (California Code Of Regulations, Title 24, Part 9) for similar uses.
[2] Required Fire Flow (GPM) is estimated based on the formula provided by the American Canyon Fire District Ordinance 2013-01.
[3] Per the American Canyon Fire District Ordinance 2013-01, 500 GPM equates to one EDU. Rounded to the nearest 0.25 EDUs

Table B-5
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated One-Time Fire Mitigation Fee Revenues (2022$)

Item	Assumption/ Source	Building Square Footage	Fire Mitigation Fee Revenues (2022$)
Fire Mitigation Fee per Square Foot [1]	$1.0512		
Logistics Center Land Uses	Table A-2		
Building A		600,243	$630,975
Building B		469,512	$493,551
Building C		715,489	$752,122
Building D		292,480	$307,455
Building E		322,240	$338,739
Total Logistics Center		**2,399,964**	**$2,522,842**

Source: American Canyon Fire Protection District; Buzz Oates; EPS.

[1] The fire mitigation fee is a one-time service fee charged by the American Canyon Fire Protection District.

APPENDIX C:

Expenditure-Estimating Tables

Table C-1 Expenditure-Estimating Procedures Based on American Canyon Fire District FY 2021-22 Budget C-1

Table C-2 Estimated Annual General Fund Expenditures C-2

Table C-3 Estimated Capital Expenditure Multiplier C-3

Table C-1
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Expenditure-Estimating Procedures Based on American Canyon Fire District FY 2021-22 Budget (2022$)

Item	Estimating Procedure	FY 2021-22 Budgeted Expenditures [1]	Population or Persons Served	FY 2021-22 Avg. Cost	Adjustment Factor [1]	Net FY 2021-22 Avg. Cost
General Operations Fund						
Personnel	Persons Served	$5,556,688	19,454	$285.63	70%	$199.94
Supplies and Services	Persons Served	$779,707	19,454	$40.08	100%	$40.08
Capital Outlay	[3]	-	19,454	NA	100%	NA
Transfers Out	[2]	$173,891	19,454	NA	100%	NA
Debt Service	[2]	-	19,454	NA	100%	NA
Subtotal General Operations Fund		**$6,510,286**				**$240.02**
Fleet, Facilities, and Equipment Capital Fund						
Heavy Rescue	[3]	-	19,454	NA	100%	NA
Type 6 Engine	[3]	-	19,454	NA	100%	NA
Facilities	Case Study	$2,000	19,454	NA	100%	$8.27
Equipment	Case Study	$91,000	19,454	NA	100%	$6.55
Command Vehicle	[3]	$85,000	19,454	NA	100%	NA
Type 1 Engine	[3]	-	19,454	NA	100%	NA
Subtotal Capital Fund		**$178,000**				**$14.83**
Total Expenditures		**$6,688,286**				

Source: American Canyon Fire District FY 2021-22 Final Budget; EPS.

[1] An adjustment factor may be used to reflect the fact that new persons served may not increase certain expenditures at a 1:1 ratio. This analysis assumes an adjustment factor for personnel expenditures as costs pertaining to certain positions, such as the Fire Chief and Assistant Chief are fixed and would not grow with additional development within the District.
[2] Expenditure category not anticipated to be impacted by Project development.
[3] Specific for capital expenditures required due to Project development are not known at this time. As such, en estimate of facilities and equipment spending are estimates using a per persons served methodology based on the long term average cost for each category. Refer to Table C-3 for details.

Table C-2
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Annual General Fund Expenditures (2022$)

Expenditure Category	Estimated Annual Expenditures [1]
General Operations Fund	
Personnel	$239,831
Supplies and Services	$48,075
Subtotal General Operations Fund	**$287,906**
Fleet, Facilities, and Equipment Capital Fund	
Facilities	$9,924
Equipment	$7,860
Subtotal Capital Fund	**$17,784**
Total Annual General Fund Expenditures	**$305,690**

Source: American Canyon Fire District FY 2021-22 Final Budget; Buzz Oates EPS.

[1] Annual expenditure estimated on a per persons served or per capita basis. Refer to Table C-1 for estimating procedure and Table A-2 for population estimates.

Table C-3
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Estimated Capital Expenditure Multiplier (2022$)

Expenditure Category	Annual Expenditures						Persons Served	Cost per Persons Served
	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	Average		
Fleet, Facilities, and Equipment Capital Fund								
Facilities	$26,447	$128,303	$71,080	$576,901	$2,000	**$160,946**	19,454	$8.27
Equipment	$89,480	$101,476	$92,684	$262,757	$91,000	**$127,479**	19,454	$6.55
Total						**$288,426**		**$14.83**

Source: American Canyon Fire District FY 2021-22 Final Budget; EPS.

APPENDIX D:

Supporting Table for Revenue- and Expenditure-Estimating Tables

Table D-1 Project Assessed Valuation D-1

Table D-1
American Canyon Giovannoni Logistics Center
Fire Department Fiscal Impact Study
Project Assessed Valuation (2022$)

Item	Rounded Value per Sq. Ft.	Total Assessed Value (2022$)
Logistics Center Land Uses	*per Unit*	
Building A	$160	$96,038,880
Building B	$160	$75,121,920
Building C	$160	$114,478,240
Building D	$160	$46,796,800
Building E	$160	$51,558,400
Total Assessed Value		**$383,994,240**

Source: Buzz Oates; EPS

BUZZ OATES

July 13, 2022

Mr. Geoff Belyea
Chief, American Canyon Fire Protection District
911 Donaldson Way East
American Canyon, CA 94503

Subject: Giovannoni Logistics Center (Project)

Applicant: Buzz Oates Construction, Inc. (Applicant)

Project Description: The Project is anticipated to be an entirely non-residential development project with up to approximately 2.4 million square feet of high-cube warehouse building space. The project contains a 68.8-acre Phase 1, creation of a 44.8-acre open space preserve, and a 85.9-acre Phase 2.

Issue: Estimated Annual Fiscal Impacts to the American Canyon Fire Protection District (Fire District) and costs of One-Time Fire Mitigation Fee.

Fiscal Impact Analysis: Economic & Planning Systems, Inc. (EPS) conducted a fiscal impact analysis of the Project forecasting estimated general operations fund revenues would accrue to the Fire District from the Project as compared to the Fire District's annual operating costs to serve the Project. In working with the Fire District's staff and financial consultant, the fiscal impact analysis projected the following annual operating deficit to the Fire District, prior to any fiscal mitigation.

Table 1: Estimated Annual Fiscal Impacts (2022 $)

Item	Estimated Revenues/Expenditures (Rounded)
Annual Fiscal Impact	
Annual Revenues	$198,000
Annual Expenditures	$356,000
Net Annual Surplus/(Deficit)	**($158,000)**

One-Time Fire Mitigation Fee Calculation: The table below shows the estimated one-time Fire District mitigation fee that could be applicable to the Project.

Table 2: One Time Fire Mitigation Fee (2022 $)

Item	Assumption/ Source	Building Square Footage	Fire Mitigation Fee Revenues (2022$)
Fire Mitigation Fee per Square Foot [1]	$1.0512		
Logistics Center Land Uses	Table A-2		
Building A		600,243	$630,975
Building B		469,512	$493,551
Building C		715,489	$752,122
Building D		292,480	$307,455
Building E		322,240	$338,739
Total Logistics Center		**2,399,964**	**$2,522,842**

Source: American Canyon Fire Protection District; Buzz Oates; EPS.

[1] The fire mitigation fee is a one-time service fee charged by the American Canyon Fire Protection District.

Proposal: For the benefit of the Fire District, the Applicant proposes to form a Mello-Roos Community Facilities District (CFD) or other similar public financing instrument for public safety services funding. The initial annual maximum special tax would be set equal to the estimated $158,000 in annual fiscal deficit (at project buildout), and would subject to annual escalation (as noted below). In consideration for this offer, Applicant proposes the Fire District exempt Applicant from the One-Time Fire Mitigation Fee.

Mello-Roos CFD Details: The CFD must be formed on full legal parcels and would include all legal parcels that are a part of the Project. Only developable land shall be subject to the tax with any publicly owned land or land that remains in open space, environmental mitigation or public use not being subject to the annual special tax. Project APNs currently include: 057-090-008, 057-130-034, and 057-130-036.

The initial annual special tax will be based on a maximum annual cost of $158,000 (in 2022 $) that would be apportioned to the estimated developable area within the CFD. The annual special tax is proposed to include an annual escalator equal to the consumer price index for all urban consumers (CPI – U) for San Francisco-Oakland-Hayward, subject to a maximum of 3 percent per year.

BUZZ OATES

As described below, only developed property would be subject to the annual special tax. Developed property will be defined in the CFD Rate and Method of Apportionment of Special Tax (RMA) to mean any parcel with a structure for which a building permit has been issued. Developed Property will be taxed at the maximum annual special tax rate once it becomes a Developed Property (i.e., after a building permit has been issued). Since undeveloped land places little demands on fire and emergency medical services, undeveloped property will not be subject to the maximum special tax. The CFD is not proposed to include a termination date and may be collected by the Fire District in perpetuity.

For example, the 38.8 acre Building A parcel would be subject to an annual tax special tax of $39,297.41.

($158,000 / 156 developable acres = $1,012.82 / acre * 38.8 Building A parcel = $39,297.41 annual tax)

The Giovannoni Logistics Center is the second project for the developer in the City of American Canyon, with the first being the 120,080 square foot warehouse at 100 Jim Oswalt Way.

We look forward to working with the Fire Protection District and City on this endeavor to create further lasting community benefits.

All the best,

Joe Livaich
Vice President, Planning & Preconstruction Services
Buzz Oates Construction, Inc.

Appendix L:
Wildlife Hazard Assessment

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AECOM
300 Lakeside Drive, Suite 400
Oakland, CA
94612

Project name:
Giovannoni Logistics Center

To:
Joe Livaich, Senior Project Manager
Buzz Oates Construction, Inc.
555 Capitol Mall, Suite 900
Sacramento, CA
95814

From:
AECOM Technical Services

Date:
September 27, 2022

Memo

Subject: Wildlife Hazard Assessment for the Giovannoni Logistics Center Property

Dear Mr. Livaich,

This memorandum describes the methods and results of the wildlife hazards assessment that was conducted for the Giovannoni Logistics Center (project), in the City of American Canyon, California (Figure 1). The 208-acre project site is semi-rectangular in shape, and is bounded by industrial development in the Green Island Business Park (west), the Napa Logistics Project and Devlin Road (north), the Napa Branch Line (east), and Green Island Road, a stone supply business, and a wine distribution warehouse (south). The airfield of the Napa County Airport is located less than one mile north of the project site.

The proposed project would develop a 2.4 million square foot logistics center on approximately 161 acres of the project site (Figure 2). The remaining 47 acres would be preserved as open space. In conjunction with the proposed project, the City of American Canyon would extend Devlin Road through the project site.

Phase 1 is comprised of the 94.7 acre-area east of the Devlin Road extension. This area will support two warehouse buildings totaling 1,069,904 square feet. A total of 0.496 acres of palustrine emergent wetlands will be permanently filled in Phase 1. As such, 0.992 acres of wetlands (a 2:1 ratio) will be established in the Proposed Wetland Preserve area in the northern portion of the project site. Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high cube warehouse. Phase 2 would commence once Phase 1 is completed. If constructed, Phase 2 would impact approximately 3.7 acres of wetlands, which would be mitigated at a 1:1 ratio. The wetlands created within the 44.8 acre Proposed Wetland Preserve as part of project mitigation would total approximately 4.7 acres (*Biological Resources Report for Giovannoni Logistics Center*, Huffman-Broadway Group, May 28, 2021; Figures 3 and 4).

Policy 3.3.5 of the Airport Land Use Compatibility Plan (ALUCP) for the Napa County Airport and Parrett Field provides as follows:

> Land uses which may produce hazards to aircraft in flight shall not be permitted within any airport' s planning area. Specific characteristics to be avoided include: (1) glare or distracting lights which could be mistaken for airport lights; (2) sources of dust, steam, or smoke which may impair pilot visibility; (3) sources of electrical interference with aircraft communications or navigation; and (4) any use which may attract large flocks of birds, especially landfills and certain agricultural uses.

The Draft EIR for the Giovannoni Logistics Center includes Mitigation Measure LU-3, which is intended to ensure compliance with ALUCP Policy 3.3.5. That mitigation measure reads as follows:

> Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment' s findings and recommendations are incorporated into the design of the open space preserve.

This memorandum is intended to satisfy the requirement from Mitigation Measure LU-3 for the preparation of a wildlife hazard assessment for the project. The memorandum specifically addresses whether, and to what extent, the proposed land uses, including the wetland preserve component, could attract large flocks of birds or other wildlife species that may present safety hazards to the Napa County Airport.

Methods

A desktop review of project background documents, aerial imagery, and wildlife occurrence databases including the California Department of Fish and Wildlife's Natural Diversity Database (CNDDB) was conducted on September 22, 2022 to identify habitats and species with potential to occur within the survey area. The survey area encompassed the 208-acre parcel and an additional 250-foot buffer extending beyond the parcel boundaries. A pedestrian reconnaissance-level survey was conducted on September 22, 2022 by AECOM biologist Ranie Shreckengost. Hand-written notes, binoculars, and the ArcGIS Field Maps application were used to navigate the site, record observations, and document habitat types/quality and site conditions.

Results

The project site is surrounded by urban development in the City of American Canyon to the north, east, and south, with an adjacent, undeveloped, grassland-dominant parcel bordering Devlin Road immediately west of the project site. The vegetation is dominated by non-native annual grasses. Evidence of vegetation management and stormwater management channels was observed along Devlin Road which divides the property into eastern and western halves. A dry, ephemeral drainage channel was observed within the northern portion of the property and appeared to flow from east to west. This feature flows underneath Devlin Road via a stormwater management channel and shallow bridge. Small, intermittent, seasonal wetland features and hydrology was observed in the form of drainage patterns, microtopographic relief, and hydrophytic vegetation concentrated along the northern portion of the property. These features are primarily located within the extents of the Proposed Wetland Preserve area shown in Figure 2.

A large, square, elevated earthen mound was observed in the southeastern portion of the property at the approximate location of Proposed Building A (Phase 1) within the proposed project site (Figure 2). The vegetation growing upon and around this mound appeared to be mostly ruderal. Tarps were observed on the ground covering portions of the mound.

A single Cooper's hawk (*Accipiter cooperii*) was observed during the survey. Cooper's hawk is a CDFW Watch List species, and like most nesting birds and raptors, their nests are protected by the Migratory Bird Treaty Act of 1918. No special-status species were observed during the survey. No active or historic bird nests were observed. Wildlife and vegetation species observed during the field survey are listed below in **Table 1**.

A map depicting the location of the proposed development site is included as **Figure 1**, and the site plan, wetland impacts, and proposed wetland mitigation areas are shown in **Figures 2, 3, and 4**. Representative site photographs are provided in **Attachment A**.

Table 1. Plant and wildlife species observed during the September 22, 2022 reconnaissance survey.

Scientific Name	Common Name
Amphibians and Reptiles	
Sceloporus occidentalis	Western fence lizard
Birds	
Zenaida macroura	Mourning dove
Charadrius vociferus	Killdeer
Cathartes aura	Turkey vulture
Haemorhous mexicanus	House finch
Accipiter cooperii	Cooper's hawk
Tyrannus verticalis	Western kingbird
Corvus brachyrhynchos	American crow (12 individuals)
Mammals	
Lepus californicus	Black-tailed jackrabbit
Canis latrans	Coyote
Plants	
Taeniatherum caput-medusae	Medusa-head grass
Centaurea solstitialis	Yellow star-thistle
Poa sp.	Annual grasses
Avena barbata	California wild oat
Baccharis pilularis	Coyote brush
Helminthotheca echioides	Bristly oxtongue
Hemizonia congesta	Hayfield tarweed
Polypogon monspeliensis	Rabbitfoot grass
Rubus armeniacus	Himalayan blackberry
Nigella arvensis	Wild fennel

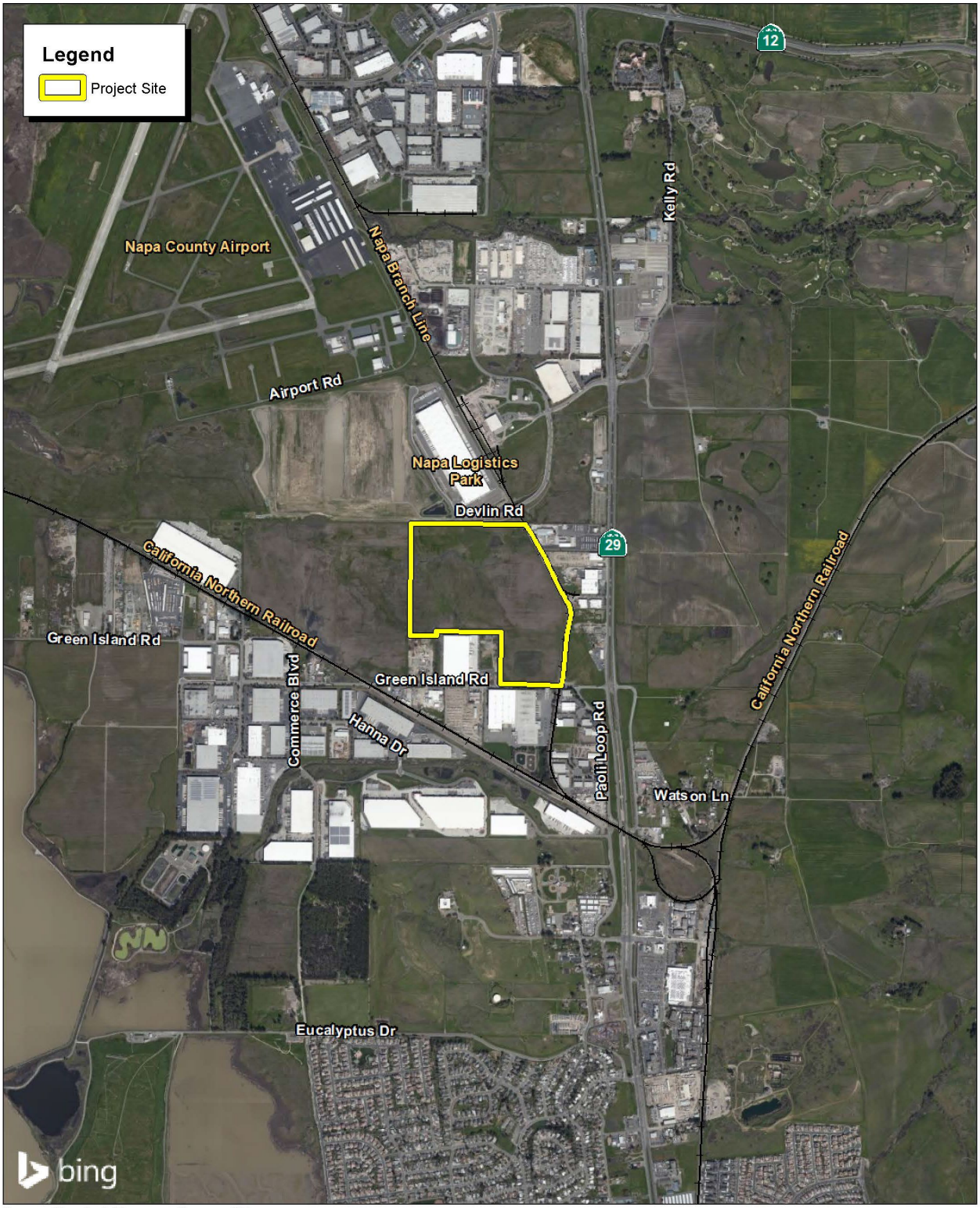
Discussion

The buildings associated with the project development site are not expected to result in a significant attraction of birds or other wildlife to the property. Some vegetation will be removed and replaced with buildings, resulting in the reduction of existing non-native grassland habitat within the development site. Anticipated changes to the existing wildlife habitat associated with the proposed construction activities include grading, excavation, permanent development, storm water controls, lighting, irrigation, noise, and increased human presence.

The development of Phase 1 and Phase 2 features is unlikely to result in an increase in wildlife activity due to the disturbances caused by the lighting, human presence, and noise associated with the new development site, in addition to the existing baseline noise and activity from nearby vehicular traffic and the Napa County Airport air and vehicular traffic. Natural or man-made features that could attract wildlife to the property post-construction include the proposed stormwater retention basins; however, the stormwater retention basins are unlikely to result in significant additional wildlife attraction because the systems are designed for quick drainage, and because the basins will be surrounded by development.

A majority of the wetland impacts will be mitigated at a 1:1 ratio, with only 0.496 acres of net gain in palustrine emergent wetlands across the site. The impacted wetlands are located within a contiguous grassland landscape and are, on average, no more than 1,500 feet south of the Proposed Wetland Preserve, where mitigation wetlands would be created among approximately 45 acres of existing wetlands. The creation of wetlands associated with the project is not expected to cause an overall increase in the current level of bird or other wildlife activity at the project site, because a majority of the wetlands being filled within the parcel would be replaced at a 1:1 ratio and would be located among existing wetland features that dominate the northern portion of the project site.

In summary, the construction and development associated with the Giovannoni Logistics Center would not cause an increase above the existing level of activity of birds or other wildlife. Therefore, the project land uses would not present a hazard to Napa County Airport flight operations. It is predicted that the overall wildlife activity on the property would remain at or below current levels, based on our understanding of the planned development and our best professional assessment of the existing habitat.



Source: Bing Aerial Imagery. County of Napa.

Figure 1. Project Location

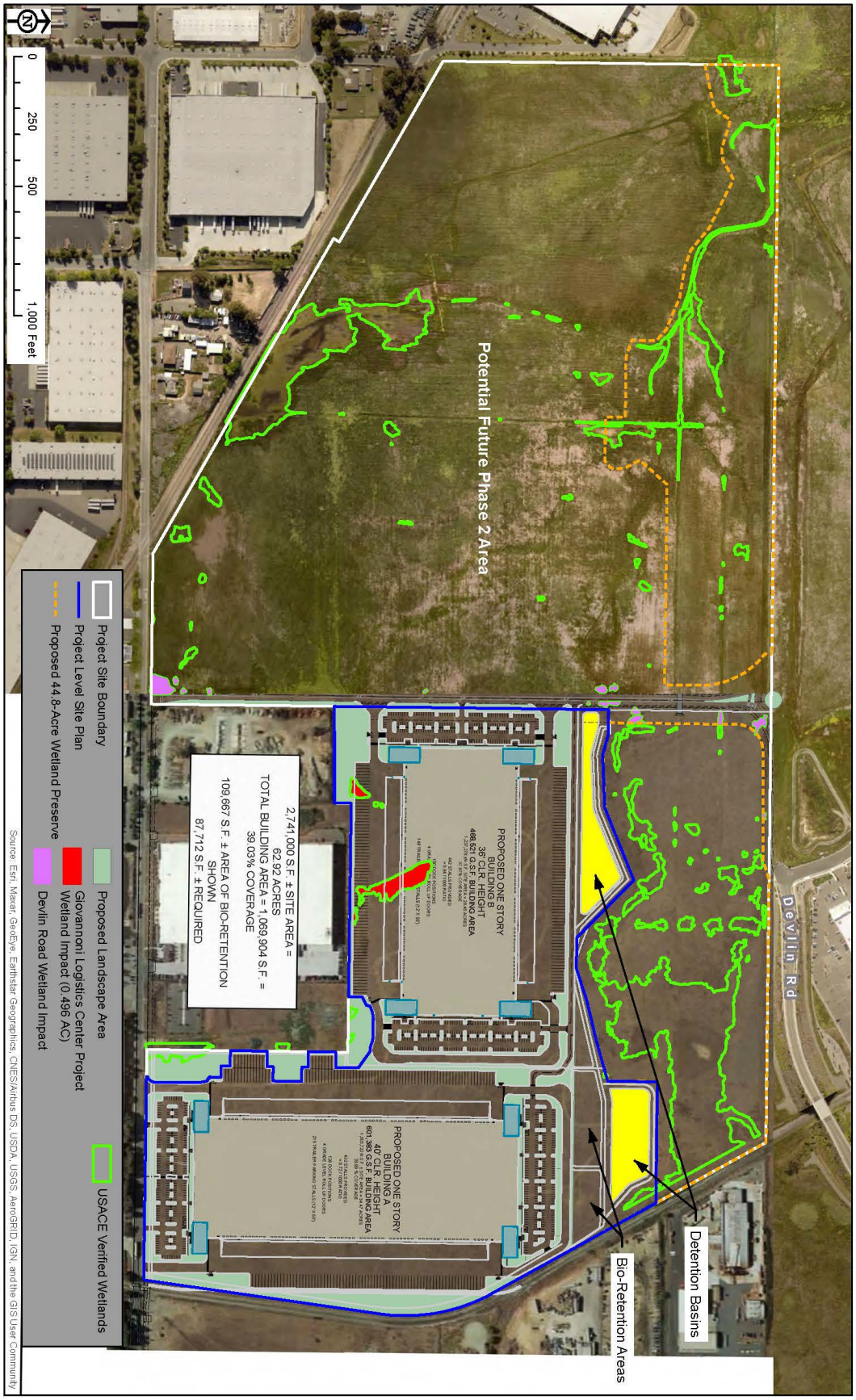


Figure 2. Project Site Plan

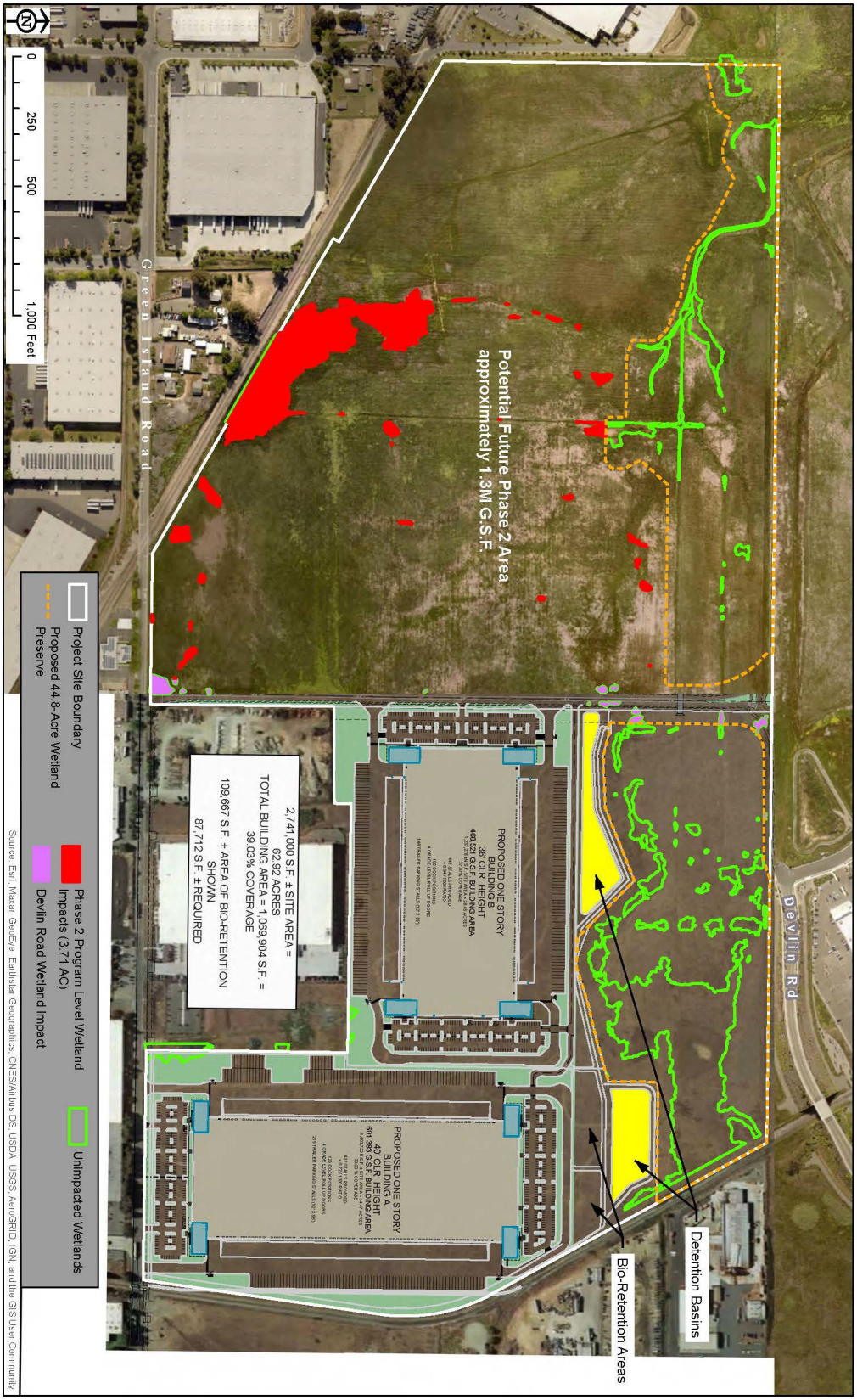


Figure 3. Impacted and Unimpacted Wetlands

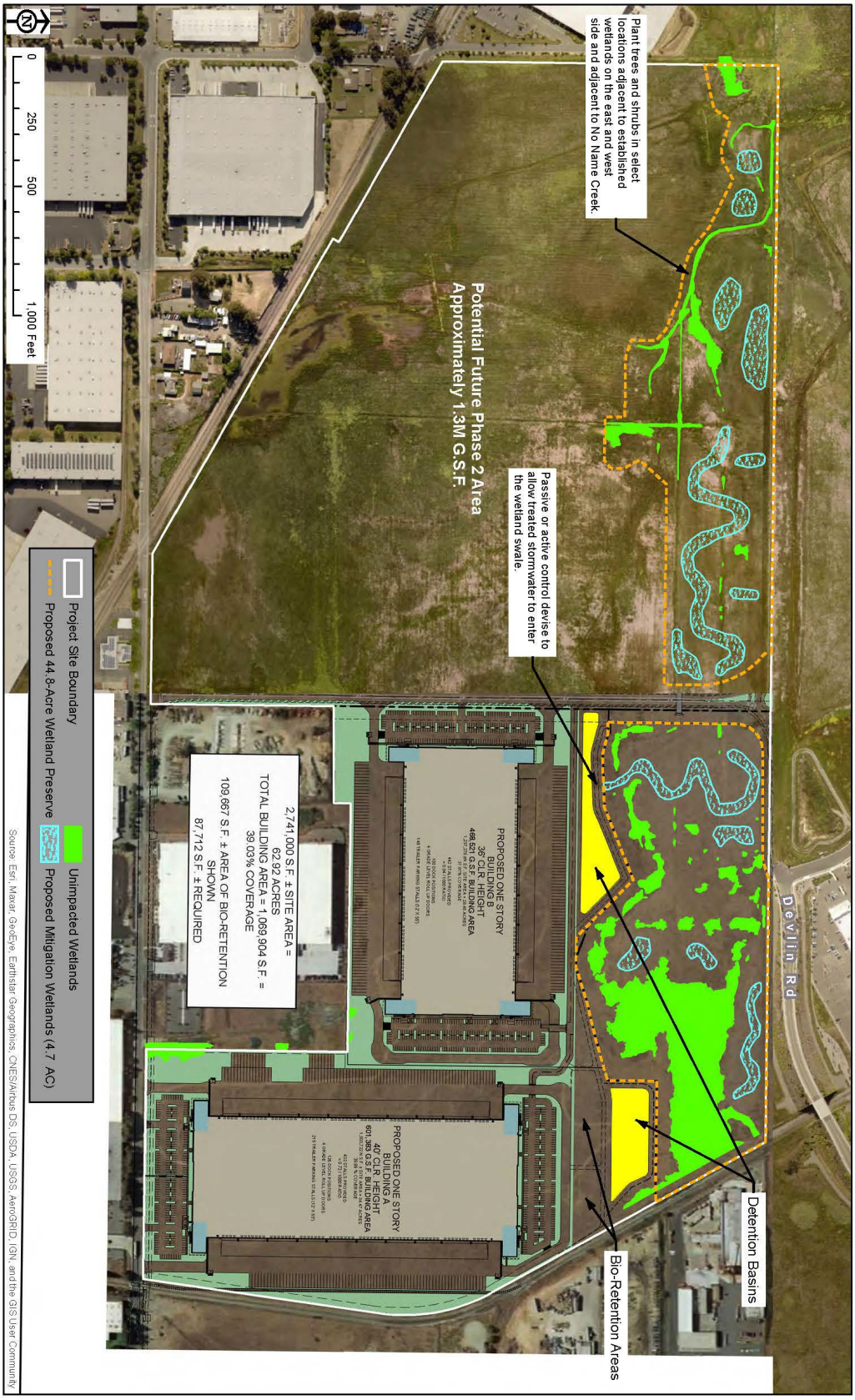


Figure 4. Proposed Mitigation Wetlands

Attachment A. Site Photographs

Photograph 1: Western portion of the property, facing west (Potential Future Phase 2 Area).

Photograph 2: Proposed Wetland Preserve area in the foreground, facing south.

Photograph 3: Stormwater management channel located within the proposed Wetland Preserve Area.

FIRSTCARBONSOLUTIONS™

Mitigation Monitoring and Reporting Program for the Giovannoni Logistics Center Project Environmental Impact Report City of American Canyon, Napa County, California

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PREFACE

Section 21081.6 of the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15097 require a Lead Agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) whenever it adopts a Mitigated Negative Declaration (MND) in conjunction with a project approval. The purpose of the MMRP is to ensure compliance with the mitigation measures occurs during project implementation.

The Draft Environmental Impact Report (Draft EIR) prepared for the proposed Giovannoni Logistics Center Project (proposed project) concluded that project implementation could result in potentially significant effects on the environment and mitigation measures were incorporated into the proposed project or are required as a condition of project approval that reduce these potential impacts to a less than significant level. This MMRP documents how and when the mitigation measures adopted by the Lead Agency will be implemented and confirms that potential environmental impacts are reduced to less than significant levels as identified in the Draft EIR.

This document does not discuss those subjects that the environmental analysis demonstrates would result in less than significant impacts and for which no mitigation was proposed or necessary.

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Table 1: Giovannoni Logistics Center Project Mitigation Monitoring and Reporting Program

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
3.1 Aesthetics, Light, and Glare					
MM AES-3: Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.	Approval of plan	Prior to issuance of building permits for the proposed project	City of American Canyon		
3.2 Air Quality					
MM AIR-2a: The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction: • All active construction areas shall be watered at least two times per day. • All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard. • All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.	Notes on construction plans; Site inspection	During construction	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
• All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.					
MM AIR-2b: Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product.	Submittal of documentation	Prior to the issuance of grading or building permits	City of American Canyon		
MM AIR-2c: Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC"	Submittal of documentation	Prior to issuing any certificate of occupancy	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.		for the proposed project			
MM AIR-2d: Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy-duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement. To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.	Submittal of documentation	Prior to issuing the certificate of occupancy for the proposed project	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
MM AIR-2e: Prior to the issuance of the certificate of occupancy for each building with dock doors, signage shall be posted identifying idling restrictions and contact information to report violations to the building manager.	Site inspection	Prior to the issuance of the certificate of occupancy for each building with dock doors	City of American Canyon		
MM AIR-2f: Prior to the issuance of the certificate of occupancy for each building with a separate end user, the City shall confirm that the end user has prepared a Transportation Demand Management Plan (TDM Plan). The TDM Plan shall be prepared by a qualified transportation consultant and identify strategies to reduce single-occupant vehicle trips. Examples of TDM strategies may include but are not limited to: • Ridesharing/Ride Matching • Vanpools • Transit subsidies • Preferential parking for rideshare or vanpool vehicles • Employee lockers • Secure bicycle parking • Employee locker rooms • Provide TDM information in employee breakroom	Submittal of documentation	Prior to the issuance of the certificate of occupancy for each building with a separate end user	City of American Canyon		
MM AIR-2g: As a part of future lease agreements, the project proponent shall provide all future tenants at the project site information on available California Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) incentive programs, such as the Carl Moyer Program and the Voucher Incentive Program, that support upgrading truck fleets to clean air technology equipment.	Submittal of documentation	Prior to the issuance of the certificate of occupancy	City of American Canyon		
3.3 Biological Resources					
MM BIO-1a: Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities and each year following initiation of construction if project activities are delayed or	Notes on construction plans; Submittal of documentation; Site inspection	Prior to initiation of project construction activities and each year following initiation of	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with CDFW's "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (CDFW 2000) to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances. If no nesting Swainson's hawk are found during the first second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site. If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.		construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5)			

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.					
MM BIO-1b: No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Preconstruction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. If active golden eagle nests are identified within any trees within the survey areas a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or	Notes on construction plans; Submittal of documentation; Site inspection	No more than 30 days prior to the first ground disturbance activity	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.					
MM BIO-1c: Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and minimum 500-foot radius from the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc., the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be modified increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined	Notes on construction plans; Submittal of documentation; Site inspection	Prior to ground disturbance	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
to be complete based on monitoring of the active nest by a qualified Raptor Biologist.					
MM BIO-1d: Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site. • If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report. • If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed	Notes on construction plans; Submittal of documentation; Site inspection	Prior to any ground disturbance	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer. • If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.					
MM BIO-2: To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.	Submittal of documentation	Prior to issuance of grading permits	City of American Canyon		
MM BIO-3a: Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and	Submittal of documentation	Prior to issuance of the Phase 1 grading permit	City of American Canyon; San Francisco District of the United States Army Corps of Engineers; San Francisco Bay Regional Water Quality Control Board		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).					
MM BIO-3b: Prior to issuance of the Phase 2 grading permit, the project applicant shall apply for and obtain an Individual Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for the placement of fill material within approximately 3.7 acres of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for the discharge of fill material within approximately 3.7 acres of waters of the State. To offset the loss of 3.7 acres of permanent wetland impacts and to ensure there is no-net loss of wetland area or permanent loss of functions and values, the applicant shall establish/create 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pools (1:1 ratio), at a minimum of 1 year prior to the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands and vernal pools shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The	Submittal of documentation	Prior to issuance of the Phase 2 grading permit	City of American Canyon; San Francisco District of the United States Army Corps of Engineers; San Francisco Bay Regional Water Quality Control Board		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
applicant shall implement the terms of the approved permit(s).					
MM BIO-3c: Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part of Phase 2. The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).	Submittal of documentation	Prior to issuance of the Phase 1 grading permit	City of American Canyon; San Francisco Bay Regional Water Quality Control Board		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
MM BIO-3d: Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J–Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board Implementation Guidance dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332) The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum: 1. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve. 2. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio. 3. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur.	Submittal of documentation	Prior to issuance of the Phase 1 and Phase 2 grading permit	City of American Canyon; San Francisco Bay Regional Water Quality Control Board		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards. 5. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc. 6. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface therefore a 5-year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts. 7. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan. 8. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic					

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.					
MM BIO-4: If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 7 days prior to the onset of construction activity. Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters and 1,000 feet from the construction limits for nesting raptors. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if construction activities are delayed by more than 7 days, an additional nesting bird survey shall be performed. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or	Notes on construction plans; Submittal of documentation; Site inspection	If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31)	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.					
3.4 Cultural Resources and Tribal Cultural Resources					
MM CUL-2a: No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.	Notes on construction plans; Site inspection	During construction	City of American Canyon		
MM CUL-2b: An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with	Notes on construction plans; Site inspection; Submittal of documentation	During construction	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, and site documentation, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.					
MM CUL-3: In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken: 1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it	Notes on construction plans; Site inspection; Submittal of documentation	During construction	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98. 2 Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance: • The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission. • The descendant identified fails to make a recommendation. • The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner. Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains: • When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may each develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any					

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.					
MM CUL-4: A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities. 1. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol. 2. Inadvertent Discovery of Native American Human Remains**:** Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the	Notes on construction plans; Site inspection; Submittal of documentation	During construction	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
area is culturally affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents. Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely. 3. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term					

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
"human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact. 4. Non-Disclosure of Location of Reburials**:** Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 *et seq*. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property. 5. Treatment of Cultural Resources**:** Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items,					

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe. 6. Inadvertent Discoveries**:** If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.					
3.5 Geology, Soils, and Seismicity					
MM GEO-1a: Prior to the issuance of building permits for each Phase 2 structure, the project applicant shall submit plans to the City of American Canyon for review and approval that demonstrate a minimum 50-foot setback between the West Napa Fault and each building. The approved plans shall be incorporated into the proposed project.	Submittal of documentation	Prior to the issuance of building permits for each Phase 2 structure	City of American Canyon		
MM GEO-1b: Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards	Submittal of documentation	Prior to the issuance of building permits for each Phase 1 and 2 structure	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.					
MM GEO-5: If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil. The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.	Notes on construction plans; Site inspection; Submittal of documentation	During construction	City of American Canyon		
3.6 Greenhouse Gas Emissions and Energy					
MM GHG-1a: Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs):	Submittal of documentation; Notes on construction plans; Site inspection	Prior to the issuance of any grading permits	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
• At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric. • At least 10 percent of building materials used for project construction shall be sourced from local suppliers. • At least 65 percent of construction and demolition waste materials shall be recycled or reused. • At least one contractor that has a business location in American Canyon shall be contracted for project construction. • All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) using during construction be electrically powered. • Architectural coatings used for project construction shall be "Low-VOC," containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product. • Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective					

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
action within 48 hours. The BAAQMD's phone number shall also be identified and visible to ensure compliance with applicable regulations.					
MM GHG-1b: Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing.	Submittal of documentation	Prior to the issuance of any building permits	City of American Canyon		
MM GHG-1c: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.	Submittal of documentation	Prior to the issuance of any building permits	City of American Canyon		
MM GHG-1d: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2. Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that each loading dock is outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU)	Submittal of documentation	Prior to the issuance of any building permits	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
charging and/or electrical power connection while trucks are loading and unloading goods.					
MM GHG-1e: Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045.	Submittal of documentation	Prior to the issuance of any building permit for the proposed project	City of American Canyon		
3.8 Hydrology and Water Quality					
MM HYD-1a: Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California	Notes on construction plans; Site inspection; Submittal of documentation	Prior to issuance of grading permits for the proposed project	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.					
MM HYD-1b: Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design concepts, as well as concepts that accomplish a "first flush" objective that remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.	Site inspection; Submittal of documentation	Prior to the issuance of building permits	City of American Canyon		
3.9 Land Use					
MM LU-3: Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management	Submittal of documentation	Prior to issuance of grading permits	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.					
3.10 Noise					
MM NOI-1: Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts: • The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment. • The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited. • The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. • At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences. • The construction contractor shall ensure that the construction staging areas shall be located to create the	Notes on construction plans; Site inspection	During construction	City of American Canyon		

Mitigation Measures	Method of Verification	Timing of Verification	Responsible for Verification	Verification of Completion	
				Date	Initial
greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site. The construction contractor shall ensure that all on-site construction activities, including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.					

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ATTACHMENT 1.P

CEQA Findings of Fact and Statement of Overriding Considerations Giovannoni Logistics Center Project City of American Canyon, Napa County, California

State Clearinghouse Number 2021010104

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CEQA FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS

1.1 - Introduction

The State Guidelines (Guidelines) promulgated pursuant to the California Environmental Quality Act (CEQA) provide:

> No public agency shall approve or carry out a project for which an EIR has been completed which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
>
> (a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR (hereinafter referred to as "finding (1)");
>
> (b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency (hereinafter referred to as "finding (2)"); or
>
> (c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Final EIR (hereinafter referred to as "finding (3)").

The required findings shall be supported by substantial evidence in the record. (Guidelines § 15091).

The Final EIR incorporates the Draft EIR. References herein to the "EIR" are to the collective documentation contained in the Draft EIR and Final EIR. All acronyms used within this document shall have the same meaning as defined in the Draft EIR.

1.2 - Statement of Findings

An Environmental Impact Report (EIR) pursuant to CEQA has been prepared by the City of American Canyon (Lead Agency). The EIR for the Giovannoni Logistics Center Project (proposed project) identifies significant effects on the environment, which may occur as a result of the proposed project.

Section 1.5. sets forth potential environmental effects of the proposed project for which it can be seen with certainty there is no potential for significant adverse environmental impacts.

Section 1.6 sets forth potential environmental effects of the proposed project which are not significant because of the proposed project's design or feasible mitigation to below a level of significance.

Section 1.7 discloses environmental impacts that remain significant and unavoidable even with incorporation of feasible mitigation.

Section 1.8 summarizes alternatives discussed in the Draft EIR and makes findings with respect to the feasibility of alternatives and whether the alternatives would lessen the significant environmental effects of the proposed project.

The following sets forth all significant effects of the proposed project and with respect to each effect, makes one or more findings set forth in Section 1.1, Introduction, and provides facts in support of such findings.

The EIR provides additional facts in support of the findings herein. The mitigation measures set forth in the Mitigation Monitoring and Reporting Program (MMRP) (Attachment A) are incorporated by reference in these findings, and the findings in Sections 1.6 and 1.7 refer to individual mitigation measures as appropriate. In the event of any inconsistencies between the mitigation measures set forth herein and the MMRP, the MMRP shall control.

1.3 - Project Summary

1.3.1 - Project Description

The applicant, Buzz Oates LLC, proposes to develop a 2.4-million-square-foot logistics center on approximately 163 acres of an approximately 208-acre project site. The remaining 44.8 acres would be preserved as open space/Wetland Preserve.

The applicant has developed design-level site plans for Phase 1 of the proposed project, which includes a 94.7-acre area east of Devlin Road. This area will support two high-cube warehouse buildings. One building would be rail-served by the adjacent Napa Branch Line. Each building would provide docks, grade level roll-up doors, and trailer parking stalls. The facility would be enclosed with a secure perimeter and access would be restricted to authorized users.

Phase 2 of the proposed project would occur on a 113.1-acre area west of Devlin Road. This area is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse. Phase 2 would commence once Phase 1 is completed. Accordingly, the EIR evaluates Phase 1 at a project level and Phase 2 at a program level of analysis.

Table 1: Giovannoni Logistics Center Project Summary

Phase	Acres	Building/Square Feet	End Use/Characteristics
1 (Project Level)	94.7	A/627,976	High-Cube Warehouse/36 feet clear height
		B/469,512	High-Cube Warehouse/36 feet clear height
		Subtotal: 1,097,488	—

Phase	Acres	Building/Square Feet	End Use/Characteristics
2 (Program Level)	113.1	1.3 million	High-Cube Warehouse
Total	**208**	**2.4 million**	—

Notes:
Total values are rounded
Source: RMW Architecture Interiors 2020.

Devlin Road Extension

As a separate City project, Devlin Road was extended approximately 3,000 linear feet from Green Island Road to Middleton Way (Napa Logistics Park), closing a gap in the City's roadway network. The extension was contemplated by the City of American Canyon General Plan Circulation Element. The extended roadway provides one lane in each direction. Driveway access to the proposed project would be taken from Devlin Road and Green Island Road.

The Napa Valley Vine Trail follows the Devlin Road extension.

Green Island Road Improvements

As a separate City project, Green Island Road would be improved. The roadway would be widened, and half width improvements would be installed along the project frontage. The new Green Island Road / Devlin Road intersection would provide turn lanes.

Open Space Preservation

The applicant would permanently preserve approximately 44.8 acres of the project site as open space. This area coincides with the northern portion of the project site where No Name Creek meanders. This would create a contiguous open space area with the adjoining 37-acre Napa Logistics Park Wetland Preserve.

Storm Drainage

The proposed project would provide 110,766 square feet (2.6 acres) of storm drainage retention on-site including bioswales and basins.

Utilities

Water

The City of American Canyon would provide potable water and recycled water service to the proposed project. Potable and recycled water infrastructure was installed within Devlin Road. Service laterals would extend from the Devlin Road water lines to project buildings.

Wastewater

The City of American Canyon would provide wastewater collection and treatment service to the proposed project. Sewer infrastructure was installed within Devlin Road. Service laterals would extend from the Devlin Road sewer line to project buildings.

Electricity and Natural Gas

Marin Clean Energy would procure, and Pacific Gas and Electric Company (PG&E) would deliver electricity to the proposed project. PG&E would procure and deliver natural gas to the proposed project. Electric and natural gas infrastructure was installed within Devlin Road. Service laterals would extend from the Devlin Road facilities to project buildings. However, the project will not utilize natural gas as a design feature.

1.3.2 - Project Objectives

The underlying purpose of the proposed project is to develop industrially-zoned, undeveloped land within the American Canyon city limits to its highest and best use.

The objectives of the proposed project are to:

1. Promote economic growth in American Canyon by attracting new industries.
2. Promote development that generates net positive tax revenues for the City by generating more in new tax revenues than are consumed by City expenditures on services provided to the development.
3. Create new employment opportunities for residents of Napa County and the surrounding region.
4. Develop compatible land uses near the Napa County Airport in the interests of avoiding interference with aviation operations.
5. Improve American Canyon's jobs-housing ratio by adding new employment opportunities.
6. Continue the orderly development of the Devlin Road corridor with a well-designed project.
7. Further the goals and policies of the City of American Canyon General Plan by developing land contemplated to support urban development to its highest and best use.
8. Preserve the most biologically sensitive portions of the project site as open space.
9. Install circulation improvements along Green Island Road and Devlin Road that provide efficient ingress and egress to the proposed project while also ensuring these facilities operate at acceptable levels.
10. Promote public safety by incorporating security measures into the project design.
11. Mitigate impacts on the environment through implementation of feasible mitigation measures.

1.3.3 - Required Approvals

Discretionary approvals and permits are required by the City of American Canyon for implementation of the proposed project. The project application would require the following discretionary approvals and actions, including:

- Use Permit

- Tentative Parcel Map
- Design Permits
- Lot Line Adjustment

Subsequent ministerial actions would be required to implement the proposed project, including issuance of grading and building permits.

1.4 - Background

The City of American Canyon released a Notice of Preparation (NOP) for public review from January 12, 2021, to February 10, 2021 (30-day review period). The NOP and copies of comments received are included as Appendix A to the Draft EIR.

The Draft EIR was initially circulated for a 45-day public review period between Friday, May 20, 2022, and 4:00 p.m. Tuesday, July 5, 2022. Subsequently, the City provided an updated Appendix A (NOP comment letters) and an updated Appendix C (additional supporting biological resource studies), and extended the public comment period by 15 days to July 20, 2022, to allow public agencies and interested parties a total of 62 days to review and submit comments on the Draft EIR. During the public review period, the Draft EIR, including the technical appendices, was available for review at the City of American Canyon offices and the American Canyon Library. In addition, the Draft EIR was posted on the City of American Canyon website at https://bit.ly/3MxXX2k during the public review period.

On February 2, 2021, a scoping meeting was held virtually through Zoom. The meeting was held at 3:00 p.m. during which individuals and organizations/agency representatives were invited to provide oral comments on the Giovannoni Logistics Center Project.

The City of American Canyon prepared a Final EIR, consisting of the comments received on significant environmental issues during the extended 62-day public review and comment period on the Draft EIR, written responses to those comments, and an errata making minor, non-substantive changes to the Draft EIR. For purposes of these Findings, the "EIR" shall consist of the Draft EIR, all appendices attached to the Draft EIR, and the Final EIR (consisting of the Introduction, Errata, and Responses to Comments).

Subsequently, public meetings were held by the Planning Commission on November 17, 2022 and by the City Council on December 6, 2022, at the American Canyon City Hall located at 4381 Broadway, Suite 201, American Canyon, CA 94503. Both meetings were held virtually and in-person, and individuals and organizations/agency representatives were invited to provide oral comments on the Final EIR.

The City of American Canyon subsequently considered all oral and written comments regarding environmental issues in the Final EIR and determined, based on all of the evidence presented, including but not limited to the EIR, written and oral testimony given at public meetings and hearings in connection therewith, and the submission of comments from the public, organizations and regulatory agencies, as well as all other relevant information in the administrative record, the

following environmental impacts associated with the proposed project are: (1) less than significant and do not require mitigation; or (2) potentially significant but will be avoided or reduced to a level of insignificance through the identified mitigation measures; or (3) significant and cannot be fully mitigated to a level of less than significant but will be substantially lessened to the extent feasible by the identified mitigation measures.

The City of American Canyon concludes that implementation of the proposed project could result in potentially significant and significant adverse environmental impacts. Accordingly, as discussed above, the City of American Canyon is required to make certain findings with respect to these impacts pursuant to CEQA Guidelines Section 15091. Accordingly, the City of American Canyon hereby makes these required findings, as set forth in this document ("Findings"). These Findings summarize the environmental determinations about the project's significant impacts before and after mitigation, and summarize the project's individual and cumulative impacts. These Findings do not attempt to describe the full analysis of each environmental impact. Instead, they provide a summary description of each significant impact and the applicable mitigation measures identified in the EIR and adopted by the City of American Canyon, and state the conclusions regarding the significance of each impact after incorporation of the identified mitigation measures. A comprehensive explanation of these environmental impact conclusions can be found in the EIR, as supplemented and explained in staff reports and materials presented by the project applicant, City of American Canyon staff and various project consultants, and other relevant materials in the administrative record.

The EIR contains substantial evidence to support all conclusions presented in these Findings.

As reflected in public comments, there is disagreement among various parties regarding particular conclusions in the EIR. Relevant case law interpreting the CEQA statute and Guidelines provides the standards for treating disagreement among experts in the context of an EIR, as follows: Where evidence and opinions conflict on an issue concerning the environment, and the Lead Agency knows of these controversies in advance, the EIR and/or related findings must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information on the controversy. In making a decision on a project where there is disagreement among experts, the Lead Agency is not obligated to select the viewpoint that purports to be the most environmentally sensitive. Instead, decision-makers are vested with the discretion to weigh expert opinion and choose which they intend to rely on and are not required to resolve a dispute among experts. In their proceedings, decision-makers must consider comments received concerning the adequacy of the EIR and address any objections raised in these comments. However, decision-makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on an EIR, and can certify an EIR without needing to resolve disagreements among experts.

In making its decision to certify the EIR and approve the proposed project, the City of American Canyon recognizes that a range of technical and scientific opinion exists with respect to certain environmental issues, particularly with respect to air quality impacts. As noted in the record of proceedings for the proposed project, the air quality analysis is based, in part, on technical inputs into the CalEEMod modeling that reflect the best professional judgment of the air quality specialists

at First Carbon Solutions who prepared the air quality analysis. This analysis was then reviewed by City of American Canyon planners with expertise in CEQA and environmental analysis. CalEEMod allows modelers to alter default assumptions in order to best reflect the circumstances and attributes of the particular projects being analyzed. The Lead Agency has acquired a comprehensive and well-rounded understanding of the range of this technical and scientific opinion by its review of the EIR; as well as by its review of the information provided by the experts who prepared the EIR; the Lead Agency's other consultants and its staff; along with testimony, letters, reports, and other relevant materials in the administrative record, as well as its own experience and expertise in these matters. The materials reviewed by the Lead Agency include conflicting expert opinions and conflicting statements of facts, as well as other comments on the environmental issues set forth in the EIR. This comprehensive review has enabled the Lead Agency to make its decisions after weighing and considering the various viewpoints on these important issues, and the Lead Agency has made determinations of significant effects based on substantial evidence, not public controversy or speculation. Accordingly, the Lead Agency hereby certifies that its Findings and determinations are based on all of the evidence contained in the EIR, as well as the evidence and other information in the record addressing the environmental impacts of the proposed project, and hereby elects to rely on the analysis and evidence set forth in the EIR.

The EIR is incorporated into these Findings in its entirety. Without limitation, this incorporation is intended to elaborate on the scope and nature of mitigation measures, the basis for determining the significance of impacts, the comparative analysis of alternatives, and the reasons for approving the proposed project in spite of the potential for associated significant and unavoidable adverse impacts.

1.5 - Potential Environmental Effects Which are Not Significant or Less Than Significant

The City of American Canyon has heard, been presented with, reviewed, and considered all of the information and data in the administrative record, including the Draft and Final EIR, and all oral and written evidence presented to it during all meetings and hearings. The EIR reflects the independent judgment of the City of American Canyon and is deemed adequate for purposes of making decisions on the merits of the proposed project.

Consistent with Public Resources Code Section 21002.1 and Section 15128 of the CEQA Guidelines, the EIR focused its analysis on potentially significant impacts, and limited discussion of other impacts for which it can be seen with certainty there is no potential for significant adverse environmental impacts. CEQA Guidelines Section 15091 does not require specific findings to address environmental effects that an EIR identifies as “no impact” or a “less than significant” impact and for which no mitigation is necessary. Based on its independent judgment and the entire administrative record before it, the City of American Canyon has determined that the following potential environmental effects will not be significant and no mitigation is necessary for the reasons stated below.

1.5.1 - Aesthetics, Light, and Glare

Potential Effect

Impact AES-1: The proposed project would not have a substantial adverse effect on a scenic vista (**Draft EIR Page 3.1-4–5**).

Findings: Less than significant impact (Draft EIR, Page 3.1-5). No mitigation is necessary.

Facts in Support of Findings

Neither the City of American Canyon nor the Napa County General Plan identifies the project site as a scenic vista or scenic resource. Additionally, the project site does not contain any scenic vistas or features associated with scenic vistas (e.g., ridgelines, peaks, overlooks), and none are visible from the project site.

The project site is located in a portion of the City of American Canyon that is generally not visible from park and recreational areas, community gathering facilities, or residential areas. There are no prominent long-distance views of the project site, and, as such, the proposed project would not have the potential to obstruct views from high vantage points or sensitive viewpoints of the City.

Potential Effect

Impact AES-2: The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings (**Draft EIR Page 3.1-5–6**).

Findings: Less than significant impact (Draft EIR, Page 3.1-6). No mitigation is necessary.

Facts in Support of Findings

Phase 1

The Phase 1 warehouses would be similar in appearance to the structures in the neighboring Napa Logistics Park and the Green Island Business Park. Additionally, an approximately 44.8-acre open space area containing No Name Creek and wetlands would be permanently preserved within the northern portion of the site. These are the most significant aesthetic features on the project site.

Phase 2

Though no design-level plans have been prepared at the time of this writing, it is expected that the Phase 2 buildings would be similar in appearance to the Phase 1 buildings.

The development of the proposed project would change the visual character of the project site; however, it would be compatible with surrounding uses and consistent with the City of American Canyon General Plan land use designation of “Industrial” for the project site. Therefore, the proposed project would not substantially degrade the visual quality of the project area or its surroundings.

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable projects in the applicable geographic area, would not have a cumulatively significant impact related to light and glare. (**Draft EIR, Page 4-3–4**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-4). No mitigation is necessary.

Facts in Support of Findings

The geographic scope of the cumulative aesthetics, light, and glare analysis is the 0.25-mile radius surrounding the project site. This is the area within view of the project site and, therefore, the area most likely to experience cumulative changes in visual character or experience cumulative light and glare impacts.

Several of the projects listed in Table 4-1 of the Draft EIR are immediately adjacent to or within 0.25mile of the project site.

The project site and the surrounding area have long been planned to accommodate large industrial and warehouse uses and are isolated and separate from the residential areas of the City. The existing surrounding uses are large industrial uses. Although the development of the proposed project would fundamentally change the visual character of the project site, it would be compatible with surrounding industrial uses and would be consistent with the City of American Canyon General Plan land use designation for the project site. Because the proposed project would preserve approximately 44.8 acres of the project site that contain No Name Creek and associated wetlands, this area would continue to provide a visual buffer between the industrial uses and the undeveloped marsh area near the Napa River. The project site would feature attractive landscaping consisting of trees, shrubs, and groundcover. Design Permits would be required from the City to approve the specific building and site design on each lot, including building height. Furthermore, due to its location, the proposed project would not degrade any views of a scenic vista such as the Napa River or Sulphur Springs Hills. Other past projects, present projects under construction, and reasonably foreseeable projects in the surrounding area would be subject to similar landscaping and design requirements.

The past, present, and reasonably foreseeable developments near the project site have contributed to—and would continue to contribute to—ambient light and glare in the project vicinity. The proposed project would install new sources of light and glare on the project site from exterior building lighting, security lighting, and lights and glare associated with vehicles accessing the project site. Mitigation Measure (MM) AES-3 requires new exterior lighting fixtures to employ full cut-off fixtures to direct light downward and eliminate spillage. Other past, present, and reasonably foreseeable future developments in the project vicinity that involve the installation of new exterior lighting fixtures have been and would be required to implement similar standard measures to prevent light spillage.

1.5.2 - Air Quality

Potential Effect

Impact AIR-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations. (**Draft EIR Page 3.2-59–63**).

Findings: Less than significant impact (Draft EIR, Page 3.2-63). No mitigation is necessary.

Facts in Support of Findings

The proposed project could expose sensitive receptors to elevated pollutant concentrations if it causes or contributes significantly to elevated pollutant concentration levels. The closest sensitive receptors include a single-family residence located approximately 200 feet south of the project site, as well as Calvary Baptist Christian Academy (Draft EIR Page 3.2-15 –16). Localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects. A construction and operational Health Risk Assessment (HRA) was prepared for the proposed project (Draft EIR, Appendix B).

Construction and Operation

Construction and Operational Related Diesel Particulate Matter

The proposed project could accommodate the construction and operation of 2.4 million square feet of cold storage space and the subsequent operation of TRUs in addition to truck and passenger vehicle activities. Therefore, the HRA analyzes the cold storage project scenario as a conservative assessment.

The proposed project would develop Phase 1, which would become operational immediately following the completion of construction activities. As Phase 1 would become operational, Phase 2 of the proposed project would begin construction, resulting in an overlap of construction and operational emissions. The HRA analyzes the proposed project's Phase 1 construction diesel particulate matter (DPM) emissions for the first year, Phase 1 operational and Phase 2 construction DPM emissions for the second year, and Phase 1 and 2 operational DPM emissions for the remainder of the 30-year exposure duration, consistent with the Bay Area Air Quality Management District's (BAAQMD) Health Risk Assessment Guidelines. The HRA also analyzes the proposed project's Phase 1 construction DPM emissions for the first year; Phase 1 operational and Phase 2 construction DPM emissions for the second year; Phase 1 and 2 operational DPM emissions of school receptor exposure at the Calvary Baptist Christian Academy; and the proposed project's operational DPM emission concentrations for the remainder of the 13-year exposure duration for a K-12 school, consistent with the BAAQMD's Health Risk Assessment Guidelines. As shown in Table 3.2-14 of the Draft EIR, the proposed project would not result in significant health impacts to the maximally impacted residential or school receptors under the cold storage scenario.

Community Health Risk Assessment

A community HRA was conducted in accordance with BAAQMD recommendations. The cumulative health risk values were determined by adding the health risk values from refined modeling of the proposed project to the screening-level health risk values from each individual stationary and mobile

source within a 1,000-foot radius of the site. The HRA concluded that the main source of a cumulative community health risk within 1,000 feet of the project site are the existing sources. Health risks to nearby sensitive receptors would not exceed the BAAQMD community health risk significance thresholds. As the proposed project did not result in an exceedance of project-level BAAQMD significance thresholds, the proposed project would not result in a potentially significant impact and the proposed project's impacts would not be cumulatively considerable.

Carbon Monoxide Hotspot

The proposed project would not generate sufficient vehicle traffic during project operation to substantiate creating a CO hotspot.

Cumulative

Additionally, the proposed project's health risk impacts and $PM_{2.5}$ concentration at sensitive receptors are below BAAQMD cumulative impact thresholds and the proposed project would not result in a cumulatively considerable contribution to any potentially significant cumulative impact.

Potential Effect

Impact AIR-4: The proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people. (**Draft EIR Pages 3.2-63—64**)

Findings: Less than significant impact. (Draft EIR Page 3.2-64). No mitigation is necessary.

Facts in Support of Findings

Construction

During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily and intermittently generate odors. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. It is anticipated that by the time such emissions reach any sensitive receptor sites, they would be diluted to well below any air quality or odor concern level.

Operation

The types of uses that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. Specific uses of the proposed project's buildings have not been determined; however, it is not anticipated that a Wastewater Treatment Plant (WWTP) or solid waste transfer station would be accommodated. Food manufacturing plants and chemical manufacturing have odor screening distances of one mile and two miles, respectively, from the facility to sensitive receptors (Draft EIR, Table 3.2-8). Sensitive receptors surrounding the project site within these screening distances are generally to the south and consist of school and residential land uses. The future tenants propose the land use for distribution and/or sortation facilities, thus implementation of the proposed project would not create or expose a substantial number of people to objectionable odors.

The proposed project would not result in any localized construction fugitive dust impacts or any CO hotspots or project-level health risk impacts to sensitive receptors or create objectionable odors affecting a substantial number of people. Therefore, the proposed project would not contribute to any potential significant cumulative significant impact related to localized criteria pollutant impacts from fugitive dust, CO, or objectionable odors.

1.5.3 - Biological

Potential Effect

Impact BIO-5: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (**Draft EIR Pages 3.3-39–40**).

Findings: Less than significant impact (Draft EIR Page 3.2-40). No mitigation is necessary.

Facts in Support of Findings

Phases 1 and 2

No trees are present on the project site and, therefore, no tree removal would occur. The proposed project would not conflict with any local policies related to protection of natural resources.

All work for the proposed project would take place consistent with biological requirements of the General Plan and Zoning Ordinance of the City of American Canyon. Studies of sensitive biological resources have been either conducted by Huffman Broadway Group (HBG) as part of the Biological Resources Report or were conducted by other consultants and independently reviewed and incorporated into the Biological Resources Report, consistent with General Plan Policy 8.2.1. The proposed project results in impacts to palustrine emergent wetlands and vernal pool wetlands and the applicant has prepared a conceptual plan to mitigate for these wetlands consistent with General Plan Policy 8.3.1.a, which requires the development plan to consider the nature of existing biological resources and all reasonable measures to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones; General Plan Policy 8.3.1.h, which requires in summary developments shall mitigate unavoidable adverse impacts to waters of the United States, wetlands, and riparian habitats by replacement on an in-kind basis and such replacement should occur on the original development site, whenever possible, and; General Plan Policy 8.4.3, which encourages activities that improve the biological value and integrity of the City's natural resources through vegetation restoration, control of alien plants and animals, and landscape buffering. The wetland mitigation would be accomplished through establishment of an approximately 45-acre Wetland Preserve within the project site to include preserving 7.58 acres of existing seasonal wetlands and 0.13 acres of vernal pools and establishment/creation of an additional approximately 3.56 acres of seasonal wetlands and 1.13 acres of vernal pools to compensate in-kind for permanent impacts to seasonal wetlands from the proposed project.

1.5.4 - Cultural and Tribal Cultural Resources

Potential Effect

Impact CUL-1: The proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to Guidelines §15064.5 (**Draft EIR Page 3.4-20—21**).

Findings: No impact (Draft EIR Page 3.4-21). No mitigation is necessary.

Facts in Support of Findings

Historic resources in this context refer to the built environment, mainly buildings and structures over 45 years in age that may be eligible for inclusion on the CRHR or NRHP. Records search results, conducted at the NWIC, identified one historic resource (P-28-001439) located within the project site and three historic resources (P-28-000384, P-28-002466 and NAP-HRI-001) located within the 0.5-mile records search radius. Historic resource P-28-001439 was evaluated relative to the four CRHR eligibility criteria and found to be ineligible to meet any of the criteria for historic and/or architectural significance required for listing on the NRHP, CRHR, or at the local level. No additional historic resources were encountered during the pedestrian field survey and evaluation.

1.5.5 - Greenhouse Gas Emissions

Potential Effect

Impact GHG-2: The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases (**Draft EIR Pages 3.6-62—69**).

Findings: Less than significant impact (Draft EIR Page 3.6-68). No mitigation is necessary.

Facts in Support of Findings

The following discusses project consistency with applicable plans adopted to reduce greenhouse gas (GHG) emissions, including the California Air Resources Board (ARB) 2017 Scoping Plan, MTC/Association of Bay Area Governments (ABAG) Plan Bay Area 2040, and the City of American Canyon Energy Efficiency Climate Action Plan (EECAP).

California Air Resources Board Scoping Plan

The principal State plan and policy for GHG emission reduction targets are set forth in Executive Order S-03-05, AB 32, and the subsequent SB 32. The quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. AB 32 required the ARB to develop a Scoping Plan that describes California's approach to reduce GHGs to achieve the 2020 emission target. SB 32 then accelerated the GHG emission reduction goals of AB 32. The 2017 Scoping Plan Update, the most recent update to the ARB Scoping Plan, reflects the 2030 target of a 40 percent reduction below 1990 levels as set by Executive Order B-30-15 and codified by SB 32. It applies to State agencies but is not directly applicable to cities, counties, or individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the State agencies outlined in the Scoping Plan result in GHG emissions reductions at the

local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other Statewide actions that affect a local jurisdiction's emissions inventory from the top down.

Transportation Sector

Trucks

The following State strategies reduce GHG emissions from medium and heavy-duty trucks:

- ARB's Mobile Source Strategy focuses on reducing GHGs by transitioning to zero and low emission vehicles and from medium-duty and heavy-duty trucks.
- ARB's Sustainable Freight Action Plan establishes a goal to improve freight efficiency by 25 percent by 2030, deploy over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize both zero and near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.
- ARB's Truck and Bus Regulation requires diesel-fueled trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.
- ARB's Emissions Reduction Plan for Ports and Goods Movement (Goods Movement Plan) in California focuses on reducing heavy-duty truck-related emissions and the establishment of emissions standards for trucks, fleet turnover, truck retrofits, and restriction on truck idling. While the focus of the Goods Movement Plan is to reduce criteria air pollutant and air toxic emissions, the strategies to reduce these pollutants would also generally have a beneficial effect in reducing GHG emissions.

The proposed project would be subject to the above trucking and freight regulations which would contribute to controlling heavy-duty truck GHG emissions associated with the proposed project. The proposed project would not conflict with or inhibit these Statewide strategies. Any on-site trucks would be required to comply with ARB's Heavy-Duty (Tractor-Trailer) GHG Regulation, which requires SmartWay tractor trailers that include idle-reduction technologies, aerodynamic technologies, and low-rolling resistant tires that would reduce fuel consumption and associated GHG emissions. Furthermore, truck manufacturers would be required to comply with the ARB Advanced Clean Trucks (ACT) Rule, which requires manufacturers of medium- and heavy-duty trucks and vans to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. Under the ACT Rule, by 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b to Class 3 truck sales, 75 percent of Class 4 to Class 8 straight truck sales, and 40 percent of truck tractor sales. As the proposed project would not include any feature or design which would prohibit the implementation of these vehicle emission standards, the proposed project would be consistent with these requirements.

Passenger Vehicles

Statewide strategies to reduce GHG emissions from passenger vehicles and the transportation sector in general include the Low Carbon Fuel Standard (LCFS) and changes in the Corporate Average Fuel Economy Standards (e.g., Pavley I and Pavley California Advanced Clean Cars program). Furthermore, Executive Order N-79-20 would also require that 100 percent of new passenger cars and trucks sold in California be zero-emission by 2035, which would indirectly contribute to the extent of electric vehicle (EV) utilization in the proposed project's passenger vehicle fleet beyond 2035. The proposed project would not include any feature or design which would prohibit the implementation of these vehicle emission standards and thus would be consistent with these requirements.

Energy Sector

Energy use generated by the proposed project represents the second largest source of emissions after considering mobile source GHG emissions (Draft EIR, Table 3.6-4). As required by MM GHG-1c, the proposed project would meet the Tier 2 energy efficiency requirements of the current CALGreen and Building Energy Efficiency Standards. Moreover, the proposed project would be sourcing electricity from on-site generation sources and/or utility providers in the State. As required by MM GHG-1e, any electricity consumed by the proposed project would be from carbon-free sources, such as an on-site photovoltaic system. If the proposed project secures electricity purchases from a utility provider, the proposed project would be required by MM GHG-1e to purchase 100 percent carbon-free electricity through the year 2045, at which time utility providers would be required to supply 100 percent carbon-free electricity for all in-state sales, as required by SB 100. As such, the proposed project would meet the requirements contained in the 2019 California Building Code and would be consistent with the State's current CALGreen and Building Energy Efficiency Standards and the State's renewable energy legislation, SB 100.

Other Sources

Other sources of GHG emissions include solid waste disposal, which is associated with landfilling municipal solid waste. The amount of methane emitted to the atmosphere as a fraction of the total amount of methane generated from landfills has declined as more landfills implement mitigation measures and existing systems are operated more efficiently as a result of ARB's Landfill Methane Control Measure. Therefore, the proposed project would be consistent with the State's goals for the recycling and waste sector.

Metropolitan Transportation Commission Plan Bay Area

As part of the implementing framework for Plan Bay Area 2050, local governments have identified planned development areas to focus growth. The project site is within the Napa County Airport Land Use Compatibility Plan area and is in an area with existing infrastructure. Thus, the proposed project would be consistent with the overall goals and the land use concept plan of Plan Bay Area 2050.

The closest public transit option would be the Vine bus system, operated by the Napa Valley Transportation Authority. The closest Vine stop is the American Canyon City Hall bus stop on Napa-Vallejo Connector Route 11. The stop is 1.5 miles from the project site. As such, it is not likely that many employees would travel to the project site using public transit.

City of American Canyon Energy Efficient Climate Action Plan

The EECAP identifies reduction measures and implementation responsibilities that the City used to achieve the State-recommended GHG emissions reduction target of 15 percent below 2005 emission levels by the year 2020 to fulfill the requirements of AB 32 and SB 375. The City would impose the requirements of these measures as applicable through local regulations and ordinances. As shown in Table 3.6-6 of the Draft EIR, the proposed project incorporates features that would contribute to the City's strategy to minimize GHG emissions. With these features, the proposed project would not conflict with the applicable measures and implementing actions identified by the City of American Canyon EECAP.

SB 32 2017 Scoping Plan Update

None of the 2017 Scoping Plan Update measures are applicable to the proposed project (Draft EIR, Table 3.6-6). Thus, the proposed project's implementation would not conflict with the reduction measures proposed in SB 32.

Potential Effect

Impact GHG-4: The proposed project would not conflict with State or local renewable efficiency objectives (**Draft EIR Pages 3.6-73—74**).

Findings: Less than significant impact (Draft EIR Page 3.6-74). No mitigation is necessary.

Facts in Support of Findings

The proposed project would comply with existing State energy standards and be consistent with the energy efficiency goals and measures contained in the City's General Plan Natural and Historic and Cultural Resources Element and EECAP.

The proposed project would be designed in accordance with Title 24, California's Energy Efficiency Standards for Nonresidential Buildings techniques and practices, ensuring that the proposed project would not result in the use of energy in a wasteful manner. Furthermore, the proposed project would be designed to accommodate rooftop photovoltaic electricity generation panel arrays for solar electricity generation and MM GHG-1e would require the proposed project to source its electricity from 100 percent carbon-free sources.

The City's General Plan Natural and Historic and Cultural Resources Element contains policies related to energy conservation that are relevant to the proposed project, such as Goal 8F to reduce consumption of nonrenewable energy sources and support the development and utilization of new energy sources. Compliance with Title 24 standards would help the project meet this goal, and implementation of MMs GHG-1a through GHG-1e would further serve to reduce project reliance on nonrenewable energy resources. Moreover, the proposed project would be consistent with the energy efficiency measures contained in the EECAP (Draft EIR, Table 3.6-5).

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable planned and approved projects in the vicinity, would not have a cumulatively significant impact related to geology, soils, and seismicity. (**Draft EIR, Page 4-8–9**).

Findings: Less than significant impact (Draft EIR, Page 4-9). No cumulative mitigation is required.

Facts in Support of Findings

The geographic scope of the cumulative geology, soils, and seismicity analysis is the project vicinity. Adverse effects associated with geologic, soil, and seismic hazards tend to be site specific, because each project site has its own geologic and soils conditions, and each project has its own design characteristics, localized within the area near the project site most affected by project activities (generally within a 0.5-mile radius).

Past, present, and future development projects in the project vicinity have the potential to exacerbate exposure to seismic hazards. The West Napa Fault bisects the project site and, thus, the project site may be susceptible to fault rupture during a seismic event. The project's incremental contribution to cumulative impacts is less than significant and does not require additional mitigation. MM GEO-1a requires the project applicant to retain a qualified geotechnical consultant to prepare a fault investigation study and ensure project plans comply with all required setback requirements. Additionally, the project site may be subject to strong ground shaking during an earthquake; thus, MM GEO-1b requires the project applicant to retain a qualified geotechnical consultant to prepare a design-level geotechnical study and implement all California Building Standards Code applicable requirements into project plans. Other nearby past, present, and reasonably foreseeable development projects have and may exacerbate exposure to similar potential seismic hazards and would be required to comply with the relevant State and local laws designed to mitigate seismic hazards and mitigation measures imposed under CEQA.

Development activities could lead to increased erosion rates of on-site soils, which could cause unstable ground surfaces and increased sedimentation in nearby streams and drainage channels. MM HYD-1a requires implementation of standard stormwater pollution prevention measures to ensure earthwork activities do not result in substantial erosion off-site. This mitigation requires compliance with the National Pollution Discharge Elimination System (NPDES) stormwater permitting program, which requires the preparation and implementation of Stormwater Pollution Prevention Programs for construction activities that disturb more than 1 acre and the implementation of Best Management Practices (BMPs) that ensure the reduction of pollutants during stormwater discharges, as well as compliance with all applicable water quality requirements. The proposed project would be required to comply with these regulations, as have and would other nearby past, present, and reasonably foreseeable development projects.

The project site contains native soils that have shrink-swell characteristics, which may exacerbate exposure of project structures to expansive soil hazards. MM GEO-1b requires the project applicant to retain a qualified geotechnical consultant to prepare a design-level geotechnical study and

incorporate all California Building Standards Code applicable requirements into project plans. Other nearby past, present, and reasonably foreseeable development projects could be exposed to expansive soil hazards and, therefore, have been and would be required to implement similar mitigation measures based on State and local regulations and CEQA requirements.

Paleontological resources impacts tend to be localized, because the integrity of any given resource depends on what occurs in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the project site itself, the area near the project site would be the area most affected by project activities (generally within a 0.5-mile radius). Given that the proposed project would not have a known, direct impact on any known paleontological resources, cumulative project impacts are less than significant. Construction activities associated with cumulative development projects in the project vicinity may have the potential to encounter undiscovered paleontological resources. These cumulative projects listed in Table 4-1 of the Draft EIR would be required to mitigate for impacts through compliance with applicable federal and State laws governing paleontological resources.

1.5.6 - Hazards and Hazardous Materials

Potential Effect

Impact HAZ-1: Buildout of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and would not create a significant hazard to the public or the environment through the foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment (**Draft EIR Pages 3.7-11—12**).

Findings: Less than significant impact (Draft EIR Page 3.7-12). No mitigation is necessary.

Facts in Support of Findings

The construction and operational activities of the proposed project would not create a significant hazard to the public or environment.

Construction

Potential hazardous materials transported, used, or disposed of during project construction would be limited to commonly used substances such as gasoline, diesel, oil, grease, mechanical fluids, paints, and cleaning solvents. Construction equipment would be serviced by trained technicians and potentially hazardous materials would be stored in secured facilities. Furthermore, the safe handling of these commonly used substances is governed by occupational health and safety laws and regulations and construction contract requirements. Therefore, the use of this equipment and these substances during construction would not present any undue risks to the public or the environment.

Operation

No large quantity hazardous materials users are contemplated as end users of the proposed project. Project end users would be expected to handle small quantities of commonly used hazardous substances, such as cleaning solvents and fuels, as part of daily operations. Given the small

quantities involved and the characteristics of use (e.g., routine maintenance and cleaning), their use would not be considered a potential risk to human health or the environment. The use of acutely hazardous materials of any quantity that have the potential to result in releases that could potentially expose substantial numbers of people or the environment to harm is not anticipated by project end uses.

Potential Effect

Impact HAZ-2: The proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment (**Draft EIR Pages 3.7-12—13**).

Findings: Less than significant impact (Draft EIR Page 3.7-13). No mitigation is necessary.

Facts in Support of Findings

The proposed project would not be exposed to hazards or hazardous materials from past uses of the project site.

Cortese List

The project site is not listed on the Cortese List, which includes various hazardous materials databases compiled pursuant to Government Code 65962.5.

Four sites within 0.5 mile of the project site are listed on the Cortese List. All are listed as "Case Closed," signifying that the regulatory agency with jurisdiction has determined that no further action is necessary. Thus, they do not pose a risk to human health or the environment.

Agricultural Chemicals

The project site does not support cultivated agriculture. Aerial photographs and historic topographical maps indicate that the project site has not supported cultivated agricultural production. Thus, there is no basis to assume presence of agricultural chemicals, including herbicides and pesticides.

Hazardous Building Materials

The project site does not contain any structures. Aerial photographs and historic topographical maps indicate that the project site has not supported structures. Thus, there is no basis to assume presence of hazardous building materials including asbestos, lead, or PCBs.

Radon

No indoor radon tests performed by the California Department of Health Services in the project site area code, 94503, have indicated indoor radon levels above pCi/l. Moreover, the proposed project proposes slab-on-grade construction, which has a low susceptibility to radon intrusion.

Electromagnetic Fields

There are no high-voltage electrical facilities within 0.5 mile of the project site. As such, the proposed project site would not be exposed to high levels of low-frequency EMFs.

Potential Effect

Impact HAZ-3: The proposed project would not create aviation safety hazards for persons residing or working within 2 miles of the Napa County Airport. (**Draft EIR Pages 3.7-13—15).**

Findings: Less than significant impact (Errata). No mitigation is necessary.

The 208-acre project site is located 2,400 feet south of the Napa County Airport and is within Zone D of the Napa County Airport Land Use Compatibility Plan. The Napa County Airport Land Use Compatibility Plan states that most nonresidential uses are considered "normally acceptable" within Zone D. Schools, libraries, hospitals, nursing homes, large shopping malls, amphitheaters, and ponds are identified as "not normally acceptable" within Zone D. In addition, uses that are hazardous to flight are prohibited (i.e., features that attract large numbers of birds and are sources of smoke, glare, distracting lights, or electrical interference). The Airport Land Use Compatibility Plan (ALUCP) encourages clustering to maximize open land areas and requires limits on building envelopes and building heights on all development plans within 100 feet of approach zones. The proposed project's end uses are all nonresidential and are acceptable within Zone D. Finally, there are no project attributes that would produce sources of smoke, glare, distracting lights, or electrical interference. Therefore, the proposed project complies with the applicable safety requirements of Zone D. As such, the proposed project would not create aviation safety hazards for persons residing or working within 2 miles of the Napa County Airport. Impacts would be less than significant, and no mitigation is necessary.

Potential Effect

Impact HAZ-4: The proposed project would not impair emergency response or evacuation in the project vicinity (**Draft EIR Pages 3.7-14—15).**

Findings: Less than significant impact (Draft EIR Page 3.7-15). No mitigation is necessary.

Facts in Support of Findings

Phase 1 would have four driveways on Green Island Road and three driveways on Devlin Road providing vehicular access to the project site. Reciprocal access would be provided between the two Phase 1 buildings. Accordingly, the proposed project would provide two points of emergency access in compliance with California Fire Code requirements. Thus, the proposed project would enhance access by emergency responders and would not impair emergency response or evacuation in the project vicinity.

Cumulative Impacts

The proposed project, in conjunction with other past, approved, and reasonably foreseeable future projects, would not have a cumulatively significant impact related to hazards and hazardous materials. (Draft EIR, Page 4-10).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-10). No mitigation is necessary.

Facts in Support of Findings

For most topics the geographic scope of the cumulative hazards and hazardous materials analysis is the project area. Adverse effects of hazards and hazardous materials tend to be localized; therefore, the area near the project area would be most affected by project activities. For the transport of hazardous materials, the geographic scope includes local and regional transportation facilities.

The proposed project would not result in any significant impacts associated with hazardous materials because there is no evidence of contamination from past uses, and any use or storage of hazardous materials during construction or operations would be subject to compliance with regulatory requirements and mitigation measures. As with the proposed project, other past, present, and reasonably foreseeable projects have been and would continue to be required to comply with applicable federal, State, and local regulatory requirements regarding the transport of hazardous materials, clean up of hazardous materials, and the use and storage of hazardous materials during construction and operation. Additionally, hazardous material impacts tend to be localized to individual project sites.

The proposed project would create a wetland preserve in the northern portion of the project site. Mitigation is proposed requiring the implementation of a wildlife management plan to minimize the avian attractant potential of the Wetlands Preserve to avoid creating hazards to aviation. Other past, present, and reasonably foreseeable projects would not create a wildlife attractant hazard for the Napa County Airport, because required compliance with the Napa County ALUCP and Federal Aviation Administration (FAA) regulations would ensure that inappropriate land uses do not locate near the airport. Additionally, stormwater and landscaping features of the proposed project and other land uses would include management plans to avoid or reduce the potential for wildlife hazards.

1.5.7 - Hydrology and Water Quality

Potential Effect

Impact HYD-2: The proposed project would not deplete the groundwater supplies or interfere substantially with groundwater recharge (**Draft EIR Pages 3.8-12 –13**).

Findings: Less than significant impact (Draft EIR Page 3.8-13). No mitigation is necessary.

Facts in Support of Findings

Groundwater Overdraft

The proposed project would not rely on groundwater wells as a water supply source and would not exacerbate groundwater overdraft (to the extent that it exists) or conflict with the provisions of a sustainable groundwater management plan.

Groundwater Recharge

The proposed project would result in an increase in additional pervious surfaces. However, the groundwater recharge potential of the project site is limited due to its relatively low elevation and its

proximity to the Napa River where groundwater levels tend to be high and soils in the lowest portions of the site are often saturated.

Potential Effect

Impact HYD-3: The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems (**Draft EIR Pages 3.8-13—14**).

Findings: Less than significant impact (Draft EIR Page 3.8-14). No mitigation is necessary.

Facts in Support of Findings

The proposed project would increase the amount of impervious surface coverage on the project site and would create the potential for increased runoff leaving the project site that may create potential flooding conditions in downstream waterways. However, the proposed project would install a storm drainage system designed for a 15-year storm event. Inlets would capture surface runoff and convey it to four basins which would provide 110,766 square feet (2.6 acres) of stormwater retention.

Additionally, in accordance with Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit) as required under MM HYD-1b, the proposed project would implement Low Impact Development (LID) stormwater management methods into the on-site storm drainage system consisting of rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment.

These measures would serve to slow, reduce, and meter the volume of runoff leaving the project site and ensure that downstream storm drainage facilities are not inundated with project-related stormwater.

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable planned and approved projects in the vicinity, would not have a cumulatively significant impact related to hydrology and water quality. (**Draft EIR, Page 4-11**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-11). No mitigation is necessary.

Facts in Support of Findings

The geographic scope of the cumulative hydrology and water quality analysis is the No Name Creek watershed, which generally encompasses the area within 0.5 mile of the project site. Hydrologic and water quality impacts tend to be localized to a watershed; therefore, the area within the No Name Creek watershed would be most affected by project activities.

The proposed project would involve short-term construction and long-term operational activities that would have the potential to degrade water quality in downstream water bodies. These activities are subject to regulatory requirements that would ensure no significant adverse impacts would occur. MM HYD-1a and MM HYD-1b would require implementation of various construction and

operational water quality control measures that would prevent the release of pollutants into downstream waterways. These measures include preparation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit and compliance with the Municipal Regional Permit, including implementation of BMPs and LID features.

Other past, present, and reasonably foreseeable projects that propose new development have been and would be required to implement similar mitigation measures in accordance with applicable laws and regulations. The combined implementation of construction and operation water quality control measures by other past, present, and reasonably foreseeable projects would avoid, or reduce to a less than significant level, any related cumulative impacts on downstream waterways including the Napa River.

All other project-related hydrology impacts were found to be less than significant and did not require mitigation (e.g., groundwater and drainage). Other past, present, and reasonably foreseeable projects that result in groundwater and drainage impacts have been and would be required to comply with applicable laws and regulations designed to protect groundwater resources and ensure adequate drainage facilities are provided for all projects and include facilities to prevent and reduce runoff from development sites.

1.5.8 - Land Use

Potential Effect

Impact LU-1: The proposed project would not conflict with the applicable provisions of the City of American Canyon General Plan (**Draft EIR Pages 3.9-6—48**).

Findings: Less than significant impact (Draft EIR Page 3.9-48). No mitigation is necessary.

Facts in Support of Findings

Phase 1

The applicant has developed site design-level plans for Phase 1, the 94.7-acre area east of the Devlin Road extension. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. The Phase 1 end uses would be consistent with the types of permitted uses set forth in the General Plan. Additionally, Phase 1 would have a 0.26 floor area ratio (FAR) and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. The proposed high-cube warehouses would have 36 feet clear height and, thus, be within the 40-foot height limit.

Phase 2

Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse. The Phase 2 end uses would be consistent with the types of permitted uses set forth in the General Plan. Additionally, Phase 2 would have a 0.26 FAR and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses.

Phases 1 and 2

Table 3.9-2 of the Draft EIR evaluates Phase 1 and Phase 2 consistency with the relevant goals, objectives, and policies of the City of American Canyon General Plan. As shown in the table, City staff concludes that the proposed project is consistent with all applicable goals, objectives, and policies.

Potential Effect

Impact LU-2: The proposed project would not conflict with the applicable provisions of the American Canyon Municipal Code (**Draft EIR Pages 3.9-48—49**).

Findings: Less than significant impact (Draft EIR Page 3.9-48). No mitigation is necessary.

Facts in Support of Findings

Phase 1

The applicant has developed site design-level plans for Phase 1, the 94.7-acre area east of the Devlin Road extension. This area will support two high-cube warehouse buildings totaling 1,069,904 square feet. The Phase 1 end uses would be consistent with the types of permitted uses set forth in the Zoning Ordinance for the General Industrial zoning district. Additionally, Phase 1 would have a 0.26 FAR and would be within the Zoning Ordinance's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. The proposed high-cube warehouses would have 36 feet clear height and, thus, be within the 40-foot height limit set by the Zoning Ordinance.

Phase 2

Phase 2, the 113.1-acre area west of Devlin Road, is conceptually proposed for the remaining 1.3 million square feet of high-cube warehouse. The Phase 2 end uses would be consistent with the types of permitted uses set forth in the Zoning Ordinance for the General Industrial zoning district. Additionally, Phase 2 would have a 0.26 FAR and would be within the General Plan's allowable FAR of 0.50 for labor-intensive uses and FAR of 0.70 for low labor uses. Impacts would be less than significant.

Cumulative Impacts

The proposed project, in conjunction with past, present, and reasonably foreseeable development, would not result in a cumulatively significant land use impact. (**Draft EIR, Page 4-11 –12**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-12). No mitigation is necessary.

Facts in Support of Findings

The geographic scope of the cumulative land use analysis is the area within 1 mile of the project site. Existing development in this area is predominantly industrial uses, including the airport. Projects under construction include the Napa Logistics Park Project, which is approved for warehouse and other similar uses. Foreseeable future development in the area includes the Napa Airport Corporate Center and the Devlin Road Transfer Station Construction and Demolition Debris Facility.

The proposed project would be consistent with the American Canyon General Plan, American Canyon Zoning Ordinance, and the Napa County ALUCP because its proposed uses are allowed under these plans. Projects under consideration in the area and reasonably foreseeable future projects would be required to be consistent with the General Plan, the City's Zoning Ordinance, and the ALUCP. Additionally, the proposed project and other nearby development would be and have been required to implement wildlife management plans to ensure compatibility with airport operations.

1.5.9 - Noise

Potential Effect

Impact NOI-2: The proposed project would not result in generation of excessive groundborne vibration or groundborne noise levels (**Draft EIR Pages 3.10-22 –23**).

Findings: Less than significant impact (Draft EIR Page 3.10-23). No mitigation is necessary.

Facts in Support of Findings

In general, if groundborne vibration levels do not exceed levels considered perceptible, then groundborne noise levels would not be perceptible in most interior environments. Because the City of American Canyon does not have quantitative groundborne vibration thresholds for construction or operation, the Federal Transit Administration (FTA) vibration impact criteria are utilized to analyze vibration impacts. A significant impact would occur if existing structures at the project site or in the project vicinity would be exposed to groundborne vibration levels in excess of levels established by the FTA's Construction Vibration Impact Criteria for the listed type of structure, as shown in Table 3.10-5 of the Draft EIR.

Construction

Large vibratory rollers could be used in the site preparation phase of construction. This equipment produces groundborne vibration levels ranging up to 0.201 inch per second (in/sec) PPV at 25 feet from the operating equipment, the greatest groundborne vibration levels of heavy construction equipment that could be used.

The façade of the commercial building south of the project site on Green Island Road would be located approximately 120 feet from the nearest point on the project site where the heaviest construction equipment would potentially operate. This is the nearest off-site receptor to the project construction footprint where the heaviest construction equipment would operate. At this distance, groundborne vibration levels would range up to 0.008 PPV from operation of the types of equipment that would produce the highest vibration levels. This is well below the FTA's Construction Vibration Impact Criteria of 0.2 PPV for this type of structure.

Operation

Implementation of the proposed project would not include any permanent sources that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the project vicinity.

The Napa Branch Line railroad is located approximately 130 feet east of the nearest proposed façade of the project. Based on FTA vibration screening criteria, potential groundborne vibration impacts would be less than significant for the proposed type of structure. There are no other existing significant permanent sources of groundborne vibration in the project vicinity to which the proposed project would be exposed.

Potential Effect

Impact NOI-3: The proposed project would not expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport (**Draft EIR Page 3.10-24**).

Findings: Less than significant impact (Draft EIR Page 3.10-24). No mitigation is necessary.

Facts in Support of Findings

A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport. The City's Policy 11.4.1 restricts the development of uses located within the 65 CNEL contour of Napa Airport to industrial, agricultural, or other open space uses. Policy 11.4.2 requires that development in the vicinity of Napa Airport comply with the noise standards contained in the ALUP.

The project site is not located within the vicinity of a private airstrip. However, the Napa County Airport is located approximately 1 mile north of the project site. The project site is located outside of the 55 dBA CNEL airport noise contours (Draft EIR, Exhibit 3.10-2). Though aircraft noise is occasionally audible on the project site from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working near the project site to excessive noise levels. These noise levels are considered normally acceptable for new industrial land use development within the City as shown in Exhibit 3.10-1 of the Draft EIR.

Cumulative Impacts

The proposed project, in conjunction with past, present, and reasonably foreseeable development, would not result in a cumulatively significant noise impact. (**Draft EIR, Page 4-12**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-12). No mitigation is necessary.

Facts in Support of Findings

The geographic scope of the cumulative noise analysis is the project vicinity, including surrounding sensitive receptors. Noise impacts tend to be localized; therefore, the area near the project site (approximately 0.25 mile) would be the area most affected by project activities. Furthermore, given the properties and the distance between other past, present, and reasonably foreseeable

development projects (more than 0.5 mile away), project-related noise would not combine with other sources further away.

The proposed project's construction noise levels may cause a temporary substantial increase in noise levels at nearby receptors. Mitigation is proposed that would require implementation of construction noise attenuation measures to reduce noise levels. Other projects in the project vicinity that could be under construction at the same time as the proposed project (such as Napa Logistics Park Phase 1 and Napa Corporate Center) could combine to expose nearby sensitive receptors to excessive construction noise from trucks and equipment. However, noise is a localized phenomenon, the properties of noise are not additive, construction activities on these projects may not overlap, and all projects would be subject to the City's noise ordinance requirements and mitigation measures.

The proposed project's construction and operational vibration levels would not exceed annoyance thresholds. Because vibration is a highly localized phenomenon, there would be no possibility for vibration associated with the proposed project to combine with vibration from other projects because of their distances from the project site.

As discussed in Section 3.9, Noise, of the Draft EIR, after mitigation the proposed project's vehicular trips would not make a substantial incremental contribution to ambient noise levels under baseline-with-project and future-with-project conditions. These noise levels account for existing vehicle trips as well as vehicle trips from future projects. Furthermore, the proposed project's contribution to vehicular noise levels would not exceed the applicable thresholds of significance, which take into account existing noise levels as well as noise from trips associated with other planned or approved projects. Finally, because most of the other projects included within the scope of the transportation analysis are more than 1 mile from the project site, cumulative vehicular trips would be unlikely to add to roadway noise levels in the project vicinity.

1.5.10 - Public Services

Potential Effect

Impact PS-1: The proposed project would not result in a need for new or expanded fire protection facilities that may have physical impacts on the environment (**Draft EIR Pages 3.11-4 –5**).

Findings: Less than significant impact (Draft EIR Page 3.11-5). No mitigation is necessary.

Facts in Support of Findings

The proposed project would be served with fire protection and emergency medical services provided by the American Canyon Fire Protection District. While the proposed project would increase the number of calls for service, the Fire District's existing facilities are adequate to serve the proposed project and there is no need to develop new or expanded fire protection facilities to serve the project.

The proposed project would take vehicular access from Green Island Road and the Devlin Road extension, which is currently under construction. All access points would be accessible to large

emergency vehicles such as fire engines. This would comply with California Fire Code requirements for emergency vehicle accessibility.

The project site is located 3.1 miles from Station 11, via Paoli Loop Road and Green Island Road. However, emergency responders can avoid Paoli Loop Road by making a left turn directly onto Green Island Road from State Route (SR) 29, reducing the travel distance to 2.2 miles. Assuming a travel speed of 35 miles per hour, response time from Station 11 to the project site would be 3 minutes and 46 seconds. This would be within the Fire District's 5-minute response time objective. However, congestion on SR-29 may increase travel time such that it exceeds the 5-minute response time objective.

The proposed project would be required to pay a "Fire Mitigation Fee," a one-time assessment to all new development, and a "Fire Service Fee," an annual assessment for each parcel. Additionally, the applicant and Fire District have agreed to a Memorandum of Understanding (MOU) for the applicant to fund Fire District operational shortfalls in perpetuity through the creation of a Community Facilities District (CFD).

Potential Effect

Impact PS-2: The proposed project would not result in a need for new or expanded police protection facilities that may have physical impacts on the environment (**Draft EIR Pages 3.11-5—6**).

Findings: Less than significant impact (Draft EIR Page 3.11-5). No mitigation is necessary.

Facts in Support of Findings

The proposed project would be served with police protection provided by the American Canyon Police Department. The proposed project would be surrounded with a secure perimeter and would only be accessible to authorized users via either a mechanical gate with key card access or a manned security booth, depending on the end user. The proposed project would be expected to be staffed 24 hours a day, 7 days a week. Security measures including exterior lighting, alarm systems, and video surveillance would be employed to deter and prevent criminal activity. The Police Department will have the opportunity to review and comment on security measures during the plan check review process. For these reasons, the proposed project would be expected to generate minimal calls for service and, therefore, would not create a need for new or expanded police facilities.

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable developments, would not have a cumulatively significant impact related to police protection, fire protection and emergency medical services (**Draft EIR, Page 4-13**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-13). No mitigation is necessary.

Facts in Support of Findings

Fire Protection and Emergency Medical Services

The geographic scope of the cumulative fire protection and emergency medical services analysis is the American Canyon Fire Protection District service area, which includes the American Canyon city limits.

The project site is located within 3.1 miles of the nearest fire station and is within an acceptable response time for fire protection (5 minutes or less). As such, the proposed project would not create a need for new or expanded fire protection facilities and would not result in a physical impact on the environment. Additionally, the proposed project would comply with all applicable requirements of the California Fire Code, including provision of adequate emergency access points, and it would be accessible to fire apparatus. Other past, present, and reasonably foreseeable development projects in the Fire District service area have been and would be reviewed for impacts on fire protection and emergency medical services and have been and would be required to address any potential impact with mitigation. Additionally, the Fire District plans for service needs consistent with existing demands and growth anticipated in the City planning documents.

Police Protection

The geographic scope of the cumulative police protection analysis is the service area of the American Canyon Police Department, which consists of the American Canyon city limits.

The proposed project and other past, present, and reasonably foreseeable projects in the police service area have been and would continue to be reviewed for impacts on police services and also have been and would continue to be required to address any potential impact with mitigation. Additionally, the Police Department plans for service needs consistent with existing demands and growth anticipated in the City planning documents.

1.5.11 - Transportation

Potential Effect

TRANS-1: The proposed project would not conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities (**Draft EIR Pages 3.12-13–16**).

Findings: Less than significant impact (Draft EIR Page 3.12-16). No mitigation is necessary.

Facts in Support of Findings

Phases 1 and 2

Existing Plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, all study intersections are expected to continue operating at Level of Service (LOS) C or better (Draft EIR, Table 3.12-7).

Future Conditions

Future (2040) AM and PM peak-hour volume projections for SR-29/South Kelly Road were derived from a buildout analysis which is contained in the Napa Junction III Transportation Impact Analysis Report, Omni-Means, LTD, 2011. Under the anticipated Future volumes, the study intersections are expected to operate acceptably during the AM and PM peak hours except for SR-29/South Kelly Road, which is expected to operate at LOS F during both peak hours. Future volumes are shown in Exhibit 3.12-5 of the Draft EIR and operating conditions are summarized in Table 3.12-8 of the Draft EIR.

Because SR-29 is exempt from the City's LOS standard and Caltrans no longer applies an LOS standard, the LOS F operation is considered acceptable. While there are future plans for SR-29 to have three through lanes in each direction through American Canyon, funding has not been identified for this capacity enhancement. Thus, the two through lanes configuration was used for the analysis.

Furthermore, the future year analysis results for facilities along SR-29 (specifically, the intersection of SR-29/South Kelly Road) is deemed to be more conservative than what was presented for this intersection in the Watson Ranch Specific Plan EIR (September 2018) which indicated LOS C and D operation for the AM and PM peak-hours, respectively.

Future Plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, all unsignalized study intersections are expected to operate acceptably. SR-29/South Kelly Road would continue to operate at LOS F during both peak-hours. Future Plus Project traffic volumes are shown in Exhibit 3.12-6 of the Draft EIR and operating conditions are summarized in Table 3.12-8 of the Draft EIR.

As discussed above, there are future plans for SR-29 to have three travel lanes in each direction through American Canyon. As required by the City in its Traffic Impact Fee Program, the proposed project would pay a proportional share fee toward the cost of this planned future infrastructure improvement.

Transit

While existing stops are not located within 0.5 mile of the project site, employees could ride a bicycle along Devlin Road to the nearest transit stop at the intersection of Airport Boulevard/Devlin Road. This is consistent with the various City of American Canyon General Plan policies that promote transit accessibility.

Bicycles

Access for bicyclists is provided by Class II bike lanes on Devlin Road between Middleton Way and South Kelly Road together with shared use of minor streets. The proposed project would include bicycle lanes along the project's Devlin Road frontage and a multimodal path along the north side of Green Island Road. Planned Class I and II bicycle facilities on South Kelly Road and Green Island Road, as well as the Napa Valley Vine Trail along Devlin Road, would improve bicycle connectivity near the project site. This is consistent with the various City of American Canyon General Plan policies that promote bicycle mobility.

Pedestrian

Upon completion of the project, sidewalks will be provided along Devlin Road between Green Island Road to South Kelly Road. The proposed project also includes construction of a multimodal path along Green Island Road, which would be available for use by pedestrians. This is consistent with the various City of American Canyon General Plan policies that promote pedestrian mobility.

Potential Effect

TRANS-2: The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (**Draft EIR Pages 3.12-16–18**).

Findings: Less than significant impact (Draft EIR Page 3.12-18). No mitigation is necessary.

Facts in Support of Findings

Phases 1 and 2

The impact of a proposed project is determined by the increase in Vehicle Miles Traveled (VMT) because of the project. Because the City of American Canyon has no established thresholds of significance related to VMT and the Napa County travel demand model is not currently available for use as a source for VMT analysis, the project-related VMT impacts were quantitatively assessed based on guidance provided by the Governor's Office of Planning and Research (OPR) in the publication Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018.

Based on a review of established policies currently used by the OPR, Sacramento County, and the City of San José, a VMT impact would be identified at an industrial project if the project VMT per employee is higher than the regional average VMT per employee. This focus on employee trips, as opposed to truck traffic associated with the proposed land uses, reflects the focus in CEQA Guidelines Section 15064.3 on VMT associated with automobiles and light trucks.

For this study, the regional average VMT is defined as the nine county Bay Area average. As reported by the City of Vallejo in their CEQA Transportation Impact Analysis Guidelines (dated October 2020), the Nine County Bay Area Average VMT per employee is 23 miles per employee. According to Statewide Travel Demand Model estimates, the proposed project is located within a Traffic Analysis Zone (TAZ) with a projected VMT per employee of 16.24 miles. Because this per capita VMT rate is lower than the significance threshold of 23 miles, the proposed project would be considered to have a less than significant VMT impact. A more conservative methodology sometimes used by OPR for other employment-based land uses states that a project generating a VMT that is 15 percent or more below the regional average VMT is presumed to have a less than significant VMT impact. Under this methodology the project would be considered to have a less than significant VMT impact since the VMT per employee of 16.24 miles is less than the threshold of 19.55 miles. A summary of the VMT findings is provided in Table 3.12-9 of the Draft EIR.

Potential Effect

TRANS-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (**Draft EIR Pages 3.12-18 –19**).

Findings: Less than significant impact (Draft EIR Page 3.12-19). No mitigation is necessary.

Facts in Support of Findings

Phase 1

W-Trans evaluated site access and sight distance for Phase 1 of the proposed project.

Site Access

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on Devlin Road. All driveways and internal roadways would be designed to current City standards to accommodate heavy vehicles, accommodating the access requirements for both emergency and passenger vehicles.

Sight Distance

Sight distances along Green Island Road from the project driveways were evaluated based on sight distance criteria contained in the Highway Design Manual published by Caltrans. Based on the posted speed limit of 40 miles per hour (mph), the minimum stopping sight distance required is 300 feet; a review in the field shows that sight distances at the project driveway locations on Green Island Road would be adequate, provided any vegetation or buildings are sited to ensure maintenance of adequate sight lines. The sight lines for driveways on the Devlin Road connection are expected to be adequate based on a review of the site plans.

Phase 2

Phase 2 access would be provided via Green Island Road and Devlin Road. Standard design and engineering practices would dictate that driveways would be aligned with those on the opposite side of both Green Island Road Devlin Road and spaced sufficiently from other driveways and the western Green Island Road railroad grade crossing to avoid conflicting turning movements or the creation of safety hazards.

Potential Effect

TRANS-4: The proposed project would not result in inadequate emergency access (**Draft EIR Pages 3.12-19–20**).

Findings: Less than significant impact (Draft EIR Page 3.12-20). No mitigation is necessary.

Facts in Support of Findings

Phase 1 and 2

Pursuant to the California Fire Code, a minimum of two points of access would need to be provided to each building. Compliance would ensure that adequate emergency response is provided.

Vehicular access to Phase 1 would be provided via four driveways on Green Island Road and four driveways on Devlin Road. Construction of the Devlin Road extension is expected to be completed by the time Phase 1 is completed. This would provide a parallel north–south route to SR-29, providing an alternative route for emergency response. Vehicular access to Phase 2 would be provided by driveways on Green Island Road and Devlin Road.

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable developments, would not have a cumulatively significant impact related to transportation (**Draft EIR, Page 4-13–14**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-14). No mitigation is necessary.

Facts in Support of Findings

The geographic scope of the cumulative transportation analysis is the nine county San Francisco Bay Area region. VMT is evaluated and regulated at a regional level and, thus, the San Francisco Bay Area region is an appropriate geographical area.

Impact TRANS-1 concluded that the proposed project would not have a significant impact on the circulation system and, therefore, no mitigation would be necessary. As such, the proposed project would not have a cumulatively considerable contribution in this regard. Impact TRANS-2 concluded that the proposed project would not have a significant impact on VMT because the proposed project would have a VMT rate of 16.24, well below the regional average of 23.00. As such, the proposed project would not have a cumulatively considerable contribution to VMT.

With respect to Impact TRANS-3, the potential hazards from design features or incompatible uses are project site specific (e.g., site access, sight distance, etc.) and would not combine with other projects. The proposed project and other past, present, and reasonably foreseeable future projects have complied and must comply with local, standard requirements for transportation-related design features specifically adopted to avoid and reduce hazards from project design or the location of incompatible uses, thereby reducing the potential for significant cumulative impacts to less than significant levels.

With respect to Impact TRANS-4, the provision of adequate emergency access is site specific and would not combine with other projects. The proposed project and other past, present, and reasonably foreseeable future projects must comply with local, standard requirements for adequate emergency access specifically adopted to avoid or reduce the potential for inadequate access. Furthermore, the proposed project and other projects would not have significant impacts on the performance of the study intersections and, therefore, it can be inferred that it would also not impair emergency response to the project vicinity.

1.5.12 - Utilities and Service Systems

Potential Effect

Impact USS-1: The proposed project would not require the City of American Canyon to obtain additional water supplies in order to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years (**Draft EIR Pages 3.13-16—31**).

Findings: Less than significant impact (Draft EIR Page 3.13-31). No mitigation is necessary.

Facts in Support of Findings

The analysis in the water supply assessment (WSA) shows that the City's water supply is sufficient to meet projected demand, in all years and under all normal-, dry-, and multi-dry year scenarios. The analysis shows that demand will exceed supply during some dry years, but the City will still be able to meet demand through the use of carryover State Water Project (SWP) water or through some combination of carryover SWP water, Advanced Table A Water, demand reductions, and/or additional purchases on the open market. In addition, recycled water supply in the City is available to meet existing and projected demand and available in sufficient volume to support non-potable uses at the project site. Use of recycled water at the site will increase the City's utilization of this supply.

Phases 1 and 2

Potable water demand for the project was estimated by CBG Engineers based on demand factors contained in the 2016 City of American Canyon Potable Water Master plan (Draft EIR, Table 3.13-3). The average day demand of 0.015 gallons per day/square-foot used to calculate the estimates are believed to be an overly high estimate of water use for this project. To provide a more realistic estimate of potable water demand for the proposed Giovannoni Logistics Center Project, the WSA prepared for the proposed project (Draft EIR, Appendix I) averaged the demand rates of the Napa Airport Corporate Center (NACC) (0.006 gpd/square-foot), the CBG Engineers estimate (0.015 gpd/square-foot), and the Suisun Logistics Center (0.01 gpd/square-foot) (Draft EIR, Appendix B), resulting in an average day demand of 0.009 gpd/square-foot. The WSA estimates the total potable water demand of the proposed project at buildout to be 23.9 AFY (15.9 AFY less than the usage originally estimated by CBG Engineers) (Draft EIR, Table 3.13-3).

For the purposes of the WSA, all indoor water demand is assumed to be from potable water. In the future, recycled water could be used for non-potable indoor uses, further reducing potable water demand. Table 3.13-3 of the Draft EIR shows the estimated potable water demand for each building of the proposed project.

Recycled Water

The proposed project would use recycled water for all irrigation needs and for toilet flushing. Estimated recycled water use within the project is summarized in Table 3.13-3 of the Draft EIR. The current project plans do not have estimates for the area of irrigated landscaping; thus demand was approximated by applying the average ratio of 0.604 between irrigated area and building footprint from the neighboring NACC project, with a demand factor of 2.5 acre-feet/acre (from Table 3.13 in the 2010 Urban Water Management Plan (UWMP)). The irrigation demand of the proposed project may be lower if landscaping with lower-than-typical irrigation needs is used. Actual use per building may vary based on final site plans, but total use is expected to be consistent with (or less than) these assumptions (Draft EIR, Table 3.13-3).

Project Demand Comparison to Urban Water Management Plan

Potable Water Demand

The proposed project is expected to use 133.3 AFY less water than expected under the 2015 UWMP growth scenario. Implementation of the City's Zero Water Footprint Policy would result in an

additional 23.9-acre-foot reduction in potable water demand relative to the UWMP systemwide demand analysis (Draft EIR, Table 3.13-4).

Recycled Water

The American Canyon UWMP assumes irrigation use to be 2.5 acre-feet of water per acre of landscaping but did not project recycled water demand associated with particular parcels anticipated for development. Because recycled water use offsets demand for potable (or raw imported) water and it is in the City's best interest to maximize use of recycled water, the project's recycled water demand is assessed relative to the recycled water demand goals outlined in the UWMP.

The 2016 Recycled Water Master Plan showed a delivery of 248 acre-feet for an existing 21 users between August 2013 and July 2014. In 2019, 282 acre-feet of recycled water was delivered to customers which is still below the projected 391 acre-feet of recycled water in 2020. The proposed project would add an estimated 82.1 AFY of recycled water demand.

Systemwide Demand

Recent Actual System Demand

Table 3.13-5 of the Draft EIR shows the actual water usage within the City's distribution area since the 2015 UWMP was completed, as well as the interpolated yearly demand based on the projections in the UWMP. Since 2015, potable water demand has been much lower than that anticipated in the UWMP.

Projected System Demand

The 2015 UWMP projected future demand on a parcel-by-parcel basis relative to expected growth under the City's general plan. The analysis assumed that recycled water would be available to meet a portion of the total demand, with the remainder supplied by potable water. Table 3.13-6 of the Draft EIR shows the water demand as presented in the 2015 UWMP.

Unbilled Water Losses

The UWMP assumed that unbilled water losses would be 7.5 percent for each year between 2020-2040, consistent with standards adopted by the California Urban Water Conservation Council. In 2015, water delivery and water use records indicate that system losses were 22 percent. In 2015, the City replaced more than 120 segments of residential service lines as part of its program to reduce distribution system losses. The City assumed it would reduce system losses to 7.5 percent of the total potable and raw water deliveries by 2020.

Supply and Demand Comparison

The scenarios presented herein have been summarized from the 2015 UWMP analysis for citywide system planning. This analysis addresses potable and recycled water separately.

Potable Water

The City's potable water supply relies exclusively on imported water, both from the SWP and through the City of Vallejo. A percentage of the full contracted amount is assumed for each source type under each scenario. These percentages are based on guidance by California Department of Water

Resources (DWR), analysis in the City's UWMP and the Vallejo UWMP. The supply and demand for potable water under 'normal year,' 'single dry year,' and 'multiple dry year' scenarios is discussed as follows.

Normal Year

The UWMP concluded that future supply is available to meet anticipated demand in normal years through buildout in 2035, as does the analysis in the WSA (Table 8). Excess supply in normal years ranges from a low of 2,653 in 2040 to a high of 3,497 AFY in 2025 (Draft EIR, Table 3.13-9).

Single Dry Year

The 2015 UWMP shows that single dry year supply is not significantly currently constrained and the City will be able to reliably meet potable demand until the year 2030. Single dry year deficiencies are anticipated starting in 2035 (Draft EIR, Table 3.13-9). The City has several options available to resolve dry year supply deficiencies.

Multiple Dry Years

The multiple dry year scenario, as described in the UWMP, consists of three consecutive years of reduced water deliveries, though none are reduced to the same degree as the single dry year scenario. The 2015 UWMP projects that water supply will exceed demand during a 3-year drought through the full 2040 planning period (Draft EIR, Table 3.13-9).

Potable Water Deficiency Resolution

This section describes a series of options available to the City to eliminate supply shortages in several of the "dry year" and "multiple dry year" planning scenarios in order to provide reliable supply. Estimated SWP carryover water would be sufficient to eliminate dry year supply shortfalls and could also be used in combination with drought demand reductions to further improve supply reliability.

State Water Project Carryover Water

If the City does not use its entire allotment of Table A water in a given year, the remaining water will carry over to the following year, assuming there is adequate storage in SWP reservoirs to contain the excess supply. Between 2015 and 2020, the City has stored between 35 and 2,600 acre-feet of carryover water in a given year (Draft EIR, Table 3.13-10), which has helped to meet demand during recent dry years. This is not considered a consistent yearly supply for planning purposes, but it does allow the City extra flexibility during droughts. As such, the carryover water has been incorporated into the analysis in the WSA.

It is assumed that 1,156 acre-feet of carryover water would be available at the beginning of a dry year and the first year of a multi-year drought. Projected excess normal year supply ranges from 2,653 to 3,497 acre-feet for 2020-2040, suggesting that 1,156 acre-feet is a reasonable and somewhat conservative estimate for planning purposes. In the second and third year of a multi-year drought, the remaining carryover supply (presuming there is any) would continue to carry over to subsequent years to supplement supplies.

Under the above assumptions, the City would be able to meet projected supply deficiencies under all dry and multiple dry year scenarios within the planning period (2015-2040) through the use of available carryover water.

Advanced Table A Program

The Advanced Table A Program allows the Napa County Flood Control and Water Conservation District, the Solano County Water Agency, and Yuba City (along with subcontractors to those agencies, which includes American Canyon) to borrow against future SWP deliveries during times when annual deliveries are not sufficient to meet demand. Should all Table A and Table A carryover water be used, the City could request an advance of up to 949 acre-feet from future years' Table A allotments. The projections in Table 3.13-11 of the Draft EIR do not rely on the use of the Advanced Table A Program water to meet dry year demand, as estimated Table A carryover is enough to cover supply deficiencies for all scenarios. However, this program provides an important tool available to the City should unforeseen circumstances result in significantly lower-than-expected carryover.

Drought Year Demand Reductions

The demand projections in the 2015 UWMP and the analysis in the WSA were not explicitly adjusted for voluntary or mandatory water use reduction measures that may be implemented in response to drought conditions. The City has a Water Shortage Contingency Plan that outlines water demand reduction measures that could be utilized when water supply is constrained.

On June 1, 2021, the City declared a Stage 1 drought emergency that called for a voluntary reduction from residential and commercial customers. On July 20, 2021, the City declared a Stage 2 drought emergency requiring all water customers to reduce their water use by 20 percent. As of the end of August 2021, water conservation measures have resulted in an 18 percent decrease from residential customers and 13 percent decrease from commercial customers.

Because estimated carryover water was sufficient to satisfy projected shortages, the supply and demand analysis in Table 3.13-11 does not account for drought year demand reduction. However, the City may choose to use these measures to provide additional flexibility during droughts. Assuming drought reductions of 13 percent, similar to what was achieved in 2014, the City could be expected to reduce demand in future years ranging between 305 acre-feet in 2015 and 537 acre-feet in 2040 (Draft EIR, Table 3.13-12). These measures could be used in conjunction with the above measures to provide an additional buffer, as needed, if other supplies are unexpectedly curtailed.

Open Market Purchases

The City has the option to purchase additional water from a variety of other sources on an as-needed and as-available basis. These potential purchases were not considered as a reliable long-term supply for the purposes of the WSA. Open Market Purchases can provide additional operational flexibility for the City during dry periods when other supplies are reduced.

Recycled Water

The City's recycled water system has a supply capacity of up to 1,271 AFY by 2035, and NapaSan has agreed to provide up to 591 acre-feet to supply the northern portion of the Airport Industrial Area (which is located within the City's water service area). Practically, however, the City produces

recycled water to meet demand, as shown in Table 3.13-8. Recycled water is assumed to be 100 percent available during single- and multi-year-drought scenarios. Table 3.13-9 of the Draft EIR presents recycled water supply versus demand for the 2015-2040 planning period under various year-type scenarios.

The UWMP projected 1,862 acre-feet of recycled water use by 2035. Recent recycled water use has been much lower than projected in the UWMP. The City expects a significant expansion in the recycled water delivery system by 2035, allowing full use of the system by that time. Recycled water demand by sector is shown in Table 3.13-13 of the Draft EIR.

Potential Effect

Impact USS-2: The proposed project would not create a need for new or expanded wastewater collection or treatment facilities (**Draft EIR Pages 3.13-31—32**).

Findings: Less than significant impact (Draft EIR Page 3.13-32). No mitigation is necessary.

Facts in Support of Findings

Phases 1 and 2

The proposed project would be served by City of American Canyon for wastewater collection and treatment. The proposed project would connect to both an existing 12-inch diameter sewer line within Green Island Road and a future sewer line within the Devlin Road extension. Both lines convey effluent to the Green Island Road Sanitary Pump Station and ultimately the City's Water Reclamation Facility. The proposed project would generate 402,500 gallons of effluent per day (0.41 mgd) at buildout. Phase 1 of the proposed project would generate 276,800 gallons per day (0.28 mgd) and Phase 2 would generate 125,700 gallons (0.13 mgd) (Draft EIR, Table 3.13-14).

The Water Reclamation Facility has an existing design capacity of 2.5 mgd, with a phased improvement plan outlined to increase the plant capacity over time to 4 mgd. The proposed project's wastewater generation of 0.41 mgd would represent 16 percent of the existing treatment capacity and 10 percent of the future capacity. As such, existing and planned treatment capacity would be sufficient to serve the proposed project.

Potential Effect

Impact USS-3: The proposed project would not result in a need for new or expanded off-site storm drainage facilities (**Draft EIR Pages 3.13-32—33**).

Findings: Less than significant impact (Draft EIR Page 3.13-33). No mitigation is necessary.

Facts in Support of Findings

The proposed project would increase the amount of impervious surface coverage on the project site and would create the potential for increased runoff leaving the project site that may create potential flooding conditions in downstream waterways.

The proposed project would provide 110,766 square feet (2.6 acres) of storm drainage retention on-site. A network of underground piping ranging from 12- to 48-inches in diameter would convey runoff to bioretention and detention basins in the northern portion of the property.

In accordance with applicable provisions of Section C.3 of the San Francisco Bay RWQCB Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008) (or more recent permit) as required under Mitigation Measure (MM) HYD-1b, the proposed project would implement LID stormwater management methods into the on-site storm drainage system consisting of rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment.

These measures would serve to slow, reduce, and meter the volume of runoff leaving the project site and ensure that downstream storm drainage facilities are not inundated with project-related stormwater such that new or expanded facilities would be required.

Potential Effect

Impact USS-4: The proposed project's solid waste would not create a need for additional landfill capacity (**Draft EIR Pages 3.13-33—34**).

Findings: Less than significant impact (Draft EIR Page 3.13-34). No mitigation is necessary.

Facts in Support of Findings

This impact discussion assesses whether the proposed project would be served by a landfill with adequate capacity or comply with federal, State, and local statutes and regulations related to solid waste. Solid waste would be generated by construction and operational activities.

Construction Waste

Using a nonresidential construction waste generation rate published by the United States Environmental Protection Agency (EPA), development of the proposed project would generate an estimated 6,536 cubic yards of construction debris (Draft EIR, Table 3.13-15). This waste volume represents less than 0.01 percent of the 38.8 million cubic yards of remaining capacity at the Potrero Hills Landfill. Moreover, these values do not account for construction and demolition (C&D) debris recycling that would serve to divert waste from the landfill.

Operational Waste

Based on rates provided by Cal Recycle, the proposed project would generate an estimated 8,064 cubic yards of operational solid waste on an annual basis at buildout (Draft EIR, 3.13-16). This waste volume represents less than 0.01 percent of the 38.8 million cubic yards of remaining capacity at the Potrero Hills Landfill. Moreover, these values do not account for recycling and waste reduction activities that would serve to divert waste from the landfill.

Cumulative Impacts

The proposed project, in conjunction with other past, present, and reasonably foreseeable developments, would not have a cumulatively significant impact related to utilities and service systems (**Draft EIR, Page 4-14–16**).

Findings: Less than significant cumulative impact (Draft EIR, Page 4-16). No mitigation is necessary.

Facts in Support of Findings

Water

The geographic scope of the cumulative potable water analysis is the City of American Canyon Public Works Department service area, which includes the American Canyon city limits.

As previously discussed, the proposed project's demands would represent less than 1 percent of potable water supplies and 7 percent of recycled water supplies. Furthermore, the City of American Canyon's 2015 UWMP estimates that sufficient water is available to meet the needs of the service area through the year 2040, which accounts for the City of American Canyon's long-term growth assumptions. The City has adopted the Zero Water Footprint Policy that requires all new development to completely offset its potable water demand. The proposed project is required to comply with this policy, as would other projects listed in Table 4-1 of the Draft EIR that are served by the City of American Canyon's Water District.

For those projects that are located within the City's water service area and areas in the County that were included in the original water district service area, the 2015 UWMP anticipates adequate water supplies for all water year scenarios through 2040. These projects also would be required to demonstrate that they would be served with potable water service as a standard requirement of the development review process, and these projects may be required to implement water conservation measures and to meet the requirements of the Zero Water Footprint Policy. Furthermore, the proposed project does not require any off-site water facilities to be constructed and expanded and, thus, would not result in physical impacts on the environment from such activities.

Wastewater

The geographic scope of the cumulative wastewater analysis is the American Canyon Wastewater Treatment Plant service area, which encompasses the American Canyon city limits and areas within the Napa County Airport Industrial Park south of Fagan Creek.

The treatment plant has an existing design capacity of 2.5 million gallons per day (mgd) and the City has plans to increase it to 4 mgd over time. All future projects that are tributary to the American Canyon Wastewater Treatment Plant would be required to demonstrate that sewer service is available to ensure that adequate sanitation can be provided. As previously discussed, the proposed project's estimated wastewater generation would represent 10 percent of the average daily flow treated by the expanded WWTP.

The sewer flows assumed from the proposed project are significantly less than anticipated for industrial projects in previous City planning documents. This is a result of the conservation activities that reduce water use and, in turn, reduce sewer flows. The original planning documents were drafted prior to the State passing all the conservations laws (2008-2010) and before the City defined the Zero Water Footprint Policy. The City has verified that the treatment plant has enough capacity

to serve the planned development for Phases 1 and 2 of the proposed project, along with other projects that would be tributary to the WWTP.

Storm Drainage

All future development projects in the City are required to provide storm drainage facilities that collect and detain stormwater. The storm drainage facility shall include provisions for future upstream development and no development shall discharge at a rate that exceeds the capacity of any portion of the existing downstream system. Runoff from storms up to the 100-year return frequency are conveyed through storm facilities and disposed of in a manner that protects public and private improvements from flood hazards. The proposed project would install an on-site storm drainage system consisting of inlets, piping, and a series of detention basins. The peak discharge from the detention basin shall not exceed 90 percent of the undeveloped peak flow from the 24-hour, 100-year storm event. As such, the proposed project would ensure no net increase in stormwater would leave the project site during a peak storm event and would avoid cumulatively significant stormwater impacts to downstream waterways at times when capacity is most constrained. The proposed project would implement standard stormwater pollution prevention measures during construction to ensure downstream water quality impacts are minimized to the greatest extent possible. In addition, the proposed project would provide water quality measures to prevent pollution during project operations. Most past, and all present and reasonably foreseeable future development must comply with these State and local requirements that ensure no significant adverse cumulative impacts would result.

Solid Waste

The geographic scope of the cumulative solid waste analysis is the City of American Canyon. American Canyon Recology provides solid waste and recycling collection services to commercial customers in the City of American Canyon.

Many past and all present and reasonably foreseeable future development projects, which have or would generate construction and operational solid waste and, depending on the volumes and end uses, have been or would be required to implement recycling and waste reduction measures. As previously discussed, the proposed project's construction and operational solid waste generation would represent less than 1 percent of the remaining capacity at this facility. As such, landfill capacity is sufficient to serve the proposed project as well as existing and planned land uses in the City of American Canyon for the foreseeable future. Additionally, the nearby Devlin Road Transfer Station offers construction and demolition debris recycling and incentivizes such activities through pricing. Thus, it would be expected that some of the projects listed in Table 4-1 of the Draft EIR would use such debris recycling services, which would divert materials from landfills, thereby extending the operational life of Potrero Hills Landfill.

1.6 - Potential Environmental Effects Which Can Be Mitigated Below a Level of Significance

The City of American Canyon hereby finds that feasible mitigation measures have been identified in the EIR that will avoid or substantially lessen the following potentially significant environmental

impacts to a less than significant level. The potentially significant impacts, and the mitigation measures that will reduce them to a less than significant level, are as follows:

1.6.1 - Aesthetics

Potential Effect

Impact AES-3: The proposed project may create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (**Draft EIR Page 3.1-6–7**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.1-7). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM AES-3 Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.

Facts in Support of Findings

Phases 1 and 2

The proposed project development would result in the installation of new sources of light and glare on the project site. These new sources of light include additional street lighting along internal roadways, building-mounted light fixtures, and pole-mounted light fixtures within parking areas. Additionally, illuminated signage may be employed. Mitigation Measure (MM) AES-3 requires the project applicant to prepare and submit a photometric plan to the City of American Canyon for review and approval to demonstrate that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. Downward-directed lighting and full cut-off fixtures would prevent the trespass of light and glare onto neighboring properties or conflict with aviation operations.

The City finds that MM AES-3 is feasible, is adopted, and will further reduce impacts related to light and glare. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with aesthetics would be less than significant with mitigation incorporated.

1.6.2 - Biological Resources

Potential Effect

Impact BIO-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or Unites States Fish and Wildlife Service (**Draft EIR Page 3.3-22–28**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.-26). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM BIO-1a Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities and each year following initiation of construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with the California Department of Fish and Wildlife (CDFW) "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (CDFW 2000) to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.

If no nesting Swainson's hawk are found during the second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

MM BIO-1b No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Pre-construction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. If active golden eagle nests are identified within any trees within the survey areas of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

MM BIO-1c Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and minimum 500-foot radius from project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc., the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated

where it intersects the project site. Size of buffer zone could be increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Raptor Biologist.

MM BIO-1d Prior to any ground disturbance, pre-construction surveys for burrowing owl shall be conducted within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. The pre-construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

- If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.
- If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.
- If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.

Facts in Support of Findings

Implementation MM BIO-1a, MM BIO-1b, MM BIO-1c and MM BIO-1d would avoid the "take" of Swainson's hawk and golden eagle defined by California Endangered Species Act (CESA); avoid disturbing a northern harrier or burrowing owl active nest; and avoid harming a burrowing owl during the nonbreeding season if it is occupying a burrow within the project site.

Special-status Plants

HBG retained Dr. Brent Helm of Helm Biological Consulting, a division Tansley Team, Inc., to conduct botanical surveys for the presence of special-status plant species with the potential to occur at the site. These botanical surveys utilized CDFW protocols identified in "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" dated March 20, 2018.

Helm Biological Consulting conducted a 10-mile radius search using the California Natural Diversity Database (CNDDB) and determined 23 special-status plant species were associated with habitats that are known to occur near the project site. Helm Biological Consulting conducted botanical surveys during the spring of 2021 and survey dates were chosen based on when the special-status plants would be in bloom or otherwise visible. Based on the Helm Biological Consulting botanical survey results, no special-status plant species occur on the project site. Therefore, no impacts to special-status species would occur from construction of the proposed project.

Special-status Animals

Monarch Butterfly

No trees are present on the project site so there is no possibility for the presence of a monarch butterfly overwintering site at the project site. Studies of the site or portions of the site have not indicated the presence of milkweed plants of the genus Asclepias that serve as the larval host plant for monarchs. Therefore, no potentially significant impacts to monarch butterflies would result from construction of the proposed project.

Vernal Pool Fairy Shrimp

LSA Inc. conducted dry season vernal pool fairy shrimp surveys in summer of 2016, and Monk & Associates, Inc. conducted wet season vernal pool fairy shrimp surveys in winter of 2016-2017. Survey methods were conducted in accordance with the USFWS revised Survey Guidelines for the Listed Large Branchiopods (May 31, 2015). No vernal pool fairy shrimp were observed during the dry or wet season surveys. Therefore, no impacts to vernal pool fairy shrimp would result from construction of the proposed project.

California Red-legged Frog

A habitat assessment prepared for the project site by Rana Resources found that the project site lacks habitat necessary to support the California red-legged frog. There is no suitable breeding or rearing habitat for California red-legged frog on-site due to the shallow and ephemeral nature of the seasonal wetlands and the lack of any suitable riparian vegetation for cover. Therefore, no impacts to California red-legged frog would result from construction of the proposed project.

Western Pond Turtle

Suitable habitat for western pond turtle does not occur on the site due to the shallow and ephemeral nature of the seasonal wetlands, which are inundated for only about 3 to 4 months out of the year and even less in drought years. Surrounding uplands of suitable shrub/woodlands and appropriate basking sites are also lacking. No impacts to western pond turtle would result from development of the proposed project.

Swainson's Hawk

The operative significance thresholds for impacts to Swainson's hawk are (i) whether the proposed project would have a substantial adverse effect on the species, either directly or through habitat modifications, or (ii) whether the project would substantially reduce the number or restrict the range of the species. Although the project will result in a net loss of foraging habitat, such a net loss occurring in the particular area in which the project site is located will not cause either a substantial adverse effect on the species, a substantial reduction in its numbers, or a substantial restriction of its range. There is no need to "net out the impact of a proposed project" for that impact to be less than significant. (See *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 529). There are no trees located on the project site, and no large trees capable of supporting nesting by Swainson's hawk in the immediate project vicinity. The non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the project site. Swainson's hawk was observed foraging on the site during surveys conducted in April and May 2021. Development of the proposed project would remove some foraging area for this species. However, development of the proposed project would also provide and preserve in perpetuity approximately 44.8 acres of open space that would include habitat currently suitable for foraging by the Swainson's hawk. The adjacent Napa Logistics Park Project has preserved 37 acres of grassland and wetlands in perpetuity that provides foraging habitat for Swainson's hawk. Between these two preservation areas abutting and directly adjacent to the project site, approximately 82 acres of suitable habitat would be available for the Swainson's hawk. In addition, there are several large open space preserves within 2 and 5 miles of the project site, which combined provide approximately 2,000 acres of suitable foraging habitat. The relatively small loss of foraging habitat on the project site will not affect the range of the species or cause the loss of substantial numbers of individual hawks. As discussed previously, the proposed 45-acre Wetland Preserve with its seasonal wetlands would be available to provide foraging habitat for the Swainson's hawk in perpetuity. Additionally, less than 2 miles from the project site are 620 acres of dedicated open space (Newell Open Space) that are also preserved in perpetuity. The Newell Open Space appears to primarily comprise annual grassland with discrete areas of oak woodland and riparian woodland. Further, the Newell Open Space abuts other dedicated open space preserves, including the 1,039-acre Lynch Canyon Open Space Park and the American Canyon 308-acre California red-legged frog preserve. Combined, these open spaces dedicate over 2,000 acres of open space that can be used for foraging by the Swainson's hawk because the open space supports the small mammals, amphibians, reptiles, and birds on which Swainson's hawks prey. This demonstrates that based on the limited number of Swainson's hawk records in Napa County, there is more than sufficient foraging habitat in the area that will be preserved in perpetuity to support actively nesting hawks and that further provide foraging habitat for other raptors of concern, specifically golden eagles and western burrowing owls. Accordingly, the proposed project would not result in significant

impacts to foraging habitat either directly, indirectly, or cumulatively. The net loss of foraging habitat resulting from the proposed project will not cause either a substantial adverse effect on the species, a substantial reduction in its numbers, or a substantial restriction of its range. Construction of the proposed project would not be expected to affect the nesting population of Swainson's hawk known from Napa County. Accordingly, additional preservation over and above the 45-acre Wetland Preserve is not warranted for the proposed project. Based upon the limited number of known Swainson's hawk to occur within a 10-mile radius of the project site and the acreage of existing foraging habitat currently protected, the proposed project would not result in significant impacts to foraging habitat directly, indirectly, or cumulatively. Therefore, no mitigation is warranted for Swainson's hawk foraging habitat.

Although eucalyptus and other large trees located within about 0.25 mile from the project site provide potential nesting habitat, no nesting by Swainson's hawk (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted by HBG in April and May 2021. Pre-construction nesting surveys, as described in MM BIO-1a, are warranted to ensure that the proposed project will not impact Swainson's hawk.

Golden Eagle

There are no trees located on the project site, and no large trees capable of supporting nesting by golden eagle in the immediate vicinity of the project site; however, the non-native grasslands and seasonal wetlands and swales found on the property provide suitable foraging habitat for golden eagle that may nest away from the project site. Accordingly, for the same reasons the proposed project would not result in an indirect or cumulative loss of Swainson's hawk foraging habitat, it would also not result in a significant indirect or cumulative loss of golden eagle foraging habitat.

A single golden eagle was observed exhibiting foraging behavior on the site in spring 2021. No nesting by golden eagle (or any raptor species) was noted during surveys for nesting Swainson's hawk conducted in April and May 2021.

As golden eagle has been known to nest in the general area of the City of American Canyon, future nesting in suitable nest trees as close as about 0.25 mile from the project site cannot be ruled out. Pre-construction surveys for golden eagle, as described in MM BIO-1b, are warranted to ensure that construction activities do not result in impacts to nesting individuals of this species.

Northern Harrier

Suitable nesting habitat for the northern harrier (a State Designated Species of Special Concern) occurs within the non-native grasslands and seasonal wetlands and swales found within the project site. Northern harrier individuals were observed foraging over the project site during both winter and spring (breeding) seasons during surveys conducted by Helm Biological Consulting. Pre-construction surveys for northern harrier, as described in MM BIO-1c, are warranted to ensure that construction activities do not result in impacts to nesting harriers.

Burrowing Owl

A small number of burrowing owl have been recorded in the CNDDB within the general project vicinity, with the nearest reports from as close as about 1.7 miles north of the project site and about

2.5 miles south. No burrowing owl or occupied California ground squirrel burrows were observed on the project site during a field review conducted by Helm Biological Consulting in December 2020 and April and May 2021, or during previous biological studies conducted by Monk & Associates, LSA Associates, or Rana Resources. It is possible that ground squirrel could establish colonies on the site in the future prior to project construction, providing new occupiable habitats for burrowing owl. The proposed project shall implement MM BIO-1d to ensure that no burrowing owl would be impacted by construction activities.

Tricolored Blackbird

Helm Biological Consulting has concluded that vegetative characteristics of preferred nesting habitat for tricolored blackbird does not occur at the project site. Therefore, no impacts to tricolored blackbird nesting colonies would result from implementation of the proposed project.

The City finds that MM BIO-1a, MM BIO-1b, MM BIO-1c and MM BIO-1d are feasible, are adopted, and will further reduce impacts to related species. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with biology would be less than significant with mitigation incorporated.

Potential Effect

Impact BIO-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulation or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service (**Draft EIR Page 3.3-28–29**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.3-29). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM BIO-2 To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.

Facts in Support of Findings

The proposed project would impact a total of 3.70 acres of wetland. Implementation of MM BIO-2 would offset permanent impacts to the palustrine emergent wetlands and vernal pools and ensure there is no net loss of wetland area.

The portion of the project site along the northern boundary contained within the confines of No Name Creek would be subject to the regulatory jurisdiction of the CDFW under Fish and Game Code Section 1602. No impacts would occur and there would be no requirement to obtain a Streambed Alteration Agreement from the CDFW. As the area of No Name Creek is contained within the approximately 45-acre Wetland Preserve, no impacts to the palustrine emergent wetland swale/seasonal wetland associated with No Name Creek would occur from either Phase 1 or 2 of the proposed project.

The City finds that MM BIO-2 is feasible, is adopted, and will further reduce impacts related to wetlands. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

Potential Effect

Impact BIO-3: The proposed project could have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruptions, or other means (**Draft EIR Page 3.3-29–36**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.3-32). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM BIO-3a Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act (CWA) Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5

years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3b Prior to issuance of the Phase 2 grading permit, the project applicant shall apply for and obtain an Individual Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for the placement of fill material within approximately 3.7 acres of wetlands/waters of the United States under Clean Water Act (CWA) Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for the discharge of fill material within approximately 3.7 acres of waters of the State. To offset the loss of 3.7 acres of permanent wetland impacts and to ensure there is no-net loss of wetland area or permanent loss of functions and values, the applicant shall establish/create 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pools (1:1 ratio), at a minimum of 1 year prior to the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands and vernal pools shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3c Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part of Phase 2. The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage the approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

MM BIO-3d Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J–Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board Implementation Guidance dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332)

The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum:

1. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve.
2. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio.
3. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur.
4. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards.
5. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc.
6. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface, therefore a 5-year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.

7. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement and provide an endowment sufficient to fund the Long-Term Management Plan.
8. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.

Facts in Support of Findings

Implementation of MM BIO-3a, MM BIO-3b, MM BIO-3c, and MM BIO-3d, would offset permanent impacts in-kind to the palustrine emergent wetland and in-kind to the vernal pools and ensure there is no net loss of wetland area.

Region 1 of the USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan includes designated "core" areas that are specific sites necessary to recover endangered or threatened species or to conserve the species of concern addressed in this recovery plan. The project site is near two core areas referred to as the "Napa River Core Area." The project site itself is not within a core area and does not support vernal pool complexes that support plants and animals targeted in the USFWS recovery plan. Furthermore, Phase 1 of the proposed project would establish a 45-acre Wetland Preserve that may provide long-term, beneficial impacts to the adjacent Napa River Core Area and recovery plan by providing protected wetland and vernal pool habitat in proximity to the Napa River Core Area. For these reasons, no adverse impacts to the Napa River Core Area would occur from construction of the proposed project. No mitigation is warranted for the Napa River Core Area.

Phase 1

Grading activities would result in the permanent placement of fill material (soil) into 0.496 acres of palustrine emergent wetlands considered waters of the State under the Porter-Cologne Water Quality Control Act. Of the 0.496 acres of waters of the State, the USACE has determined 0.004 acres are considered waters of the United States under the federal CWA. The applicant would be required to obtain a Nationwide Permit from the USACE for discharge within 0.004 acre of wetlands under CWA Section 404 jurisdiction along with an accompanying Section 401 Water Quality Certification from the San Francisco Bay RWQCB. The applicant would also need to obtain a separate Waiver of Waste Discharge from the San Francisco Bay RWQCB for impacts to 0.496 acre of waters of the State, as described in MM BIO-3a. The City of American Canyon processed a separate Nationwide Permit for impacts to 0.21 acre on the 8.3-acre project site for the Devlin Road/Vine Trail Extension project.

Exhibit 3.3-4 of the Draft EIR depicts the Wetlands Mitigation Plan, and Draft EIR Table 3.3-1 details enumeration of the wetland impacts within the proposed project development.

Phase 2

Phase 2 of the proposed project would impact approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pool wetlands considered both waters of the State and waters of the United States (Draft EIR, Exhibit 3.3-5). Per MM BIO-3b, the applicant would be required to obtain an Individual Permit from the USACE and submit a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines. A CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB and a Waiver of Waste Discharge Requirements for San Francisco Bay RWQCB pursuant to the Porter-Cologne Water Quality Control Act would also be required.

MM BIO-3d would require a detailed Wetland Mitigation and Monitoring Plan be prepared and submitted to the San Francisco Bay RWQCB for review as part of the process for obtaining a permit from the agency.

The City finds that MM BIO-3a, MM BIO-3b, MM BIO-3c and MM BIO-3d are feasible, are adopted, and will further reduce impacts related to riparian habitat, wetlands and natural communities. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with biology would be less than significant with mitigation incorporated.

Potential Effect

Impact BIO-4: The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impeded the use of wildlife nursery sites (**Draft EIR Page 3.3-37–39**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.3-39). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM BIO-4 If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters, and 1,000 feet from the construction limits for nesting raptors. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if construction activities are delayed

by more than 7 days, an additional nesting bird survey shall be performed. If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on-site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

Facts in Support of Findings

Phases 1 and 2

The development of the proposed project would not result in significant impacts to movement of any native resident or migratory fish or wildlife species, migratory wildlife corridors or use of wildlife nursery sites on the site. As discussed previously, the proposed project contains mitigation measures to address impacts to sensitive habitat, including the preparation and implementation of a detailed Compensatory Wetland Mitigation Plan. As previously discussed, the site design includes the preservation of the approximately 45-acre Wetland Preserve. Any species of fauna that may be displaced during preparation of the site for development of the proposed project should find nearby available habitats, including habitats within the Wetland Preserve and the 37-acre preserve on the adjacent property. The major wildlife corridor along No Name Creek will remain unaffected as the entirety of No Name Creek shall be incorporated into the Wetland Preserve. The proposed project would not result in substantial change in animal populations at the site, nor would it cause a fish or wildlife population to drop below self-sustaining levels.

Nesting Birds

Nesting bird species protected by the federal Migratory Bird Treaty Act (MBTA) or California Fish and Game Code could be impacted during project construction. If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), MM BIO-4 would require a qualified Biologist conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity in order to reduce any potential impacts to nesting birds to less than significant levels.

Water Quality

Construction activities for Phase 1 of the proposed project will occur within 0.496 acre of wetlands near areas within the upper reaches of No Name Creek. Construction of Phase 2 may affect 3.7 acres of wetlands near No Name Creek. However, implementation of a SWPPP, with identification of proper construction techniques and BMPs, would be required and would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. Indirect impacts to resident animal populations in downstream areas would not result from the proposed project due

to elevated turbidity levels from increased sedimentation or increases in other contaminants in stormwater runoff.

The City finds that MM BIO-4 is feasible, is adopted, and will further reduce impacts related to biological resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with biology would be less than significant with mitigation incorporated.

Cumulative Impacts

The proposed project's cumulative impacts related to biological resources would be less than significant. (**Draft EIR, Page 4-5–7**).

Findings: Less than significant cumulative impact with mitigation incorporated (Draft EIR, Page 4-7). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM BIO-1a, MM BIO-1b, MM BIO-1c, MM BIO BIO-1d, MM BIO-2, MM BIO-3a, MM BIO-3b, and MM BIO-4.

Facts in Support of Findings

The geographic scope of the cumulative biological resources analysis is a 0.5-mile radius of the project site. The project site is located at the transition between urban development and the marshes associated with the Napa River; accordingly, habitats in these areas tend to be disrupted and impacts would be localized.

The proposed project has the potential to impact special-status plant species and several special-status bird species, including Swainson's hawk, golden eagle, northern harrier, and burrowing owl. With the implementation of MM BIO-1a through MM BIO-2, impacts to these species as a result of development of the proposed project would be reduced to less than significant levels. Although there would be loss of foraging habitat, the cumulative loss of this resource would not be considerable due to the abundance of habitat in the American Canyon area. These mitigation measures would be consistent with other mitigation measures implemented for other projects within the local vicinity of the proposed project including the Devlin Road project and the Green Island Road Reconstruction and Widening project. With the implementation of these mitigation measures, any potentially significant cumulative impacts of the probable future projects in Table 4-1 of the Draft EIR, together with the proposed project, would be reduced to less than significant levels.

The proposed project would impact approximately 0.496 acres of palustrine emergent wetlands. Plans for wetland mitigation, including the preservation of an approximately 44.8-acre Wetland Preserve, to include existing wetlands as well as established/created wetlands, are intended to offset

wetland impacts of buildout development of the project site. No Name Creek is contained within the approximately 44.8-acre Wetland Preserve; no impacts to the palustrine emergent wetland swale associated with No Name Creek would occur from the proposed project in the area east of Devlin Road. No impacts would occur to areas that would be subject to California Department of Fish and Wildlife (CDFW) jurisdiction under Fish and Game Code Section 1602, therefore the development of the proposed project would not result in greater cumulative impacts to sensitive natural communities or riparian habitats.

The development of Phase 1 and 2 of the proposed project would impact 0.496 acres of palustrine emergent wetlands considered waters of the State under the Porter-Cologne Water Quality Control Act as well as 0.004 acres of palustrine emergent wetlands considered waters of the United States. As described in MM BIO-3a, these impacts would require that the applicant apply for and obtain a Nationwide Permit from the USACE and a Section 401 Water Quality Certification from the San Francisco Bay RWQCB for discharge within 0.004 acres of wetlands. The applicant would also need to apply for and obtain a separate Waiver of Waste Discharge from the San Francisco Bay RWQCB for impacts to 0.496 acres of waters of the State.

The development of Phase 2 of the proposed project would impact approximately 3.7 acres of wetlands considered both waters of the United States and State. These impacts would require that the applicant submit a separate application for an Individual Permit from USACE to include a plan to compensate for wetland losses as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines to include a detailed evaluation of both on-site and off-site alternatives for the proposed project. Similar to Phase 1, these impacts would also require a Clean Water Act (CWA) Section 401 Water Quality Certification and a Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB, as described in MM BIO-3b.

As described in MM BIO-2, to compensate the loss of these wetlands an approximately 44.8-acre Wetland Preserve fronting the northern boundary of the project site would preserve 7.71 acres of existing wetlands and create approximately 4.7 acres of new wetlands within the Wetland Preserve. The creation of this Wetland Preserve and new wetlands would help offset any significant cumulative impacts to jurisdictional wetlands by the proposed project or other projects listed in Table 4-1 of the Draft EIR and reduce them to less than significant levels overall.

The wildlife corridor along No Name Creek would remain unaffected by the development of the proposed project and would be entirely contained and incorporated into the Wetland Preserve. Therefore, the proposed project would not result in substantial change in animal populations at the site, nor would it cause a fish or wildlife population to drop below self-sustaining levels. Additionally, the requirement for the implementation of a SWPPP would assure that water quality of nearby waterways is not affected by on-site construction activities. This mitigation measure would be consistent with other mitigation measure implemented for other projects listed in Table 4-1, including the Devlin Road project and the Green Island Road Reconstruction and Widening project. As a result, the proposed project would not result in greater cumulative impacts to potential wildlife corridors.

The development of the proposed project does have the potential to impact nesting birds if construction includes the removal of vegetation occurs during the breeding season (February 1 to August 31). However, the implementation of MM BIO-4 would avoid direct and indirect impacts to nesting birds by requiring pre-construction nesting bird surveys and establishing buffer zones around any active nests. This mitigation measure would be consistent with other mitigation measures implemented for other projects listed in Table 4-1 of the Draft EIR, including the Devlin Road project and the Green Island Road Reconstruction and Widening project. With the implementation of MM BIO-4a, any cumulative impacts by the proposed project would be reduced to less than significant levels.

The City finds that MM BIO-1a, MM BIO-1b, MM BIO-1c, MM BIO BIO-1d, MM BIO-2, MM BIO-3a, MM BIO-3b, and MM BIO-4 are feasible, are adopted, and will further reduce cumulative impacts related to biological resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, direct and indirect cumulative impacts associated with biology would be less than significant with mitigation incorporated.

1.6.3 - Cultural Resources and Tribal Cultural Resources

Potential Effect

Impact CUL-2: The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 (**Draft EIR Pages 3.4-21–22**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.4-22). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM CUL-2a No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.

MM CUL-2b An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, and site documentation, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.

Facts in Support of Findings

Records search results from the NWIC identified one informal archaeological resource (483A-001) within the project site and three prehistoric archaeological resources (P-28-000643, P-28-001156 and P-28-002458) located within the 0.5-mile records search radius. Additionally, the Sacred Lands Files search conducted by the Native American Heritage Commission (NAHC) came back positive for TCRs within the project site. Resource 483A-001 is located within 44.8 acres of the project site that will remain undeveloped for the purposes of environmental conservation, and will not be subjected to any ground-disturbing activities. MM CUL-2a ensures that no ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.

No additional archaeological resources were encountered during the pedestrian field survey; however, poor soil visibility and the presence of several archaeological resources in the immediate vicinity increases the possibility of resources being encountered during project construction.

Implementation of MM CUL-2b requires a qualified Archaeologist to be present on-site during all earth disturbing activities, reducing potential impacts to archaeological resources that may be discovered during project construction. If a potential resource is identified, construction would be required to stop until appropriate identification and treatment measures are implemented.

The City finds that MM CUL-2a and MM CUL-2b are feasible, are adopted, and will further reduce impacts related to archaeological resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid

the potentially significant impacts as identified in the EIR. Therefore, impacts associated with archaeological resources would be less than significant with mitigation incorporated.

Potential Effect

Impact CUL-3: The proposed project could disturb human remains, including those interred outside of formal cemeteries (**Draft EIR Pages 3.4-23–24**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.4-23). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM CUL-3 In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98.
2. Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance:
   - The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission.
   - The descendant identified fails to make a recommendation.
   - The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

- When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.

Facts in Support of Findings

While no formal cemeteries or areas containing human remains are known to be in the project vicinity, the possibility always exists that construction-related ground disturbance may uncover previously undiscovered human remains. In the unlikely event such a discovery is made, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. Implementation of MM CUL-3, which details inadvertent discovery procedures, would reduce potential impacts to previously undiscovered human remains to a less than significant level.

The City finds that MM CUL-3 is feasible, is adopted, and will further reduce impacts related to previously undiscovered human remains. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with cultural resources would be less than significant with mitigation incorporated.

Potential Effect

Impact CUL-4: The proposed project may cause a substantial adverse change in the significance of a Tribal Cultural Resource (**Draft EIR Pages 3.4-24–26**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.4-26). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM CUL-4 A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the Protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for

Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities.

1. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol.
2. Inadvertent Discovery of Native American Human Remains: Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the area is culturally affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents. Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.
3. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains" encompasses more than human bones because the Tribe’s traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American

human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American Remains are to be treated in the same manner as bones or bone fragments that remain intact.

4. Non-Disclosure of Location of Reburials: Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest that the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.
5. Treatment of Cultural Resources: Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.
6. Inadvertent Discoveries: If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.

Facts in Support of Findings

Records search results from the NWIC indicate several prehistoric sites are located within the project vicinity, and a review of the NAHC Sacred Lands File was positive for recorded TCRs being located within the project site. On February 9, 2021, a response was received from the Yocha Dehe Wintun Nation stating that the project site falls within the Tribe's traditional use area and could impact known cultural resources important to the Tribe, constituting a significant impact. Implementation of

Tribe-provided recommended mitigation measures and protocols, MM CUL-4, would reduce potential impacts to TCRs to a less than significant level.

The City finds that MM CUL-4 is feasible, is adopted, and will further reduce impacts related to TCRs. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts associated with cultural resources would be less than significant with mitigation incorporated.

Potential Effect

Impact CUL-5: The proposed project may cause a substantial adverse change in the significance of a tribal cultural resource (**Draft EIR Pages 3.4-26–27**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.4-27). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM CUL-2a, MM CUL-2b, MM CUL-3 and MM CUL-4.

Facts in Support of Findings

FCS sent letters containing project information and requesting any additional information to each tribal representative identified by the NAHC on February 8, 2021. A second follow up letter and/or email was sent on May 13, 2021. On May 21, 2021, a third and final attempt was made via phone call. On February 9, 2021, a response was received from the Yocha Dehe Wintun Nation stating that the project site falls within the Tribe's traditional use area and could impact known cultural resources important to the Tribe. The Tribe provided recommended mitigation measures and protocols (MM CUL-4).

Tribal consultation pursuant to AB 52 has been initiated by the City of American Canyon and is ongoing. The City of American Canyon, in its capacity as Lead Agency, has not identified any TCRs within the project site that are significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. However, the possibility remains that TCRs in the form of subsurface archaeological resources or human remains may be encountered during project construction. Implementation of MM CUL-2a, MM CUL-2b, MM CUL-3, and MM CUL-4 would require construction monitoring by a qualified Archaeologist and Native American Monitor. These measures would reduce potential impacts to TCRs to a less than significant level.

The City finds that MM CUL-2a and MM CUL-2b are feasible, are adopted, and will further reduce impacts related to archaeological resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid

the potentially significant impacts as identified in the EIR. Therefore, impacts associated with archaeological resources would be less than significant with mitigation incorporated.

Cumulative Impacts

With the implementation of mitigation, the proposed project would not result in a significant cumulative impact to cultural resources in the City of American Canyon or surrounding area. (**Draft EIR, Page 4-7–8**).

Findings: Less than significant cumulative impact with mitigation incorporated (Draft EIR, Page 4-8). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM CUL-2a, MM CUL-2b, MM CUL-3 and MM CUL-4.

Facts in Support of Findings

The geographic scope of the cumulative cultural resources analysis is a 0.5-mile radius of the project site. Cultural resource impacts tend to be localized because the integrity of any given resource depends on what occurs only in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the project site (including the off-site construction areas), the area near the project site would be the area most affected by project activities (generally within a 500-foot radius).

No listed historic or archaeological resources are within the project boundaries. Thus, none would be adversely impacted by project construction, therefore no cumulative impacts would occur within the City of American Canyon or its immediate vicinity. Construction activities associated with cumulative development projects in the project vicinity may have the potential to encounter undiscovered cultural resources. The cumulative projects listed in Table 4-1 of the Draft EIR would be required to mitigate impacts through compliance with applicable federal and State laws governing cultural resources.

Additionally, the implementation of standard construction mitigation measures would ensure undiscovered cultural resources are not adversely affected by project-related construction activities, which would prevent the destruction or degradation of potentially significant cultural resources in the project vicinity. Given the standard archaeological resources mitigation measures that would apply to the cumulative projects listed in Table 4-1 (including the proposed project), the cumulative impact related to archaeological resources would be less than significant with mitigation (MM CUL-2a, 2b, and 3).

There is the possibility that previously undiscovered Tribal Cultural Resources (TCRs) could be encountered by subsurface earthwork activities associated with the cumulative projects; however, the implementation of MM CUL-4 would ensure that undiscovered TCRs are not adversely affected by cumulative project-related construction activities. Given the low potential for disruption, the

standard conditions of approval, and mitigation measures that cumulative projects would be required to implement, the proposed project, in conjunction with other planned and approved projects, would result in a less than significant cumulative impact with mitigation related to TCRs.

The City finds that MM CUL-2a, MM CUL-2b, MM CUL-3, and MM CUL-4, are feasible, are adopted, and will further reduce cumulative impacts related to cultural resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, the proposed project would not result in a significant cumulative impact to cultural resources in the City of American Canyon or surrounding area.

1.6.4 - Geology, Soils and Seismicity

Potential Effect

Impact GEO-1: The proposed project may expose people or structures to potential substantial adverse effects associated with seismic hazards (**Draft EIR Pages 3.5-12–14**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.5-14). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM GEO-1a Prior to the issuance of building permits for each Phase 2 structure, the project applicant shall submit plans to the City of American Canyon for review and approval that demonstrate a minimum 50-foot setback between the West Napa Fault and each building. The approved plans shall be incorporated into the proposed project.

MM GEO-1b Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.

Facts in Support of Findings

Fault Rupture

Phase 1

There are no active earthquake faults within Phase 1. For these reasons, Phase 1 of the proposed project would not be subject to fault rupture during a seismic event nor would it exacerbate exposure to fault rupture hazards.

Phase 2

Cornerstone Earth Group conducted a Geological Fault Investigation in 2017 that identified the precise location of the West Napa Fault within Phase 2 of the project site. Pursuant to State law, a 50-foot setback must be established from the fault to the nearest building. Mitigation Measure (MM) GEO-1a requires the applicant to prepare and submit plans for Phase 2 when building permits are sought, demonstrating the required setbacks and ensuring that the proposed project does not exacerbate exposure to fault rupture hazards.

Strong Ground Shaking

Phases 1 and 2

Phase 1 is located in a seismically active region of California and is susceptible to strong ground shaking during a seismic event.

A design-level geotechnical report for the proposed project would be prepared by the time building permits are sought and would provide recommendations to minimize ground shaking hazards. Accordingly, MM GEO-1b would require the applicant to submit such a study to the City of American Canyon for review and approval. Standard soil engineering and building design practices would include standards for foundations and structural support of buildings to ensure that they withstand strong ground shaking during a seismic event and avoid the exacerbation of exposure to such hazards. The implementation of this mitigation measure would ensure that the proposed project is not exposed to strong ground shaking hazards.

Ground Failure and Liquefaction

Phases 1 and 2

The Geotechnical Engineering Report determined that the project site is underlain by high plasticity soils, which are considered too stiff and dense to be susceptible to liquefaction. Thus, the proposed project would not be susceptible to ground failure, liquefaction, or liquefaction-related phenomena and impacts would be less than significant and no mitigation is required.

Landslides

Phases 1 and 2

The project site contains relatively flat relief, with an approximately 15-foot difference in elevation across the site. There are no slopes near the project site that may be susceptible to landslides during a seismic event. There is no potentially significant environmental impact and no mitigation is required.

The City finds that MM GEO-1a and MM GEO-1b are feasible, are adopted, and will further reduce impacts related to fault rupture and ground shaking. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

Potential Effect

Impact GEO-2: The proposed project may result in substantial soil erosion or the loss of topsoil (**Draft EIR Pages 3.5-14–15**).

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.5-15). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM HYD-1a Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

Facts in Support of Findings

The proposed project would involve grading, building construction, paving, and utility installation activities that may cause erosion and sedimentation which could accumulate in downstream waterways, resulting in the blockage of flows, potentially causing increased localized ponding or

flooding. MM HYD-1a in Section 3.8, Hydrology and Water Quality, of the Draft EIR would require the implementation of stormwater quality control measures during construction activities to prevent pollutants from entering downstream waterways.

The City finds that MM HYD-1a is feasible, is adopted, and will further reduce impacts related to erosion and sedimentation. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

Potential Effect

Impact GEO-4: The proposed project may create substantial risks to life or property as a result of expansive soil conditions on the project site (**Draft EIR Page 3.5-16)**.

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.5-16). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM GEO-1b Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.

Facts in Support of Findings

The Geotechnical Engineering Report found that the project site is underlain by soils with high clay content and are therefore capable of being expansive. The design-level Geotechnical Investigation required by MM GEO-1b would outline standard grading and soil engineering practices to abate these potential hazards.

The City finds that MM GEO-1b is feasible, is adopted, and will further reduce impacts related to expansive soils. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially

significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

Potential Effect

Impact GEO-5: The proposed project may directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (**Draft EIR Page 3.5-16—17)**.

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.5-17). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM GEO-5 If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil. The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.

Facts in Support of Findings

The surface of the project site consists of Holocene fan deposits (Qf), Holocene–Pleistocene fan deposits (Qpf), early to middle Pleistocenefan or terrace deposits (Qoa), and the Pliocene Huichica Formation (Th). Also in the surrounding 0.5-mile radius (dashed outline) are modern artificial fill (af, afbm), Holocene–Pleistocene landslide deposits (Qls), the Plio-Pleistocene Petaluma Formation (Tsp), the Pliocene Sonoma Volcanics andesite (Tsv), and the Cretaceous Great Valley Sequence (Kgv).

Modern and Holocene deposits are too young to be fossiliferous, whereas andesite is a nonfossiliferous volcanic rock. Additionally, there are no recorded vertebrate or plant localities within Napa County.

For these reasons, the project site is not located in an area that is considered likely to have paleontological resources present. However, if significant paleontological resources are discovered, implementation of MM GEO-5 will reduce this potential impact to a less than significant level. There are no unique geologic features present on the project site or off-site development areas.

The City finds that MM GEO-5 is feasible, is adopted, and will further reduce impacts related to undiscovered paleontological resources. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

1.6.5 - Greenhouse Gas Emissions and Energy

Potential Effect

Impact GHG-1: The proposed project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (**Draft EIR Page 3.6-50—62)**.

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.6-62). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM GHG-1a Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs):

- At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric.
- At least 10 percent of building materials used for project construction shall be sourced from local suppliers.
- At least 65 percent of construction and demolition waste materials shall be recycled or reused.
- At least one contractor that has a business location in American Canyon shall be contracted for project construction.
- All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) used during construction be electrically powered.
- Architectural coatings used for project construction shall be “Low-VOC,” containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product.
- Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California

Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective action within 48 hours. The Bay Area Air Quality Management District (BAAQMD) phone number shall also be identified and visible to ensure compliance with applicable regulations.

MM GHG-1b Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing.

MM GHG-1c Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.

MM GHG-1d Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2.

Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on site plans), that each loading dock is outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while trucks are loading and unloading goods.

MM GHG-1e Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045.

Facts in Support of Findings

The proposed project would generate GHG emissions during construction and operation. Neither the BAAQMD nor City have an emissions threshold for determining potentially significant impacts related to construction GHG emissions; therefore, the BAAQMD's recommended GHG-reducing BMPs were utilized as the basis for determining the proposed project's construction-related impact. The proposed project would include the applicable GHG-reducing BMPs during construction through implementation of MM GHG-1a. MM GHG-1a notably has more construction BMPs than those recommended by the BAAQMD. The project applicant has identified these additional construction BMPs as feasible and applicable means to maximize GHG emission reductions during project construction; therefore, MM GHG-1a incorporates additional BMPs beyond those recommended by the BAAQMD to further the proposed project's contribution to its "fair share" in GHG emission reductions during construction toward the State's long-term climate goal of carbon neutrality by 2045. Because MM GHG-1a would require the proposed project to meet and exceed implementation of the BAAQMD-recommended BMPs for reducing construction GHG emissions, project construction would be considered to commit its "fair share" of GHG emission reductions consistent with the State's long-term climate goal of carbon neutrality and would therefore be less than significant.

GHG emissions associated with full operation of the proposed project for the anticipated first operation in 2023 are shown in Table 3.6-4 of the Draft EIR, which incorporates implementation of MMs AIR-2c and AIR-2d. As discussed in Section 3.2, Air Quality, of the Draft EIR, MM AIR-2c would be required to ensure the use of low-VOC (i.e., reactive organic gas [ROG]) architectural coating products that contain no more than 50 grams of VOC per liter of product to reduce the generation of ROG emissions during project operation. Any GHG emissions generated during architectural coating reapplication would be captured under area-source emissions as shown in Table 3.6-4 of the Draft EIR. As shown therein, area-source emissions generated during project operation would be less than 0.5 MT CO_2e per year and was therefore rounded down to zero. As such, MM AIR-2c would result in a negligible effect on operational GHG emissions generated by the proposed project.

As discussed in Section 3.2, Air Quality of the Draft EIR, MM AIR-2d would be required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe nitrogen oxide (NO_X) emissions. Model year 2014 was selected because it is the first homogenous model year for a trucking fleet in Napa County, based on EMFAC2017 data, to demonstrate a reduction in NO_X emissions when compared with unmitigated emission estimates. This is considered a feasible trucking mitigation measure as the ARB's Truck and Bus Regulation[101] would otherwise require trucks greater than a 26,000-pound gross vehicle weight rating which operate in California to be no older than 2010 model year by the time the proposed project would become operational in 2023. This would allow the proposed project to utilize trucks which are 9 years old and would not constitute an infeasible financial burden.

While the trucking fleet serving the proposed project would represent the greatest GHG emission source during project operation, as illustrated in Table 3.6-4 of the Draft EIR, MM AIR-2d was determined to be the most feasible trucking mitigation to reduce tailpipe emissions of all types, including GHG emissions, due to the size of the trucking fleet. With over 500 trucks accessing the proposed project each day, the financial burden associated with implementing more stringent

trucking mitigation is very likely to amount a cost greater than what a "prudent investor" would otherwise bear to develop the proposed project. In addition, the other principal emission source of passenger vehicles would not be possible to mitigate through project design as the operation of privately owned vehicles by employees and visitors would not be under the direct control of the proposed project.

Moreover, as discussed under Impact GHG-1, MMs GHG-1b through GHG-1e would ensure project consistency with the BAAQMD's proposed 2022 GHG significance thresholds, as refined by the City, by prohibiting the use of natural gas infrastructure, complying with the Tier 2 EV charging infrastructure requirements of CALGreen, complying with the Tier 2 energy efficiency standards of CALGreen, and sourcing project electricity consumption from carbon-free sources. In addition, MMs GHG-1b through GHG-1e would reduce the proposed project's reliance on fossil fuels and reduce the potential for wasteful, inefficient, or unnecessary consumption of energy resources.

Lastly, as discussed further under Impact GHG-1, the proposed project would demonstrate a 15 percent reduction in employee-generated VMT from the region's existing employee VMT, consistent with the BAAQMD's proposed 2022 GHG significance thresholds for VMT reductions for other identified land use types, including office uses, which the City has determined are similar to industrial uses. In addition, the proposed project's trucking operations would be subject to incrementally more stringent tailpipe emission standards and fleet turnover requirements through various ARB programs and rules, further facilitating the use of EVs and reducing the generation of truck-generated GHG emissions. The City finds that MM GHG-1a through MM GHG-1e are feasible, are adopted, and will further reduce impacts related to GHG emissions. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

Potential Effect

Impact GHG-3: The proposed project would not result in a potential significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. (**Draft EIR Pages 6.6-69—73**)

Findings: Less than significant impact (Draft EIR Page 3.6-72). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

Implement Mitigation measures MM GHG-1a through MM GHG-1e.

Facts in Support of Findings

A significant impact would occur if the proposed project would result in the inefficient, wasteful, or unnecessary use of energy.

Construction

The anticipated construction schedule for the proposed project was assumed to begin in January 2022 and conclude in August 2023. If the anticipated construction schedule moves to later years, construction energy demand would likely decrease because of improvements in technology and more stringent regulatory requirements. Project construction would require energy for the manufacture and transportation of building materials, preparation of the site (e.g., site clearing, and grading), and the actual construction of the building. Petroleum-based fuels such as diesel fuel and gasoline would be the primary sources of energy for these tasks. Construction equipment is estimated to consume a total of 51,911 gallons of diesel fuel and an estimated 337,528 gallons of gasoline and diesel would be consumed by vehicle travel during construction (Draft EIR, Appendix B).

Other equipment could include construction lighting, field services (office trailers), and electrically driven equipment such as pumps and other tools. Singlewide mobile office trailers are commonly used in construction staging areas. A typical 720-square-foot office trailer would consume approximately 20,152 kilowatt-hours (kWh) during the 20-month construction phase (Draft EIR, Appendix B).

The proposed project's construction is not anticipated to result in unusually high energy use. Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. Similarly, compliance with State regulations would limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB.

Additionally, the overall construction schedule and process is already designed to be efficient to avoid excess monetary costs. For example, equipment and fuel are not typically used wastefully due to the added expense associated with renting the equipment, maintaining it, and fueling it. Therefore, the opportunities for future efficiency gains during construction are limited. Therefore, it is anticipated that the construction phase of the proposed project would not result in wasteful, inefficient, and unnecessary consumption of energy.

Operation

Operation of the proposed project would consume an estimated 24,495,402 kWh of electricity and an estimated 9,060,000 kBTU of natural gas annually under the cold storage project scenario and an estimated 8,834,476 kWh of electricity and an estimated 8,260,000 kBTU of natural gas annually under the dry storage project scenario (Draft EIR, Table 3.6-7). As previously discussed, the proposed project would be considered to result in a potentially significant impact if it would result in wasteful, inefficient, or unnecessary consumption of energy resources. Considering the guidance provided by Appendix F of the CEQA Guidelines and the Appellate Court decision in *League to Save Lake Tahoe Mountain etc. v. County of Placer* (2022) 75 Cal.App.5th 63, 164-168, the proposed project would be considered to result in wasteful, inefficient, or unnecessary consumption of energy resources if it would conflict with the following energy conservation goals:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas, or oil; and
- Increasing reliance on renewable energy sources.

Decreasing Overall Per Capita Energy Consumption

The proposed project would result in an approximately 29 percent reduction in employee VMT from regional average estimates, which would result in an overall decrease in per capita transportation energy consumption with respect to employee transportation energy resources. Trucking activities envisioned by the proposed project would be generally controlled by new technologies and the mandatory turnover of fleets through medium and heavy-duty truck emission standards and regulations (Draft EIR Pages 3.6-50—60). Moreover, the movement of freight goods and trucking and locomotive travel distances subsequent to that activity is largely dictated by market demand rather than the implementation of specific development projects. As such, the proposed project would not change overall energy consumption related to trucking and locomotive activities, and overall energy consumption related to employee transportation would decrease from the region's current average employee transportation behavior.

Because energy consumption data for the City is not available, County estimates were used to determine the proposed project's per capita energy consumption. The County currently has estimated per capita energy consumption of 7,471 kWh and 28.45 MMBtu per year. The proposed project would result in up to 24,495,402 kWh per year and up to 9,060 MMBtu per year under a cold storage scenario starting in 2023 without considering any mitigation (Draft EIR, Table 3.6-7). The number of estimated employees is used to identify the proposed project's per capita energy consumption. The proposed project's estimated 3,643 employees would result in a per capita energy consumption of 6,724 kWh per year and 2.49 MMBtu per year, both of which would be below the County's average electricity and natural gas consumption rates.

With implementation of MM GHG-1c, the proposed project is likely to consume less electricity than what is disclosed in Table 3.6-7 of the Draft EIR due to the required additional energy efficiency improvements and the fact that CalEEMod Version 2020.4.0 assumes minimum energy efficiency design compliance with the 2019 California Building Code. Should the permitting of the proposed project occur after January 1, 2023, the proposed project would be subject to additional energy efficiency standards beyond what is currently required at the time of this analysis. Nonetheless, implementation of MM GHG-1b would require the proposed project to implement an all-electric building design, likely resulting in greater electricity consumption than what would otherwise occur but reducing natural gas-related energy consumption by 100 percent, thereby contributing to the overall decrease in per capita energy consumption.

Decreasing Reliance on Fossil Fuels

The proposed project would be considered to conflict with this criterion if it did not take steps to decrease the reliance on fossil fuels. The implementation of MMs GHG-1a, GHG-1b, and GHG-1d would actively promote the proposed project's decreased reliance on fossil fuels through the design and operation of the proposed project. MM GHG-1a would require the project applicant to utilize electric and alternatively fueled construction equipment and local contractors, among other requirements, which would reduce the proposed project's commitment of fossil fuel energy resources during project construction. MM GHG-1b would require the proposed project to prohibit the installation of natural gas infrastructure, thereby precluding the proposed project's future use of

natural gas. Lastly, MM GHG-1d would require the proposed project to source 100 percent of its electricity from carbon-free sources.

Increasing Reliance on Renewable Energy Sources

As previously discussed, MM GHG-1a and MM GHG-1b would increase the proposed project's reliance on renewable energy sources during project construction. MM GHG-1c would require the proposed project's buildings be designed and constructed in accordance with the State's Tier 2 Nonresidential Building Energy Efficiency Standards. The proposed project would also be designed to accommodate rooftop photovoltaic panel arrays should they be installed. MM GHG-1e would additionally require that the proposed project source its electricity consumption from carbon-free sources, either with on-site renewable generation technologies or through subscription with a 100 percent carbon-free electricity service with PG&E or MCE.

In addition, MM GHG-1d would require the proposed passenger vehicle and truck parking areas to accommodate more EV charging stations than would be required with minimum code compliance. Loading docks would also be required to contain 240-volt outlets to accommodate EV and TRU charging for trucks. At a minimum, the parking shall be designed to accommodate EV charging stations in an amount equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2. As a result, the proposed project's energy consumption would not be wasteful, inefficient, or unnecessary.

The City finds that MM GHG-1a through MM GHG-1e are feasible, are adopted, and will further reduce impacts related to GHG emissions. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

1.6.6 - Hydrology and Water Quality

Potential Effect

Impact HYD-1: Construction activities and changes to drainage patterns associated with the proposed project may degrade surface water quality in downstream water bodies (**Draft EIR Page 3.8-10—12)**.

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.8-12). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM HYD-1a Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the

following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

MM HYD-1b Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include the applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design concepts, as well as concepts that accomplish a "first flush" objective that would remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.

Facts in Support of Findings

Phases 1 and 2

Chemicals, such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances, could be used during construction and an accidental release of any of these substances could degrade the quality of the surface water runoff and adversely affect receiving waters. As such, MM HYD-1a would require the development and implementation of a SWPPP to outline site-specific stormwater quality control measures (such as Best Management Practices [BMPs]) during construction activities to prevent pollutants from entering downstream waterways.

The increase in impervious area increases the efficiency by which sediment and other pollutants are delivered downstream. Concentration of flow by the storm drain system could increase the erosive energy of flows, thereby increasing sediment supply from the project site. Runoff from landscaped areas may also contain residual pesticides and nutrients. Consequently, there is potential for long-term degradation of runoff water quality from the implementation of the project. The project proposes the following post-construction stormwater management features, according to a three-tiered LID/BMP design approach:

- The purpose of site design BMPs is to maintain pre-development runoff characteristics, protect sensitive resource areas, and attempt to minimize new impervious areas. The site has been designed to limit the amount of disturbed area and new impervious areas.
- Source control BMPs use structural controls and operational procedures to limit pollutants at their source. The project would implement the following source control BMPs: mark "No Dumping! Flows to River" on storm drain inlets; plumb interior floor drains to sanitary sewer; carefully manage pesticide use for landscaped areas; post "Do Not Dump Hazardous Materials Here" on refuse areas; utilize enclosed trash compactors; grade loading docks to minimize run-on and contain spills; and drain parking areas to bioretention planters.
- Treatment control BMPs are designed to reduce the amount of pollutants in stormwater and to reduce runoff rates or volumes. All new impervious areas will be routed through either a bioretention basin or an infiltration planter. The floors of bioretention basins will be amended with a layer of gravel overlain by a layer of specialized biosoil. The biosoil will be a sandy loam material to promote infiltration while allowing for vegetation to establish. An underdrain will be installed to facilitate infiltration as the local soils have low infiltration potential. Bioretention basins have been configured to drain within 48 hours to prevent vector concerns.

Additionally, the wetland preserve would facilitate the natural sequestration of stormwater pollutants leaving the project site.

MM HYD-1b would require (1) that the Stormwater Control Plan be reviewed and verified by the City of American Canyon to ensure the proposed stormwater controls are adequate pursuant to the requirements of Order No. R2-2015-0049 (or more recent permit), and (2) that an operation and maintenance program is in place to ensure the long-term functionality of the stormwater controls. Various RWQCBs determined that BMPs in MM HYD-1b are known to be effective in protecting receiving waters.

The City finds that MM HYD-1a and MM HYD-1b are feasible, are adopted, and will further reduce impacts related to surface water quality. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

1.6.7 - Land Use

Potential Effect

Impact LU-3: The proposed project may conflict with the applicable provisions of the Napa County Airport Land Use Compatibility Plan (**Draft EIR Page 3.9-49—52)**.

Findings: Less than significant impact with mitigation incorporated (Draft EIR, Page 3.9-42). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM AES-3 and MM LU-3

MM LU-3 Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.

Facts in Support of Findings

Phases 1 and 2

Airport Land Use Compatibility Review

The project site falls within the Napa County ALUCP Area.

The (ALUCP) establishes policies and compatibility zones addressing four key focus areas: noise, safety, airspace protection, and overflight. The project site falls entirely within Zone D. Zone D encompasses the common traffic pattern. These areas are routinely overflown by aircraft. Zone D is characterized by moderate risk, frequent noise intrusion and routine overflights below 1,000 feet above ground level. Within Zone D, indoor uses are limited to densities of no more than 100 people per net acre. Uses with an outdoor component can have up to 150 people per net acre. The ALUCP does not limit the number of people that can be clustered in any one acre of the parcel within Zone D.

Additionally, the ALUCP prohibits residential uses and uses posing hazards to flight. Hazards to flight include objects that penetrate FAR Part 77 airspace surfaces, uses that would attract large numbers of birds, and uses that would create smoke, glare, distracting lights, or electronic interference.

Maximum Density

The proposed project includes several buildings that would facilitate development of industrial uses, including warehousing, manufacturing, and general office uses. These land uses are generally consistent with ALUCP criteria, provided that the uses do not attract large concentrations of people.

The ALUCP sets forth a maximum density criterion of 100 people per net acre for Zone D. The ALUCP identifies three methods for calculating density: (1) parking ordinance; (2) maximum occupancy; and (3) other methodologies in cases where density cannot be reasonably estimated based upon parking or square footage.

The maximum occupancy methodology is most appropriate because it is based on typical Building Code occupancy limits, which can be calculated based on the known project characteristics. Because the ancillary office space within each building is the most intense use, it has been broken out separately from the warehouse use.[2] Table 3.9-3 of the Draft EIR summarizes the maximum occupancy calculation.

The project complies with the density recommendation of no more than 100 persons per net acre (Draft EIR, 3.9-4).

Wildlife Attractants

The two aspects of the proposed project that have the greatest potential for creating aviation safety hazards are the open space area and the stormwater basins.

As previously discussed, a 45-acre Wetland Preserve will be established as part of the proposed project. This area contains wetlands that currently attract wildlife (e.g., avian species). Avian species are considered potential hazards to aviation activities due to the potential for bird strikes. The proposed project would create new wetland features to offset those impacted as result of the proposed project. However, it would not substantially increase the bird attractant potential because the new compensatory wetlands represent a small portion of the total open space area. Thus, the proposed project would not introduce new aviation hazards in this respect.

The proposed stormwater basins would be designed to drain out within 48 hours of a 10-year storm event, minimizing the amount of time the basins would hold standing water. This would reduce their avian attractant attributes. Additionally, basins would not represent a greater attractant than standing water in the project vicinity during and immediately after a storm event.

Furthermore, the proposed project would result in an approximately 163-acre reduction in avian foraging habitat as a result of the development of the proposed structures and infrastructure. The proposed project also would include landscaping and on-site drainage facilities that would be designed and managed to discourage wildlife use of the site. This would further minimize the avian attractant attributes of the project site relative to existing conditions.

Overall, the proposed project would not increase the avian attractant attributes of the project site or nearby areas under the Napa County Airport flight path compared to existing conditions.

The ALUCP indicates that projects that have the potential to attract wildlife are required to prepare a Wildlife Hazards Assessment and MM LU-3 would require the preparation of such an assessment and implementation of the recommendations into the design of the open space area.

Light, Glare, Dust, Steam, and Other Aviation Hazards

The ALUCP Policy 3.3.5 states the following:

Policy 3.3.5 Land uses which may produce hazards to aircraft in flight shall not be permitted within any airport's planning area. Specific characteristics to be avoided include: (1) glare or distracting lights which could be mistaken for airport lights; (2) sources of dust, steam, or smoke which may impair pilot visibility; (3) sources of electrical interference with aircraft communications or navigation; and (4) any use which may attract large flocks of birds, especially landfills and certain agricultural uses.

MM AES-3 requires all exterior lighting to use full cut-off fixtures and be directed downward to prevent interference with Napa County Airport operations. Together, the implementation of these two mitigation measures would ensure that the proposed project would not create hazards to aviation.

The City finds that MM AES-3 and MM LU-3 are feasible, are adopted, and will further reduce impacts related to land use. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

1.6.8 - Noise

Potential Effect

Impact NOI-1: The proposed project could generate a substantial temporary or permanent increase in ambient noise levels in noise-sensitive locations in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (**Draft EIR Page 3.10-15—22)**.

Findings Less Than Significant Impact with Mitigation Incorporated (Draft EIR, Page 3.10-22). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR (State CEQA Guidelines § 15091(a)(1)).

Mitigation Measures

MM NOI-1 Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts:

- The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment.
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.
- The construction contractor shall ensure that all on-site construction activities, including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.

Facts in Support of Findings

Construction

A significant impact would occur if construction noise impacts were greater than 75 dBA between the hours of 7:00 a.m. and 7:00 p.m. or greater than 60 dBA from 7:00 p.m. to 7:00 a.m., per the City's policies, and would result in a substantial temporary increase in ambient noise levels that could result in annoyance or sleep disturbance of nearby sensitive receptors.

Construction-related Traffic Noise

Short-term noise impacts could result from the transport of workers and construction equipment and materials to and from the project site. This would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the Average Daily Traffic (ADT) hourly volumes on a roadway segment is required in order to result in an increase of 3 dBA in traffic noise levels. This is the lowest change that can be perceptible to the human ear in outdoor environments. Project-related construction trips would not be expected to double the hourly or daily traffic volumes along any roadway segment in the project vicinity. For this reason, short-term intermittent noise from construction trips would not be expected to result in a perceptible increase in hourly or daily average traffic noise levels in the project vicinity.

Construction Equipment Operational Noise

Short-term noise impacts could result from construction activity related to the proposed project. Similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

The site preparation phase involves the use of earthmoving equipment, which tends to generate the highest noise levels. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. The maximum noise level generated by each scraper, bulldozer and grader is assumed to be 85 dBA L_{max} at 50 feet from this equipment. (Draft EIR, Table 3.10-2). Each doubling of sound sources with equal strength increases a sound level by 3 dBA. Thus, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. This would result in a reasonable worst-case hourly average of 86 dBA L_{eq}.

The closest façade of the closest noise-sensitive receptor to the project site would be located 1,240 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would operate simultaneously during construction of the proposed parking areas near the project's northeastern boundary. At this distance, construction noise levels could range up to approximately 62 dBA L_{max}, with a relative worst-case hourly average of 57 dBA L_{eq} at this receptor. These noise levels could occur temporarily.

These construction noise levels are within the construction noise limits established by the City of no greater than 75 dBA during the hours of 7:00 a.m. to 7:00 p.m.; but these levels could exceed the City's nighttime threshold for construction noise of 60 dBA. Thus, MM NOI-1 would require all on-site construction activities be limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. MM NOI-1 would further reduce impacts from construction noise by requiring mufflers on construction equipment powered by internal engines. MM NOI-1 also would require contractors to limit idling times of vehicles with internal combustion engines to 5 minutes or less and utilize quiet mode on air compressors and other stationary noise sources. Furthermore, MM NOI-1 would require contractors to locate stationary noise-generating equipment as far away as the equipment allows and also be placed such that noise is directed away from adjacent residential homes.

Operation

Implementation of the project would result in mobile and stationary operational noise sources.

Mobile Source Operational Noise Impacts

A significant impact would occur if implementation of the proposed project would result in a substantial increase in traffic noise levels compared with traffic noise levels existing without the project. A change of 5 dBA is considered the minimum readily perceptible change to the human ear in outdoor environments. Therefore, for purposes of this analysis, a 3 dBA or greater increase above traffic noise levels that would exist without the project would be considered a substantial permanent increase in traffic noise levels.

The traffic study prepared by W-Trans concluded that the highest traffic noise level increase with implementation of the proposed project would occur along South Kelly Road under Existing Plus Project conditions and would result in traffic noise levels ranging up to 59.1 dBA L_{dn} as measured at 50 feet from the centerline of the nearest travel lane, representing an increase of 2.5 dBA over

existing conditions for this roadway segment (Draft EIR, Table 3.10-6). This increase is less than a 3 dBA or greater increase that would be considered a substantial increase.

Stationary Source Operational Noise Impacts

A significant impact would occur if operational noise levels generated by stationary noise sources at the proposed project site would result in a substantial permanent increase in ambient noise levels in excess of the City's noise performance standards. The City requires that new industrial, commercial, and related land uses demonstrate that they would not directly cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA in areas containing housing, schools, health care facilities, or other "noise-sensitive" land uses.

Parking Lot Activities

The proposed project would generate noise from parking lot activities. Typical parking lot activities generate noise levels ranging from approximately 60 dBA to 70 dBA L_{max} at 50 feet.

The closest façade of the nearest noise-sensitive receptor to the project site would be located 1,360 feet southwest of the nearest proposed parking areas. Noise levels associated with daily parking lot activities would attenuate to approximately 41 dBA L_{max} at this façade. Assuming a reasonable worst-case scenario of one parking movement for every parking stall within a single hour would result in an hourly average noise level of 24 dBA L_{eq} as measured at this nearest façade. If these noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 30 dBA L_{dn} as measured at this nearest receptor (Draft EIR, Appendix G).

Therefore, the proposed project's reasonable worst-case parking lot noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. Existing traffic noise levels along Green Island Road are 62 dBA L_{dn} (Draft EIR, Table 3.10-6). Therefore, project parking lot activities would not result in a substantial permanent increase in ambient noise levels in the project vicinity.

Mechanical Equipment Operations

The proposed project would generate noise from new exterior mechanical equipment sources. A reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from commercially available rooftop mechanical ventilation equipment range from 50 dBA to 60 dBA L_{eq} at a distance of 25 feet.

The closest façade of the nearest noise-sensitive receptor to the project site would be located approximately 1,470 feet southwest of the nearest potential location for proposed rooftop mechanical ventilation equipment. At this distance, noise generated by typical rooftop mechanical ventilation equipment would attenuate to below 22 dBA L_{eq} at the nearest façade. If these noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 29 dBA L_{dn} as measured at this nearest receptor (Draft EIR, Appendix G).

Therefore, the proposed project's reasonable worst-case mechanical ventilation equipment operation noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. As discussed above, existing traffic noise levels along Green Island

Road are 62 dBA L_{dn}. Therefore, noise levels from proposed mechanical ventilation equipment operations would not result in a substantial permanent increase in ambient noise levels in the project vicinity.

Truck Loading Activities

Noise would be also generated by truck loading and unloading activities at the loading docks along the western side of the proposed building and at the proposed surface level loading areas on the north and south sides of the building. Typical maximum noise levels from truck loading and unloading activity are 70 dBA L_{max} as measured at 50 feet.

The closest façade of the nearest noise-sensitive receptor to the project site would be located approximately 1,600 feet from the nearest loading docks. Assuming a reasonable worst-case scenario of one truck loading operation for every loading stall and every loading dock within a single hour would result in an hourly average noise level of 40 dBA L_{max} and 29 dBA L_{eq} as measured at the nearest façade of the residence. If these noise levels were to occur every hour for a 24-hour period, they would result in a reasonable worst-case average noise level of 35 dBA L_{dn} as measured at this nearest receptor (Draft EIR, Appendix G).

The proposed project's reasonable worst-case truck loading/unloading activity noise levels would not cause ambient noise levels to exceed an exterior L_{dn} of 65 dBA as measured at the nearest receptor. As discussed above, existing traffic noise levels along Green Island Road are 62 dBA L_{dn}. Therefore, project truck loading/unloading activities would not result in a substantial permanent increase in ambient noise levels in the project vicinity.

Stationary Source Operational Noise Impact Conclusion

None of the project stationary operational noise sources would result in an increase of 3 dBA or greater above the City's performance threshold of 65 dBA L_{dn} for stationary noise sources as measured at the nearest sensitive receptor. Table 3.10-7 of the Draft EIR provides a summary of the stationary source operation noise impacts.

The City finds that MM NOI-1 is feasible, is adopted, and will further reduce impacts related to noise. Accordingly, the City finds that, pursuant to Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in, or incorporated into, the proposed project that mitigate or avoid the potentially significant impacts as identified in the EIR. Therefore, impacts would be less than significant with mitigation incorporated.

1.7 - Impacts Identified in the Draft EIR as Being Significant and Unavoidable Even After the Incorporation of All Feasible Mitigation Measures

The Lead Agency hereby finds that, despite the incorporation of mitigation measures outlined in the EIR and the attached MMRP, the following impacts from the proposed project and related approvals cannot be fully mitigated to a less than significant level and a Statement of Overriding Considerations is therefore included herein.

1.7.1 - Air Quality

Impact AIR-1: The proposed project would conflict with or obstruct implementation of the applicable air quality plan (**Draft EIR Pages 3.2-38–45**).

Findings: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR. (State CEQA Guidelines, Section 15091(a)(1).) However, impacts would still remain significant and unavoidable even with mitigation incorporated. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measure or project alternatives identified in the EIR. (State CEQA Guidelines, Section 15091(a)(3).) (Draft EIR, Page 3.2-45).

Mitigation Measures

MM AIR-2a The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction:

- All active construction areas shall be watered at least two times per day.
- All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.
- All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The

BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

MM AIR-2b Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product.

MM AIR-2c Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.

MM AIR-2d Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy-duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement.

To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.

MM AIR-2e Prior to the issuance of the certificate of occupancy for each building with dock doors, signage shall be posted identifying idling restrictions and contact information to report violations to the building manager.

MM AIR-2f Prior to the issuance of the certificate of occupancy for each building with a separate end user, the City shall confirm that the end user has prepared a Transportation Demand Management Plan (TDM Plan). The TDM Plan shall be prepared by a

qualified transportation consultant and identify strategies to reduce single-occupant vehicle trips. Examples of TDM strategies may include but are not limited to:

- Ridesharing/Ride Matching
- Vanpools
- Transit subsidies
- Preferential parking for rideshare or vanpool vehicles
- Employee lockers
- Secure bicycle parking
- Employee locker rooms
- Provide TDM information in employee breakroom

MM AIR-2g As a part of future lease agreements, the project proponent shall provide all future tenants at the project site information on available California Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) incentive programs, such as the Carl Moyer Program and the Voucher Incentive Program, that support upgrading truck fleets to clean air technology equipment.

Facts in Support of Findings

The BAAQMD 2017 Clean Air Plan is a regional and multiagency effort to reduce air pollution in the Air Basin. A consistency determination with the 2017 Clean Air Plan fulfills the CEQA goal of informing decision-makers of the proposed project's environmental effects under consideration early enough to ensure that air quality concerns are fully addressed.

In part, the regional population, housing, and employment projections developed by the ABAG for the San Francisco Bay Area Air Basin (SFAAB) are based on cities' general plan land use designations. These projections form the foundation for the emissions inventory of the 2017 Clean Air Plan. Projects consistent with the local general plan are considered consistent with the regional air quality plan. The project site is designated "Industrial" by the City of American Canyon General Plan and zoned "General Industrial." The proposed project is consistent with these General Plan land use designations. Thus, the proposed project would generally be consistent with the underlying general plan land use designation and would not have the potential to substantially affect housing, employment, and population projections in the region that are the basis of the 2017 Clean Air Plan projections. The proposed project would not conflict with the control measures of the 2017 Clean Air Plan (Draft EIR, Table 3.2-9).

The BAAQMD's CEQA Air Quality Guidelines further recommend determining a project's consistency with the 2017 Clean Air Plan, in part, by determining a project's consistency with the significance thresholds presented in Table 3.2-7 of the Draft EIR. As discussed under Impact AIR-2 below, the proposed project would generate emissions which exceed the BAAQMD's significance thresholds after the implementation of applicable and feasible mitigation and would result in a significant and unavoidable impact. As discussed below under Impact AIR-2, implementation of MM AIR-2a and MM AIR-2b would sufficiently reduce project construction emissions to less than significant levels.

Implementation of MM AIR-2c and MM AIR-2d would not be sufficient to reduce project operation emissions to less than significant levels.

As discussed under Impact AIR-2, unmitigated project operation would result in ROG and NO_X emissions which exceed BAAQMD significance thresholds. NO_X emissions generated during project operation would principally be generated by the operation of the trucking fleet, irrespective of whether the fleet would accommodate the use of TRUs. MM AIR-2d would be required to ensure the trucking fleet accessing the project site would be comprised of vehicles no older than model year 2014 to reduce tailpipe NO_X emissions. MM AIR-2e would require that anti-idling signage be posted in loading dock areas. MM AIR-2f requires that a TDM Program be implemented.

As discussed further in Impact AIR-2 below, implementation of MM AIR-2c would result in a reduction of ROG emissions under both dry storage and cold storage scenarios; however, these emissions would still exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day. Furthermore, as discussed in Impact AIR-2, with the implementation of MM AIR-2d, NO_X emissions during project operation would be reduced under both dry storage and cold storage scenarios; however, emissions would still exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day.

Because the proposed project would generate emissions which exceed the BAAQMD's significance thresholds and BAAQMD's CEQA Air Quality Guidelines recommend determining a project's consistency with the 2017 Clean Air Plan, in part, by determining a project's consistency with the BAAQMD significance thresholds, the proposed project would be inconsistent with the 2017 Clean Air Plan.

The City finds that MM AIR-2a through MM AIR-2g are feasible, are adopted, and will reduce impacts to the greatest extent feasible. However, impacts would still remain significant and unavoidable even with mitigation incorporated.

Impact AIR-2: The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable deferral or State ambient air quality standard (**Draft EIR Pages 3.2-45–59**).

Findings: Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR. (State CEQA Guidelines, Section 15091(a)(1).) However, impacts would still remain significant and unavoidable even with mitigation incorporated. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measure or project alternatives identified in the EIR. (State CEQA Guidelines, Section 15091(a)(3).) (Draft EIR, Page 3.2-59).

Mitigation Measures

MM AIR-2a, MM AIR-2b, MM AIR-2c, MM AIR-2d, MM AIR-2e, MM AIR-2f and MM AIR-2g.

Facts in Support of Findings

This impact is related to the cumulative effect of a project's regional criteria pollutant emissions. The cumulative analysis focuses on whether a specific project would result in cumulatively considerable emissions. According to Section 15064(h)(4) of the CEQA Guidelines, the existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the project's incremental effects would be cumulatively considerable. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed the BAAQMD regional thresholds of significance for construction and operations on a project level. A project that would not exceed the BAAQMD thresholds of significance on the project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts.

Construction

Construction Fugitive Dust

The BAAQMD bases the determination of significance for fugitive dust on a consideration of the BMPs to be implemented. If all appropriate emissions control measures are implemented for a project as recommended by the BAAQMD, then fugitive dust emissions during construction are not considered significant. MM AIR-2a would ensure implementation of construction BMPs recommended by the BAAQMD irrespective of the emissions reductions achieved by those BMPs. With this mitigation measure, short-term construction fugitive dust impacts would be less than significant .

Construction Air Pollutant Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

CalEEMod, Version 2020.4.0, was used to estimate the proposed project's construction emissions. Estimated construction emissions are compared with the applicable thresholds of significance established by the BAAQMD to assess ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ construction emissions to determine significance for this impact. As the BAAQMD dust control measures would be required to ensure fugitive dust impacts are less than significant, the emission estimates shown below account for the implementation of MM AIR-2a.

ROG emissions generated mainly during architectural coating activities during project construction would exceed BAAQMD significance thresholds (Draft EIR, Table 3.2-10), requiring the implementation of MM AIR-2b, which would require the use of low-VOC (i.e., ROG) architectural coating products during project construction. MM AIR-2b would result in reducing ROG emissions from 68 average pounds per day to 33 average pounds per day, which is below the BAAQMD significance threshold of 54 pounds per day for ROG emissions during project construction (Draft EIR, Table 3.2-11). Therefore, project construction emissions would be less than significant with the implementation of MMs AIR-2a and AIR-2b.

Operation

Operational Air Pollutant Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

Operational emissions would include area, energy, and mobile sources. Area sources would include emissions from architectural coatings, consumer products, and landscape equipment. Energy

sources include emissions from the combustion of natural gas for water heaters and other heat sources. Mobile sources include exhaust and road dust emissions from the automobiles that would travel to and from the project site. Mobile sources also include exhaust from trailer-mounted TRUs which would accompany any freight truck carrying refrigerated goods. Stationary sources include emissions from stationary source equipment, such as backup generators, that would require a permit issued by the BAAQMD. Pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$.

Project operations were analyzed at full buildout immediately following the completion of construction for Phase 2 in August 2023 as a conservative estimate of operational emissions beginning in the earliest year of full operation.

The cold storage project scenario would also include the operation of TRUs, which are analyzed using weighted averages for emission factors retrieved from the ARB's OFFROAD2017 database for in-state truck TRUs, in-state van TRUs, in-state gen-set TRUs, in-state trailer TRUs, out-of-state gen-set TRUs, out-of-state trailer TRUs, and locomotive TRUs, all utilizing aggregate horsepower bins. These vehicle categories encompass all possible TRU emission factors contained in the database. Each truck is assumed to be accompanied by a TRU and each of the 528 truck trips is one-way, this analysis assumes a truck and TRU population of 266. Each TRU is assumed to spend an average of four hours running on-site for unloading and loading purposes, and an average of two hours off-site traveling to and from the Port of Oakland.

The locomotive emission estimates assume a monthly average of 500,000 ton-miles of locomotive deliveries. Assuming an average travel distance of 50 miles and an average loaded railcar weight of 65 tons, this would represent nearly two loaded, 20-railcar locomotive deliveries per week. Operational emission estimates for the proposed project are contained in Table 3.2-12 of the Draft EIR. For detailed assumptions used to estimate emissions, see Draft EIR, Appendix B.

The proposed project would result in operational-related criteria air pollutants or ozone precursors which would exceed the BAAQMD's thresholds of significance, specifically with respect to ROG and NO_X emissions (Draft EIR, Table 3.2-12). MM AIR-2c would be required to ensure the use of low-VOC architectural coatings for any reapplication of paints and coatings and the use of electric landscaping equipment, including chainsaws, lawnmowers, and leaf blowers during project operation. The trucking fleet would generate the majority of operational NO_X emissions, thus MM AIR-2d would be required to ensure that a more fuel-efficient, lower-emission trucking fleet—one which demonstrates a model year 2014 or newer for all heavy-duty trucks upon first implementation—is utilized during project operation.

Under a dry storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 13 tons per year and 70 average pounds per day to approximately 12 tons per year and 64 average pounds per day, which would still exceed the BAAQMD significance thresholds for ROG emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2c would result in a reduction of ROG emissions during project operation from approximately 16 tons per year and 90 average pounds per day to approximately 15 tons per year and 85 average pounds per day, which would still exceed the applicable BAAQMD significance thresholds (Draft EIR, Table 3.2-13).

Under a dry storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 40 tons per year and 217 average pounds per day to approximately 35 tons per year and 192 average pounds per day, which would still exceed the BAAQMD significance thresholds for NO_X emissions of 10 tons per year and 54 average pounds per day. Under a cold storage scenario, implementation of MM AIR-2d would result in a reduction of NO_X emissions during project operation from approximately 71 tons per year and 388 average pounds per day to approximately 66 tons per year and 362 average pounds per day, which would still exceed the applicable BAAQMD significance thresholds (Draft EIR, Table 3.2-13).

CalEEMod, Version 2020.4.0, utilizes a Statewide average VOC (i.e., ROG) per building square-foot metric, irrespective of land use type, derived from the ARB's Statewide 2008 Consumer Product Inventory. Nonresidential land uses, such as the proposed project, are likely to result in fewer operational ROG emissions generated by the use of consumer products than what is demonstrated in this analysis. The principal source for operational ROG emissions would be the use of consumer products by employees and visitors and these uses would not be under the control of the property owner or tenant. As such, mitigation targeting the use of consumer products was omitted from this analysis.

Operational Carbon Monoxide Hotspot

The CO emissions from traffic generated by the proposed project are a concern at the local level.

The BAAQMD recommends a screening analysis to determine whether a project has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is necessary. The proposed project would result in a less than significant impact to air quality for local CO if all the following screening criteria are met:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; and
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Traffic Impact Study (TIS) prepared for the proposed project concluded that no intersections impacted by the proposed project would experience traffic volumes of 44,000 vehicles per hour. Nonetheless, accumulation of local CO concentration can occur when a transportation facility's design or orientation prevents the adequate dispersion of CO emissions from vehicles. However, adjacent roadways that would receive new vehicle trips generated by the proposed project do not include roadway segments where vertical or horizontal atmospheric mixing is substantially limited.

As discussed in Section 3.12, Transportation of the Draft EIR, all studied roadway segments and intersections would operate at acceptable levels of service with traffic generated by the proposed project in combination with existing traffic levels. Because the proposed project would operate at acceptable levels of service consistent with the City of American Canyon standards, the proposed project would be consistent with an adopted congestion management program. Therefore, the proposed project would not exceed the CO screening criteria and would have a less than significant impact related to CO.

Consequently, implementation of MM AIR-2a and MM AIR-2b would sufficiently reduce project construction emissions to less than significant levels; however, implementation of MM AIR-2c and MM AIR-2d would not be sufficient to reduce project operation emissions to less than significant levels. The City finds that MM AIR-2a through MM AIR-2g are feasible, are adopted, and will reduce impacts to the greatest extent feasible. However, impacts related to project operation emissions would remain significant and unavoidable even with mitigation incorporated.

Cumulative Impacts

Because of emissions from existing nearby projects, the proposed project would have a significant cumulative impact on air quality. (**Draft EIR, Page 4-4–5**).

Findings: Significant cumulative impact (Draft EIR, Page 4-5). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR. (State CEQA Guidelines, Section 15091(a)(1).) However, impacts would still remain significant and unavoidable even with mitigation incorporated. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measure or project alternatives identified in the EIR. (State CEQA Guidelines, Section 15091(a)(3).)

Facts in Support of Findings

The geographic scope of the cumulative air quality analysis is the San Francisco Bay Area Air Basin, which covers all or portions of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Sonoma, and Solano. The BAAQMD CEQA Guidelines' cumulative significance criteria are used in the cumulative analysis of air quality.

A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would result in substantial new regional emissions not foreseen in the air quality planning process. Regional emissions forecasts in the air quality plan are based on population and employment forecasts based on City and County General Plans. The proposed project is consistent with land use designations and applicable goals and policies of the American Canyon General Plan, site zoning, and other applicable land use regulatory documents and thus is considered planned growth. Because the proposed project would not result in unplanned growth or in VMT, it would not conflict with or obstruct implementation of the air quality plan in this regard. Additionally, the

proposed project would meet all of the applicable Land Use Measures and Energy and Climate Measures contained in the BAAQMD's Clean Air Plan.

If a project does not exceed the BAAQMD established numerical thresholds, its emissions would not be cumulatively considerable, resulting in less than significant air quality impacts to the region's existing air quality conditions. As discussed in Impact AIR-2, the proposed project would emit operational criteria pollutant emissions (ROGs and oxides of nitrogen) at levels that would exceed the BAAQMD CEQA Guidelines and significance thresholds. Proposed mitigation would not reduce these emissions to below BAAQMD thresholds. Therefore, the proposed project would contribute to a cumulatively considerable (i.e., significant and unavoidable) regional air quality impact with regard to criteria pollutants and consistency with the BAAQMD's current Clean Air Plan.

1.7.2 - Greenhouse Gas Emissions and Energy

Cumulative Impacts

The proposed project's cumulative impacts related to greenhouse gas emissions would be cumulatively significant. (**Draft EIR, Page 4-9–10**).

Findings: Significant cumulative impact (Draft EIR, Page 4-10). Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the EIR. (State CEQA Guidelines, Section 15091(a)(1).) However, impacts would still remain significant and unavoidable even with mitigation incorporated. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measure or project alternatives identified in the EIR. (State CEQA Guidelines, Section 15091(a)(3).)

Facts in Support of Findings

The geographic scope of the cumulative GHG emissions analysis is the San Francisco Bay Area Air Basin, which covers all or portions of the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Sonoma, and Solano. In a larger sense, however, the relevant geographic area is the entire Earth, as explained by the California Supreme Court. "[B]ecause of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (*Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, 219.) "'With respect to climate change, an individual project's emissions would most likely not have any appreciable impact on the global problem by themselves, but they would contribute to the significant cumulative impact caused by GHG emissions from other sources around the globe. The question therefore becomes whether the proposed project's incremental addition of GHG emissions is "cumulatively considerable" in light of the global problem, and thus significant.'" (*Id.*, quoting Crockett, Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World (July 2011) Golden Gate U. Envtl. L.J. 203, 207–208).)

The proposed project would emit new GHG emissions, as would other past, present, and reasonably foreseeable projects within the Air Basin. The BAAQMD has not set a numerical threshold of

significance for GHG emissions from construction, but has set a threshold for GHG emissions from operation as well as a threshold on a per-service population basis. The proposed project would comply with relevant elements of the City of American Canyon EECAP, but would exceed both of the BAAQMD operational GHG thresholds and as such could be considered cumulatively significant. GHG emissions from the proposed project's potential new stationary source were found to exceed the BAAQMD significance threshold for GHG from stationary sources and as such could be considered cumulatively significant. Therefore, the proposed project, in conjunction with other past, present, and reasonably foreseeable future development in the Air Basin and around the world, would result in a significant cumulative GHG emissions impact.

1.8 - Findings Regarding Alternatives

1.8.1 - Introduction

This section presents findings regarding alternatives to the proposed project. The section provides a summary and discussion of the feasibility of the following alternatives evaluated in the Draft EIR:

- **Alternative 1: No Project/No Development Alternative.** The project site would remain undeveloped for the foreseeable future and no development would occur.
- **Alternative 2: No Project/Existing General Plan Alternative.** A 2.4-million-square-foot food and beverage processing facility would be developed on the project site.
- **Alternative 3: Reduced Density Alternative.** A 1.6-million-square-foot logistics center would be developed on the project site, which represents a 25 percent reduction in square footage relative to the proposed project. The layout and project boundaries would remain the same as the proposed project.
- **Alternative 4: Phase 1 Only Alternative.** Phase 1 of the proposed project would be developed, which consists of approximately 1.1 million square feet of high-cube warehouse on 95 acres. Phase 2 would not be developed, and the remaining 113 acres would remain undeveloped.

In accordance with CEQA Guidelines Section 15126.6, the EIR contained a comparative impact assessment of alternatives to the proposed project. The primary purpose of this analysis is to provide decision-makers and interested agencies, organizations and individuals with information about a reasonable range of potentially feasible project alternatives, which could avoid or reduce any of the proposed project's significant adverse environmental effects. Important considerations for the alternatives analyses are noted below:

- An EIR need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives identified in Section 1.3.2, Project Objectives;
  - Infeasibility; and

- Inability to avoid significant environmental effects.

CEQA does not require that an analysis of alternate sites always be included in an EIR. Pursuant to CEQA Guidelines Section 15126.6(f)(2), in making the decision to include or exclude analysis of an alternate site, the "key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR."

The Draft EIR evaluates the feasibility of three alternative locations located within 1 mile of the project site either in the City of American Canyon or within unincorporated Napa County (Draft EIR, Exhibit 5-1). The three alternative locations considered in the Draft EIR are Sentinels of Freedom Property, Commerce Court, and Hess Vineyards. All three alternative locations do not constitute feasible alternatives because none of the properties are owned, controlled, or otherwise accessible to the project applicant and each of the properties are too small to accommodate the level of development contemplated by the proposed project. Furthermore, the Commerce Court location is the subject of an active development application and the Hess Vineyards location was re-designated from "Industrial" to "Agriculture, Watershed, and Open Space" by the Napa County Zoning Ordinance in 2008. None of these three sites would meet CEQA Guidelines criteria for a feasible alternative location (Draft EIR, Table 5-8).

Alternative 1: No Project/No Development Alternative.

CEQA Guidelines Section 15126.6(e) requires that an EIR evaluate a "No Project Alternative," which is intended to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. In cases where the project constitutes a land development project, the No Project Alternative is the "circumstance under which the project does not proceed." For many projects, the No Project Alternative represents a "No Development" scenario, in which the project site remains in its existing condition and no development occurs for the foreseeable future. However, CEQA Guidelines Section 15126.6(e)(3)(B) establishes that "If disapproval of the project under consideration would result in predictable actions by others such as the proposal of some other project, this 'no project' consequence should be discussed." In the interests of informed decision-making, the EIR considered both a No Project/No Development Alternative and a No Project/Existing General Plan Alternative.

The No Project/No Development Alternative would avoid the proposed project's significant and unavoidable impacts and would avoid any potential impacts related to all environmental topical areas. However, this alternative would not advance any of the project objectives, including those related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for manufacturing, logistics warehouse, and other industrial uses. Finally, it should be noted that the project site is zoned for industrial use, has been the subject of previous industrial development proposals, and is currently served with infrastructure suitable for this type of

development. Thus, should the proposed project not advance, it would be expected that another industrial development proposal would be submitted.

Finding: Based on the discussion in the EIR and all other evidence before it, the City finds that the No Project/No Development Alternative does not advance project objectives. The City rejects this alternative as infeasible.

Alternative 2: No Project/Existing General Plan Alternative.

The No Project/Existing General Plan Alternative would not avoid the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project and in fact would increase the severity of these impacts. The No Project/Existing General Plan Alternative would increase the severity of impacts associated with land use, noise, public services, transportation, and utilities. Additionally, the No Project/Existing General Plan Alternative would have similar impacts on aesthetics, biological resources, cultural resources, geology, hazards, and hydrology and water quality.

The No Project/Existing General Plan Alternative would advance most of the project objectives including those related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development. However, the change of the end use would not advance the project objective concerning serving local and regional demand for logistics warehouse uses.

Finding: Based on the discussion in the EIR and all other evidence before it, the City finds that the No Project/Existing General Plan Alternative does not advance most of the project objectives. The City rejects this alternative as infeasible.

Alternative 3: Reduced Density Alternative.

The Reduced Density Alternative would lessen the severity of, but would not avoid, the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project. Additionally, the Reduced Density Alternative would lessen the severity of several of the significant impacts that can be reduced to a level of less than significant with mitigation (e.g., hydrology and water quality, and noise).

The Reduced Density Alternative would advance all of the project objectives, with several advanced to a lesser degree. However, the reduction in square footage would result in fewer positive economic benefits and, thus, would advance the project objectives to a lesser degree. For example, this alternative would be expected to employ fewer workers than the proposed project. This includes objectives related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for logistics warehouse uses.

Finding: Based on the discussion in the EIR and all other evidence before it, the City finds that the Reduced Density Alternative advances several project objectives to a lesser degree than the proposed project. The City rejects this alternative as infeasible.

Alternative 4: Phase 1 Only Alternative.

The Phase 1 Only Alternative would lessen the severity of, but would not avoid, the significant and unavoidable air quality and GHG emissions impacts associated with the proposed project. Additionally, the Phase 1 Only Alternative would lessen the severity of several of the significant impacts that can be reduced to a level of less than significant with mitigation (e.g., biological resources, cultural resources, hydrology and water quality, and noise).

The Phase 1 Only Alternative would advance all of the project objectives, with several advanced to a lesser degree. However, the reduction in square footage would result in fewer positive economic benefits and, thus, would advance the project objectives to a lesser degree. For example, this alternative would be expected to employ fewer workers than the proposed project. This includes objectives related to facilitating the development of land planned for business park/industrial uses to its highest and best use; positively contributing to the local economy; providing the City of American Canyon with a high-quality, employment-generating industrial development; and serving local and regional demand for logistics warehouse uses.

As a practical matter, the project applicant has a 100-year lease agreement with the property owner, and it would be impractical to forgo development on the Phase 2 portion of the project site. Moreover, the project site is the single largest undeveloped site in the City of American Canyon and is zoned for industrial use. Preserving 113 acres of the site as a wetland preserve would not represent the highest and best use of the property, particularly since approximately 44.8 acres of the project site would be assigned for this use.

Finding: Based on the discussion in the EIR and all other evidence before it, the City finds that the Phase I Only Alternative advances several project objectives to a lesser degree than the proposed project. The City rejects this alternative as infeasible.

Environmentally Superior Alternative

Section 15126.6(e)(2) of the State CEQA Guidelines indicates that an analysis of alternatives to a proposed project shall identify an environmentally superior alternative among the alternatives evaluated in an EIR.

Three of the project alternatives would lessen the environmental impacts relative to the proposed project to a certain degree (as described above and further in the Draft EIR). The No Project/Existing General Plan Alternative would result in greater environmental impacts in some environmental topic areas. If the No Project/No Development Alternative is the environmentally superior alternative—which is the case here as it avoids all project impacts, but fails to satisfy any of the project objectives—the EIR must also identify another environmentally superior alternative among the remaining alternatives. Based on these Findings, of the three remaining alternatives, the Phase I

Only Alternative would be considered the environmentally superior alternative, even though it fails to fully implement project objectives and is therefore infeasible.

1.9 - Findings Regarding Cumulative Impacts

Consistent with CEQA's requirements, the EIR for the proposed project includes an analysis of cumulative impacts in every topical discussion. As discussed above, except as to cumulative air quality impacts, all other cumulative impacts associated with the proposed project are less than significant with the implementation of applicable mitigation and compliance with applicable regulations. Cumulative air quality impacts remain significant even with incorporation of all feasible mitigation.

1.10 - Findings Regarding Growth Inducement

State CEQA Guidelines Section 15126.2(e) requires a discussion of the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth-inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or underserved area, or the removal of major barriers to development.

There are two types of growth-inducing impacts that a project may have: direct and indirect. To assess the potential for growth-inducing impacts, the project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines § 15126.2(e)). CEQA Guidelines, as interpreted by the City, state that a significant growth-inducing impact may result if the project would:

- Induce substantial population growth in an area (for example, by proposing new homes and commercial or industrial businesses beyond the land use density/intensity envisioned in the general plan);
- Substantially alter the planned location, distribution, density, or growth rate of the population of an area; or
- Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list when such infrastructure exceeds the needs of the project and could accommodate future developments.

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community by directly inducing unplanned population growth, or by leading to the construction of additional developments in the same area. Also included in this category are projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a WWTP with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they facilitate and serve. Projects that physically remove obstacles to growth, or projects that indirectly induce growth may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

The proposed project does not include residential uses and therefore would not directly induce population growth.

The proposed project would develop approximately 2.4 million square feet of new high-cube warehouse uses and would employ an estimated 1,200 workers during construction and 3,643 workers when fully operational at buildout. The proposed project's warehouses would likely be built incrementally over a period of years and, thus, jobs would be added in phases as the project builds out. As such, there would not be an "overnight" influx of new employment opportunities.

The California Employment Development Department estimated the combined Napa-Solano labor force at 273,500 in October 2021, which is sufficiently large enough to fill the proposed project's estimated employment opportunities such that unplanned growth would not occur.

During the NOP review period, the County of Napa requested the Draft EIR evaluate whether there is sufficient housing for project employees. Because prospective employees have not been identified, statements about housing for project employees would be speculative. Nonetheless, the City of American Canyon has more than 2,400 dwelling units in the pipeline (Draft EIR, Table 4-1). The City's population was estimated to be 20,837. Thus, the addition of more than 2,400 dwelling units to the City's housing inventory would more than offset the employment growth attributable to the proposed project.

The proposed project would be served by connections to existing water, wastewater, storm drainage, electricity, and natural gas lines that exist in Green Island Road or Devlin Road. No extension of infrastructure into unserved areas would be required and, therefore, no removal of physical barriers to growth would occur. As such, the proposed project would not indirectly induce substantial population growth (Draft EIR, Pages 6-1—2).

1.11 - Findings Regarding Significant Irreversible Environmental Changes

According to Sections 15126(c) and 15126.2(d) of the State CEQA Guidelines, the Lead Agency must address any significant irreversible environmental changes that would occur should the project be implemented. Generally, a project would result in significant irreversible environmental changes if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental accidents; or
- The proposed consumption of resources is not justified.

Construction of the proposed project would include the consumption of resources that are not replenishable, or which may renew so slowly to be considered nonrenewable. These resources would include the following: certain types of lumber and other forest products; aggregate materials

used in concrete and asphalt such as sand, gravel, and stone; metals such as steel, copper, and lead; petrochemical construction materials such as plastics; and water. Fossil fuels such as gasoline and oil would also be consumed in the use of construction vehicles and equipment. Development would not be expected to involve an unusual commitment of nonrenewable resources, nor be expected to consume any resources in a wasteful manner. Construction-related impacts related to electricity and fuel consumption would be less than significant.

The irreversible long-term environmental changes associated with the proposed project would include an increase in local and regional vehicular traffic, and the resultant increase in air pollutants, GHG emissions, and noise generated by this traffic. The proposed project would also irreversibly increase the commitment of energy resources, potable water supply, wastewater treatment, solid waste disposal, and public services, such as providing police and fire services, to support the proposed project through its lifetime. However, features incorporated into the proposed project and proposed mitigation measures would minimize the significant effects of the environmental changes associated with the proposed project to the maximum degree feasible.

As explained in the Draft EIR, the proposed project will not result in the wasteful, inefficient, and unnecessary consumption of energy, will not cause the need for additional natural gas or electrical energy-producing facilities, and, therefore, will not create a significant impact on energy resources. Rather, the proposed project would be well-positioned to serve the North Bay Counties of Napa, Solano, and Sonoma due to its proximity to SR-29/SR-12 corridors.

1.12 - Findings Regarding Circulation

During the public review period after the Draft EIR was published, the Lead Agency received certain additional information. Lead Agency staff and consultants involved in preparing the various studies, reports and analyses included in the Draft EIR have also presented additional information since the publication of the Draft EIR. Some of this information was contained in comments submitted on the Draft EIR, and in responses to those comments contained in the Final EIR. Other information was presented at or before public meetings/hearings on the EIR. The EIR incorporates feasible mitigation, additions, clarifications, modifications, and other changes, in response to comments and as determined appropriate by Lead Agency staff and required under CEQA.

Under *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal*. (1993) 6 C4th 1112 (Laurel Heights II) and the CEQA Guidelines (14 Cal Code Regs §15088.5(a)(3)), when information added to the Final EIR consists of a suggested additional mitigation measure, recirculation is required only if the new mitigation measure meets all of the following criteria (*South County Citizens for Smart Growth v. County of Nevada* (2013) 221 CA4th 316, 330):

- It is feasible;
- It is considerably different from the alternatives or mitigation measures already evaluated in the Draft EIR;
- It would clearly lessen the project's significant environmental impacts; and
- It is not adopted.

Recirculation is only required only if each of the above tests is met. (*South County Citizens*, *supra* at 330). As described in detail in Table 31 of the Final EIR, mitigation measures proposed during the public comment period are either (1) not necessary; (2) not feasible; (3) or are already included as mitigation. MM AIR-2e and MM AIR-2f have been adopted to further reduce air quality impacts as noted in Final EIR Section 5, Errata. Neither additional mitigation measure has any significant effects. However, the residual significance of Impact AIR-1 and AIR-2 remains significant and unavoidable even with the implementation of the additional mitigation.

The Lead Agency has considered all relevant information including the opinions and comments of interested agencies, organizations and individuals. The Lead Agency finds that the additional mitigation does not meet the test for recirculation. Additionally, the City finds that none of the additional information provided during the public comment period demonstrates any of the following situations requiring recirculation identified in CEQA Guideline 15088.5 have occurred:

- A new significant environmental impact that would result from the project (or any alternative) or from a new mitigation measure proposed to be implemented.
- A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
- A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project (or an alternative), but the project's proponents decline to adopt it.
- The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

Based on the foregoing and as explained in more detail in the Final EIR, and having reviewed all the information in the record of proceedings, the City of American Canyon hereby finds that this additional information does not constitute significant new information nor does it require recirculation of the EIR. The additional information merely clarifies or amplifies an adequate EIR.

1.13 - Statement of Overriding Considerations

CEQA requires that a Lead Agency balance the benefits of a project against its unavoidable environmental risk in determining whether to approve the project. If the benefits outweigh the unavoidable adverse effects, those effects may be considered “acceptable” pursuant to CEQA Guidelines Section 15093(a). CEQA requires that a Lead Agency support, in writing, the specific reasons for considering a project acceptable when significant impacts are infeasible to mitigate. Those reasons must be based on substantial evidence in the EIR or elsewhere in the administrative record pursuant to CEQA Guidelines Section 15093(b). The Lead Agency’s written reasons are referred to as a Statement of Overriding Considerations.

As explained in the above Findings of Fact, most of the project’s impacts on the environment would either be insignificant or, through the incorporation of mitigation measures as conditions of approval of the project, can be reduced to less than significant. However, as set forth in Section 1.7 above, even with implementation of all available mitigation, the proposed project would result in significant

unavoidable impacts related to project level inconsistencies with the BAAQMD regional air quality plan and cumulative criteria pollutant emissions. Further, as set forth in Section 1.8 above, there are no feasible alternatives to the project, which would mitigate or avoid those environmental impacts and which would meet project objectives. Accordingly, as set forth below, the City of American Canyon declares that pursuant to the State CEQA Guidelines Section 15093, the City of American Canyon has balanced the benefits of the proposed project against any unavoidable environmental impacts in determining whether to approve the proposed project. Pursuant to the State CEQA Guidelines, if the benefits of the proposed project outweigh the proposed project's unavoidable adverse environmental impacts, those impacts may be considered "acceptable."

Having reduced the adverse significant environmental effect of the proposed project to the extent feasible by adopting the mitigation measures contained in the EIR, the MMRP, and these Findings, having considered the entire administrative record on the proposed project, and having weighed the benefits of the proposed project against its unavoidable adverse impact after mitigation, the City of American Canyon has determined that each of the following social, economic and environmental benefits of the proposed project separately and individually outweigh all the potential unavoidable adverse impacts and render those potential adverse environmental impacts acceptable based upon the following overriding considerations:

- The project applicant would construct the Napa Valley Vine Trail segment along the project frontage with Devlin Road.
- The proposed project would provide and preserve in perpetuity approximately 45 acres of wetlands that would include habitat currently suitable for foraging by the Swainson's hawk. This permanent preservation respects the natural environment and provides both open space and aesthetic relief from developed urban areas.
- The proposed project would contribute to the City's economic base and is estimated to create 3,643 new local employment opportunities that would Improve American Canyon's jobs-housing ratio. The development of up to 3,643 new jobs in a housing-rich part of the Bay Area region would allow employees to work closer to where they live, thereby reducing vehicle miles traveled.
- The proposed project would stimulate capital investment and expand the tax base.
- The proposed project would meet demand for, bring new businesses to the City and develop compatible land uses near the Napa County Airport. By developing the proposed project's 2.4 million square feet of high-cube warehouse near the airport and transportation corridors, it would contribute to reducing trip length by locating these facilities closer to customers within this region.
- The proposed project would advance the City's goal of orderly development that maintains American Canyon's distinctive character. The proposed project would promote the development of industries that capitalize on the geographic advantages of the City while ensuring consistency with the patterns and distribution of use and density depicted on the Land Use Plan Map (Figure 1-1 of the General Plan).

- The proposed project would help maintain consistency with and carry out the goals, objectives, and policies of the City of American Canyon General Plan. The stated goals, objectives, and policies set forth in the City's Land Use and Planning element recognize the need to accommodate new development by providing a full mix of uses to support its population. Providing new commercial opportunities would help implement several General Plan goals as illustrated in Table 3.9-2 of the Draft EIR.

Custodian of Record; Scope and Content of Record

The documents and materials that constitute the record of proceedings on which these Findings have been based are located at the Community Development Department at 4381 Broadway Street, Suite 201, American Canyon, CA 94503. This information is provided in compliance with Public Resources Code Section 21081.6.

Various documents, information, testimony, reports, studies, analyses and other materials (both oral and written) constitute the record upon which the City bases these Findings and are the basis for the City's approval and/or adoption contained herein. These Findings cite specific pieces of evidence, but none of the City's findings are based solely on those cited pieces of evidence. Rather, these Findings are based upon the entire record, and the Lead Agency intends to rely upon all supporting evidence in the record for each of its conclusions contained herein.

The documents in the record include all items referenced in Public Resources Code Section 21167.6(e):

(i) All project application materials;

(ii) The project EIR (including the Draft EIR, the Final EIR, and all appendices attached thereto);

(iii) All staff reports and related documents prepared by the lead agency and/or consultants with respect to the lead agency's compliance with the substantive and procedural requirements of this division and with respect to the action on the project;

(iv) All staff reports and related documents prepared by the lead agency and written testimony or documents submitted by any person relevant to any findings or Statement of Overriding Considerations adopted by the lead agency pursuant to this division;

(v) All documentary and oral evidence received and reviewed at public hearings, public meetings, study sessions, and workshops on the Project EIR, and any transcript or minutes of the proceedings at which any advisory body or decision-making body heard testimony on, or considered the Project EIR;

(vi) All notices issued by the lead agency to comply with this division or with any other law governing the processing and approval of the project;

(vii) All written comments received in response to, or in connection with, the Project EIR, including comments on the Draft EIR;

(viii) All written evidence or correspondence submitted to, or transferred from, the lead agency with respect to compliance with this division or with respect to the project;

(ix) Any proposed decisions or findings submitted to the decision-makers by lead agency staff, or the project proponent, project opponents, or other interested agencies, organizations and/or individuals;

(x) The documentation of the final decision, including the Project EIR and all documents, in addition to those referenced in paragraph (c), cited or relied on in the findings or in a Statement of Overriding Considerations adopted pursuant to this division;

(xi) For documentary and informational purposes, all locally-adopted land use plans and ordinances, including, without limitation, general plans, specific plans and ordinances, master plans together with environmental review documents, findings, mitigation monitoring programs, and other documentation relevant to planned growth in the area;

(xii) Any other written materials relevant to the lead agency's compliance with this division or to its decision on the merits of the project, including any drafts of any environmental document or portions thereof, which have been released for public review, and copies of studies or other documents relied upon in any environmental document prepared for the project and either made available to the public during the public review period or included in the lead agency's files on the project, and all internal agency communications, including staff notes and memoranda related to the project or to compliance with this division;

(xiii) The full written record before any inferior administrative decision-making body whose decision was appealed to a superior administrative decision-making body prior to the filing of litigation; and

(xiv) Any additional items not included above if otherwise required by law.

Appendix A:
Mitigation Monitoring and Reporting Program

PLANNING SUBMITTAL DRAWINGS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CA

ATTACHMENT 2.A

PERSPECTIVE RENDERINGS OF TYPICAL LOGISTIC CENTER BUILDINGS

PROJECT NARRATIVE:

Site: The project site is located along Lincoln Highway 29 & Green Valley Road. in the City of American Canyon, California. The project will include approximately +/- 70 acres of land and encompass two separate buildings. Buildings A and B will be located on the East side of Devlin Road. Total has a Gross Square Footage of all buildings will be +/- 1.07 million sf of floor space. See individual building square footages below:

Building A: 627,976 square feet.
Building B: 469,512 square feet.

Industrial buildings will be of Type VB construction, site cast, tilted concrete panels with a variety of architectural enhancements. The typical wall panels are to be enhanced with reveals and a textured elastomeric, multicolored coating system. The areas around the building entries are also enhanced with tinted glazing in aluminum frames with overhead steel-framed painted canopies. The placement of these enhancements is focused at those locations most visible from the public roadways.

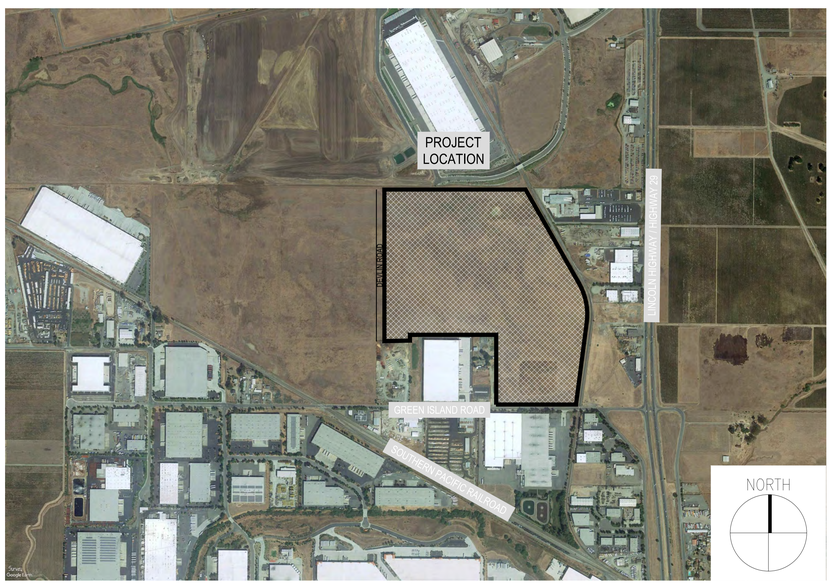
Site Access and Parking:
Entry into the site can be accessed at three entrance drives proposed along Green Island Road. Additional site entry can be obtained at Delvin Road The site will include a semi-truck access aisles that will be separate from employee vehicle parking.

Signage: The proposed signage in this submittal includes is for reference only. Criteria for future tenant signage will be provided at a later and under a separate permit as required.

Landscaping: The project will be fully landscaped using plants appropriate for and indigenous to the City of American Canyon. Low water use plants will be used extensively, while moderate water use plants will be concentrated at accent points, such as driveways and building entries. For further landscaping design information, see "Design Notes" on the LP Preliminary Landscape Plan.

Sustainable Materials & Construction Practices: The project will incorporate a variety of sustainable materials and construction practices to include the following: 1) A storm water pollution prevention plan to minimize contamination, erosion, and dust pollution during construction. All storm water runoff from impervious surfaces (roofs and paving) will be routed through a specially designed water quality detention and treatment basin. Additionally, on-site detention will be provided to meet the City of American Canyon standards. 2) Storage and collection of recyclable materials. 3) Construction waste management. 4) Environmental tobacco smoke control. 5) Heat reflecting roof membranes. 6) Light pollution reduction. 7) Water efficient landscaping. 8) Water use reduction methods. 9) Low VOC emitting sealants, adhesives, coatings, floorings, and wood materials. 10) Roof structures designed to accommodate additional weight for roof-top photovoltaic electricity generation panel arrays. 11) California Green Building Code compliant electric vehicle charging stations at seven locations. 12) The project architect is a LEED accredited professional and will apply his knowledge of LEED techniques and practices to the project design and construction.

VICINITY MAP:



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SHEET INDEX:

A00.1	COVER SHEET *
A00.2	PROJECT RENDERINGS *
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A01.1	PRELIMINARY SITE PLAN - BLDG A*
A01.2	PRELIMINARY SITE PLAN - BLDG B*
A01.7	SITE DETAILS
A02.1	PRELIMINARY FLOOR PLAN - BLDG A
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TM-1	TITLE SHEET AND SITE PLAN
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TM-4	PRELIMINARY UTILITY PLAN
TM-5	PRELIMINARY STORM WATER CONTROL PLAN
TM-6	PRELIMINARY FIRE ACCESS PLAN
LANDSCAPE	
LP	PRELIMINARY PLANTING PLAN *

*DENOTES A SHEET TO BE PRINTED IN FULL COLOR

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Interiors

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rmw.com

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PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 11-11-2020

checked by : JDL

stamp

LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

scale : AS NOTED

project number : 2204049.00

COVER SHEET

sheet no. :

A00.1

BUILDING B

BUILDING A

BUILDING B

BUILDING A

PROJECT RENDERINGS

SCALE: NO SCALE

1

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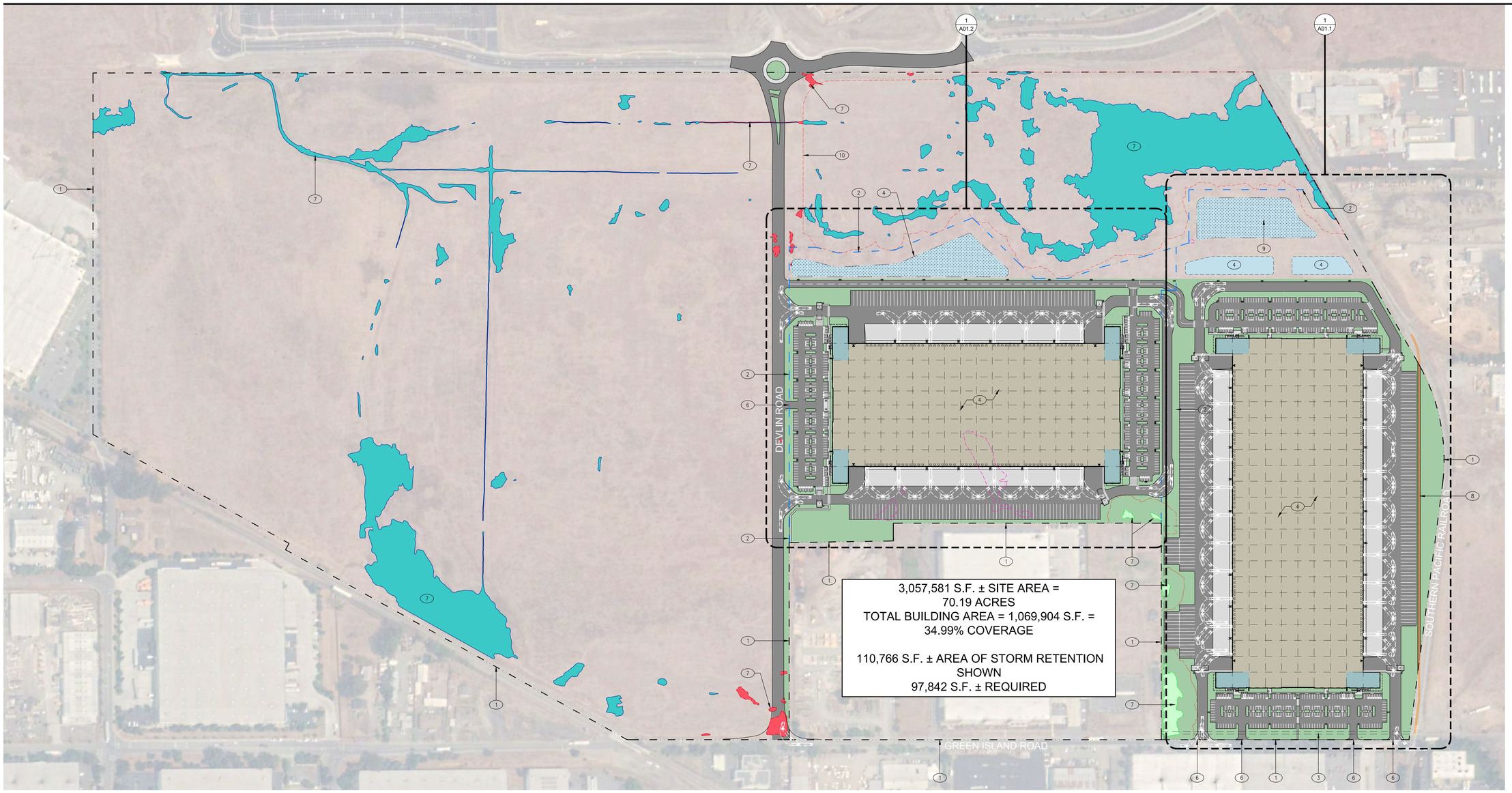
scale : AS NOTED

project number : 2204049.00

PROJECT RENDERINGS -

sheet no. :

A00.2



SITE LEGEND:

BUILDING AREA
ASPHALT AREA
STORM WATER RETENTION AREA
UNAVOIDABLE WETLAND IMPACTS
WATERS OF THE U.S. WETLANDS
EXISTING PROPERTY LINE
50' WETLAND BUFFER
9' X 10' OVERHEAD DOCK LEVEL DOOR
POTENTIAL OFFICE AREA
SITE CONCRETE
LANDSCAPE AREA
ISOLATED WETLANDS
DEVLIN RD / GREEN ISLAND RD WETLAND IMPACT
NEW PARCEL LINE
NEW RAIL SPUR
12' X 14' OVERHEAD GRADE LEVEL DOOR

KEYNOTES:

1. EXISTING PROPERTY LINES.
2. PROPOSED PROPERTY LINES, SEE CIVIL DRAWINGS
3. EXISTING SITE EASEMENTS, SEE CIVIL DRAWINGS FOR MORE INFORMATION.
4. PROPOSED WATER DETENTION BASIN, SEE CIVIL DRAWINGS
5. NEW MONUMENT SIGN. SEE SHEET A01.5 FOR MORE INFORMATION.
6. NEW CURB CUTS, SEE CIVIL DRAWINGS.
7. EXISTING WETLANDS, SEE SITE LEGEND FOR MORE INFORMATION
8. FUTURE RAILROAD SPUR
9. PROPOSED BIO-RETENTION AREA, SEE CIVIL DRAWINGS.
10. LINE OF WETLAND BUFFER. SEE SITE LEGEND.

BUILDING B

APN :	2016-0016509
ZONING:	GI - GENERAL INDUSTRIAL
TOTAL GROSS SITE AREA:	3,057,581 G.S.F. = 70.19 ACRES
NET SITE AREA:	1,326,308 N.S.F. = 30.45 ACRES
BUILDING AREA:	4698,521 S.F.
SITE COVERAGE:	37.87%
CONSTRUCTION TYPE:	II-B
BUILDING HEIGHT:	56'-4'
CLEAR HEIGHT:	36'-0'
NUMBER OF STORIES:	1
PARKING:	430 STALLS TOTAL

PARKING STANDARDS: (AMERICAN CANYON MUNICIPAL CODE CH. 19.21)

- STANDARD STALLS: 9' X 19' (17' WITH A 2'-0' OVERHANG)
- COMPACT STALLS: 8' X 16' (14' WITH A 2'-0' OVERHANG) (40% MAX)
- DRIVE ISLES: 25'-0' ONE-WAY, 25'-0' MIN TWO-WAY
- FIRE TRUCK RADIUS: 25'-0' INSIDE, 50' OUTSIDE
- EMERGENCY ACCESS AISLE: 20'-0' MIN

REQUIRED PARKING (NAPA COUNTY ZONING CH. 18.110.030):

- WAREHOUSE: 1 PER EACH 1,000 SQ. FT. FOR THE FIRST 10,000 SQ. FT., AND 1 PER 2,000 SQ. FT. FOR ALL WAREHOUSE AREA EXCEEDING 10,000 SQ. FT . (469,512 - 10,000 = 459,512 / 2,000 = 229.75 = 230 + 10 = 240 STALLS)
- OFFICE: 1 PER 300 SQ. FT. OF GROSS FLOOR AREA (OFFICE SPACE T.B.D.)

BICYCLE PARKING: (AMERICAN CANYON MUNICIPAL CODE, CH. 19.21, TABLE 19.21.050)

- TOTAL AUTOMOBILE PARKING SPACES: 200 - 299 = 8

(BICYCLE PARKING SHOULD BE LOCATED IN HIGHLY VISIBLE LOCATIONS AND SHOULD BE LOCKABLE)

ACCESSIBLE & DESIGNATED PARKING STALLS (REQUIRED AND PROVIDED) :

PER 2019 CBC TABLE 11B-208.2: 401 TO 500 STALLS, 9 ADA STALLS REQUIRED
VAN ACCESSIBLE STALLS: EVERY 6 OR FRACTION OF SIX, AT LEAST ONE SHALL BE VAN PARKING.
(9 STALLS = 2 VAN ACCESSIBLE)
10 ADA STALLS (INCLUDING 2 VAN ACCESSIBLE STALLS) PROVIDED.

PER 2019 CALIFORNIA GREEN BUILDING CODE TABLE 5.106.5.2: 201 AND OVER STALLS, AT LEAST 8% OF TOTAL. (432 * 0.08 = 34.4 = 35)
PER 2019 CALIFORNIA GREEN BUILDING CODE TABLE 5.106.5.3.3, 201 AND OVER STALLS, 6% OF TOTAL STALLS TO BE ELECTRICAL VEHICLE CHARGING STATIONS (EVCS). (430 * 0.06 = 25.8 = 26)

PER CBC TABLE 11B-228.3.2.1, 26 TO 50 EVCS STALLS, 1 VAN ACCESSIBLE EVCS, 1 STANDARD ACCESSIBLE EVCS AND 1 AMBULATORY EVCS ARE REQUIRED.
OF THE 26 EVCS REQUIRED, 1 VAN EVCS AND 1 STANDARD ADA EVCS AND 1 AMBULATORY ARE PROVIDED AS SHOWN.
OF THE 34 CLEAN AIR STALLS, 26 ARE EVCS AND (35 - 26) = 9 STALLS ARE TO BE LABELLED WITH PAINTED LETTERS PER CALGREEN SECTION 5.106.5.2.1 STATING 'CLEAN AIR / VANPOOL / EV'. THE LOWER EDGE OF THE LAST WORK IS TO ALIGN WITH THE END OF THE PARKING STALL.

BUILDING A

APN :	2016-0016508
ZONING:	GI - GENERAL INDUSTRIAL
TOTAL GROSS SITE AREA:	3,057,581 G.S.F. = 70.19 ACRES
NET SITE AREA:	1,731,273 N.S.F. = 349.74 ACRES
BUILDING AREA:	601,383 S.F.
SITE COVERAGE:	39.99%
CONSTRUCTION TYPE:	II-B
BUILDING HEIGHT:	56'-4'
CLEAR HEIGHT:	36'-0'
NUMBER OF STORIES:	1
PARKING:	430 STALLS TOTAL

PARKING STANDARDS: (AMERICAN CANYON MUNICIPAL CODE CH. 19.21)

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- OFFICE: 1 PER 300 SQ. FT. OF GROSS FLOOR AREA (OFFICE SPACE T.B.D.)

BICYCLE PARKING: (AMERICAN CANYON MUNICIPAL CODE, CH. 19.21, TABLE 19.21.050)

- TOTAL AUTOMOBILE PARKING SPACES: 400 AND GREATER = 10

(BICYCLE PARKING SHOULD BE LOCATED IN HIGHLY VISIBLE LOCATIONS AND SHOULD BE LOCKABLE)

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0 50' 100' 200'

PLAN NORTH

PRELIMINARY SITE PLAN
SCALE: 1" = 100'-0"
1

RMW
Architecture
Interiors

1718 Third Street
Suite 101
Sacramento
California 95811

Office
916 449-1400

rmw.com

OWNER / DEVELOPER:

BUZZ OATES
555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 11-11-2020

checked by : JDL

stamp

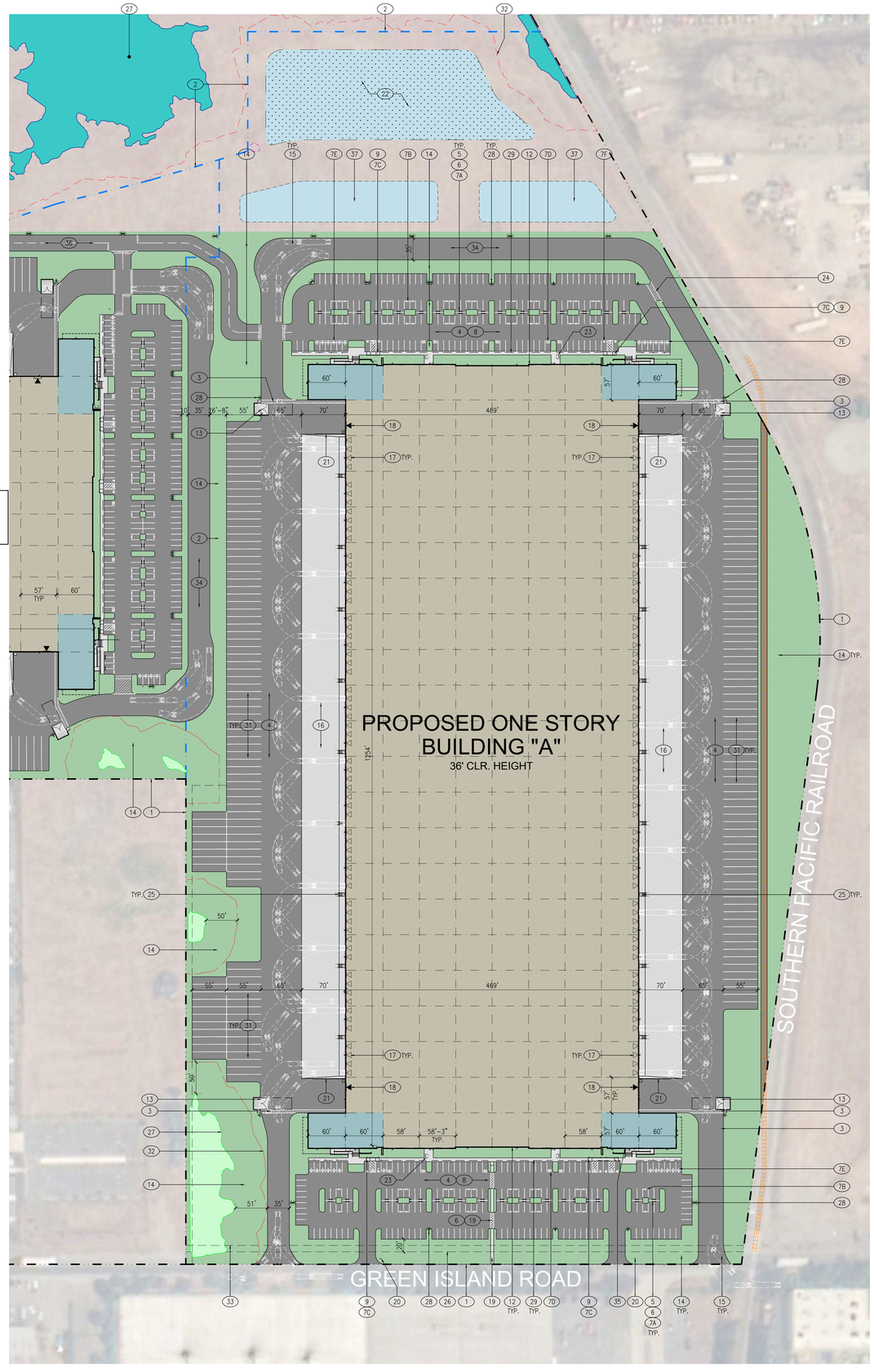
LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

scale : AS NOTED

project number : 2204049.00

PRELIMINARY
OVERALL
SITE PLAN

sheet no. :
A01.0



SEE SHEET A01.2 FOR BUILDING "B" KEYNOTES

TRUE NORTH

0 40' 80' 160'

PRELIMINARY SITE PLAN

SCALE: 1" = 80'-0"

1

SITE INFORMATION / STATISTICS:

BUILDING A

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SITE LEGEND:

- BUILDING AREA
- LANDSCAPE AREA
- CONCRETE AREA
- ASPHALT AREA
- BIOSWALE / STORMWATER DETENSION AREA
- UNAVOIDABLE WETLAND IMPACTS
- ISOLATED WETLANDS
- WATERS OF THE U.S. WETLANDS
- DEVLIN RD. / GREEN ISLAND RD. WETLAND IMPACT
- 50' WETLAND BUFFER
- NEW RAIL SPUR
- DOCK LEVEL OVERHEAD DOOR
- GRADE LEVEL OVERHEAD DOOR
- FUTURE DRIVE-IN DOOR KNOCK OUT

KEYNOTES:

1. EXISTING PROPERTY LINES.
2. PROPOSED PROPERTY LINES, SEE CIVIL DRAWINGS
3. STRIPED PATH OF TRAVEL TO TRASH ENCLOSURE
4. PARKING AND DRIVE ISLES TO BE ASPHALTIC CONCRETE
5. TYPICAL 6" TALL X 6" WIDE CONCRETE CURBS, SEE CIVIL DRAWINGS
6. TYPICAL 4" WIDE TRAFFIC STRIPING
7. TYPICAL PARKING:
   - A. STANDARD STALLS: 9' X 19' OR 9' X 17' WITH 2' PARKING OVERHANG
   - B. COMPACT STALLS: 8' X 16' OR 8' X 14' WITH 2' PARKING OVERHANG (35% MAX)
   - C. ACCESSIBLE PARKING STALLS: 9' X 18' MIN. WITH 2' PARKING OVERHANG WITH 5' OR 8' WIDE LOADING ZONE AS SHOWN SEE DETAIL 12 SHEET A01.3
   - D. DESIGNATED PARKING PER CAL-GREEN REQUIREMENTS FOR CAR/VAN POOL, FUEL EFFICIENT, EV & LOW-EMITTING VEHICLES.
   - E. ELECTRIC VEHICLE CHARGING SPACES (STALLS LABELED "ELECTRIC VEHICLE CHARGING"). PER CGBC 5.106.5.2, TO FACILITATE FUTURE INSTALLATION CONDUIT, RING AND STRING SHALL BE INSTALLED AT THIS TIME AS PART OF THE SHELL CONSTRUCTION.
   - F. ACCESSIBLE ELECTRIC VEHICLE CHARGING STALL, 1 VAN, 1 STANDARD. (RING AND STRING ONLY)
8. TYPICAL DRIVE ISLE, 26'-0" WIDE MINIMUM
9. CURB RAMP, SEE DETAIL 9/A01.7
10. PROPOSED LOCATION OF NEW SITE ACCESS DRIVE CURB CUT, SEE CIVIL DRAWINGS
11. NEW CONCRETE PEDESTRIAN WALKS. ASSUME ALL SIDEWALKS TO BE ACCESSIBLE PATH OF TRAVEL. SLOPE NOT TO EXCEED 1:20 (5%) IN DIRECTION OF TRAVEL. CROSS SLOPE NOT TO EXCEED 1:50 (2%) WHERE PARKING OVERHANG OCCURS, INCREASE WIDTH OF SIDEWALK TO 6'-0" MIN.
12. PROPOSED BUILDING EXTERIOR WALLS TO BE SITE CAST TILTED CONCRETE WALLS WITH REVEALS, A TEXTURED ELASTOMERIC COATING AND A MULTI-COLOR PAINT PALLET. SEE EXTERIOR ELEVATIONS, SHEET A03.1 A03.2 A03.3.
13. TRASH ENCLOSURE W/ 40FT. APPROACH, SEE DETAILS 1 & 2/A01.7
14. TYPICAL LANDSCAPE PLANTER AREA, SEE LANDSCAPE DRAWINGS
15. SEMI TRACTOR TRAILER TEMPLATE SHOWN FOR REFERENCE ONLY
16. 60' DEPRESSED CONCRETE TRUCK DOCK
17. LOADING DOCK ROLL UP DOOR, TYPICAL
18. GRADE LEVEL ROLL UP DOOR, TYPICAL
19. ACCESSIBLE PATH OF TRAVEL AT PUBLIC SIDEWALK
20. LOCATION OF SITE ENTRY SIGN REGARDING PARKING IN ACCESSIBLE PARKING STALLS. SEE DETAIL 15/A01.7
21. CURB WITH GUARDRAIL AT EACH SIDE OF DEPRESSED LOADING DOCKS, TYP. SEE DETAIL 18/A01.7
22. STORM WATER RETENTION BASIN, SEE CIVIL DRAWINGS
23. BICYCLE RACKS, SEE DETAIL 14/A01.7
24. EMERGENCY VEHICLE ACCESS WITH REMOVABLE BOLLARDS
25. PREFABRICATED PAINTED STEEL DOCK STAIR & BOLLARDS
26. LANDSCAPE SETBACK
27. EXISTING WETLAND AREA. SEE SITE LEGEND FOR MORE INFORMATION.
28. SITE LIGHTING, SEE PHOTOMETRIC PLANS
29. DASHED LINE INDICATED 2'-0" PARKING OVERHANG.
30. STRIPED PASSENGER PATH OF TRAVEL
31. TRAILER PARKING STALLS WITH CONCRETE DOLLY PADS
32. RED DASHED LINE INDICATES WETLAND BUFFER AREA. SEE SITE LEGEND FOR MORE INFORMATION.
33. SITE EASEMENT. SEE CIVIL DRAWINGS FOR MORE INFORMATION.
34. PROPOSED TRUCK ACCESS DRIVE AISLE.
35. LOCATION OF FIRE DEPARTMENT APPROVED "KNOX BOX" AT BUILDING PRIMARY ENTRY, MOUNT AT +6'-0" AFF. CONFIRM LOCATION, MOUNTING HEIGHT AND ALL OTHER CRITERIA WITH THE CITY OF AMERICAN CANYON FIRE DEPARTMENT
36. PROPOSED VEHICLE ACCESS DRIVE AISLE.
37. DETENTION BASINS, SEE CIVIL DRAWINGS

RMW
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Interiors

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GREEN ISLAND ROAD AT HIGHWAY 29
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LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

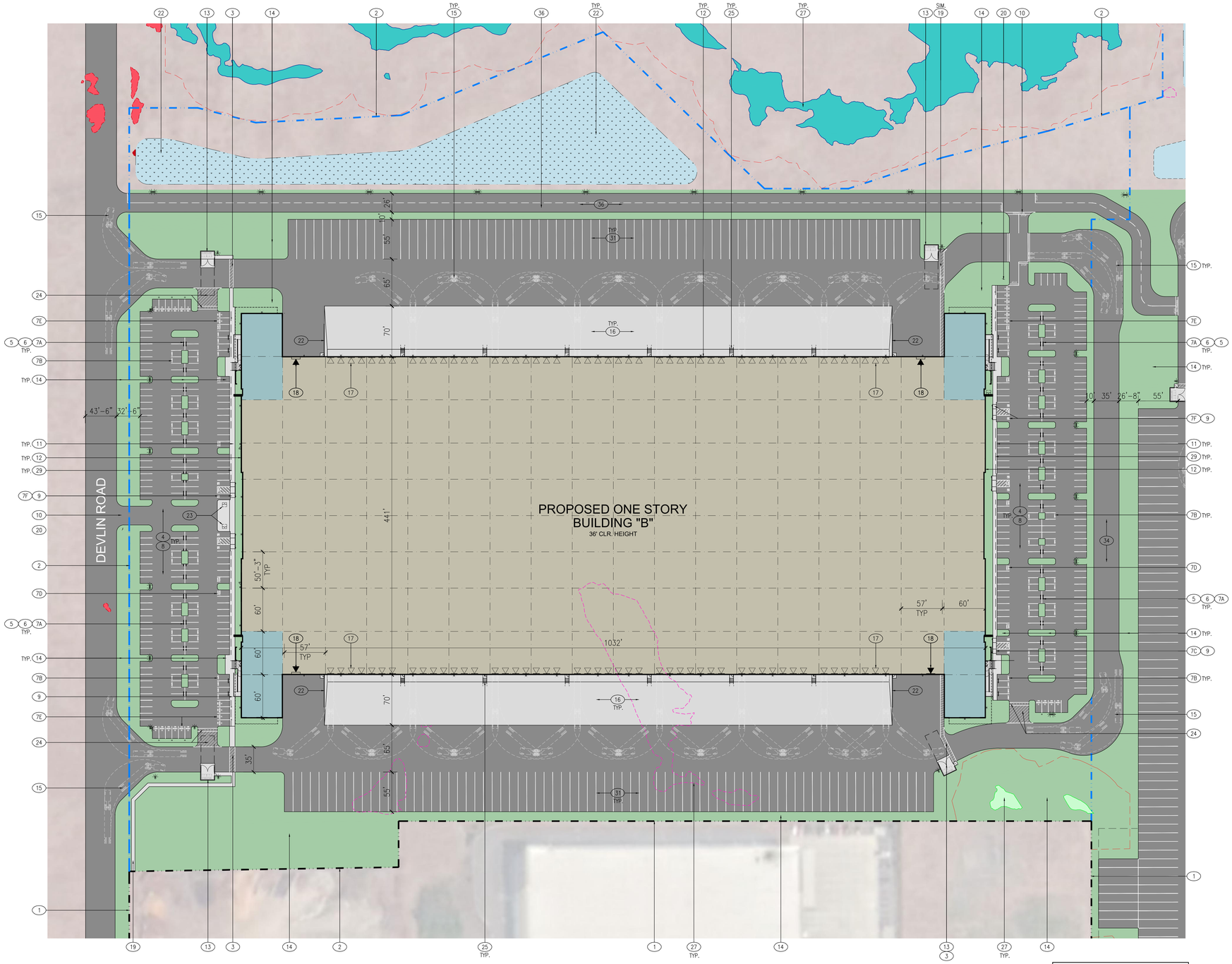
scale : AS NOTED

project number : 2204049.00

PRELIMINARY SITE PLAN BUILDING A

sheet no. :

A01.1



SITE INFORMATION / STATISTICS:

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KEYNOTES:

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31. TRAILER PARKING STALLS WITH CONCRETE DOLLY PADS
32. RED DASHED LINE INDICATES WETLAND BUFFER AREA. SEE SITE LEGEND FOR MORE INFORMATION.
33. SITE EASEMENT. SEE CIVIL DRAWINGS FOR MORE INFORMATION.
34. PROPOSED TRUCK ACCESS DRIVE AISLE.
35. LOCATION OF FIRE DEPARTMENT APPROVED "KNOX BOX" AT BUILDING PRIMARY ENTRY, MOUNT AT +6'-0" AFF. CONFIRM LOCATION, MOUNTING HEIGHT AND ALL OTHER CRITERIA WITH THE CITY OF AMERICAN CANYON FIRE DEPARTMENT
36. PROPOSED VEHICLE ACCESS DRIVE AISLE.
37. DETENTION BASINS, SEE CIVIL DRAWINGS

TRUE NORTH

0 30' 60' 120'

PRELIMINARY SITE PLAN
SCALE: 1" = 60'-0"

1

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OWNER / DEVELOPER:

BUZZ OATES
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SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GREEN ISLAND ROAD LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	10-05-2020

GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 10-05-2020

checked by : JDL

stamp

LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

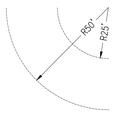
scale : AS NOTED

project number : 2204049.00

PRELIMINARY
SITE PLAN
BUILDING B

sheet no. :

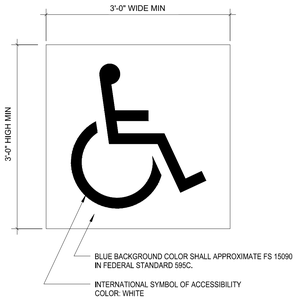
A01.2



TYPICAL FIRE TURN RADIUS

SCALE: 1" = 30'-0"

17

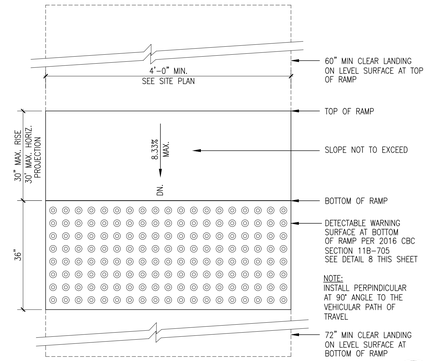


NOTES:
1. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND ITS BACKGROUND SHALL HAVE A NON-GLARE FINISH.
2. CHECK W/ THE LOCAL AUTHORITY HAVING JURISDICTION FOR REQUIREMENTS OTHER THAN THOSE SHOWN IN THIS DETAIL.

ACCESSIBLE SYMBOL AT ACCESSIBLE PARKING STALLS

SCALE: 1" = 1'-0"

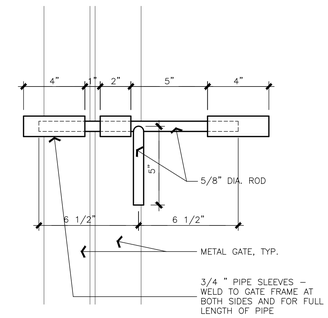
13



TYPICAL RAMP DETAIL

SCALE: 1" = 1'-0"

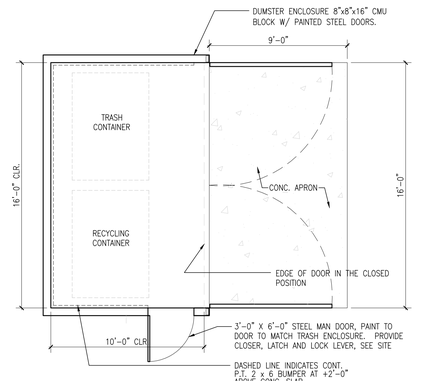
9



SIDE BOLT ELEVATION AT HEAD

SCALE: 3"= 1'-0"

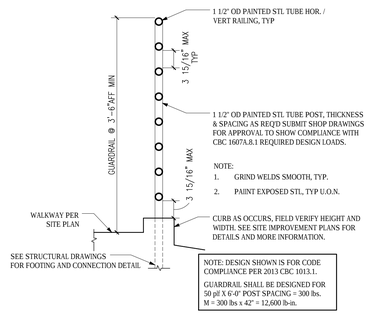
5



DUMPSTER ENCLOSURE PLAN

SCALE: 1/4"= 1'-0"

1



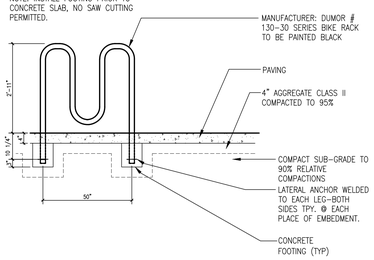
GUARDRAIL

SCALE: 1" = 1'-0"

18

NOTE: EACH RACK ACCOMODATES A MINIMUM OF 6 BICYCLES. SEE: HTTP://WWW.DUMOR.COM/BIKE-RACKS/BIKE-RACK-125.SHTML AND HTTP://WWW.DUMOR.COM/SPECIFICATIONS/1.30%20SERIES.PDF

NOTE: INSTALL FOOTING PRIOR TO CONCRETE SLAB, NO SAW CUTTING PERMITTED.



BIKE RACK

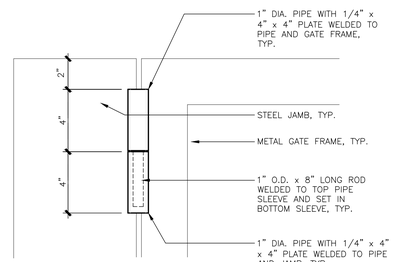
SCALE: 1/2" = 1'-0"

14

NOT USED

SCALE:

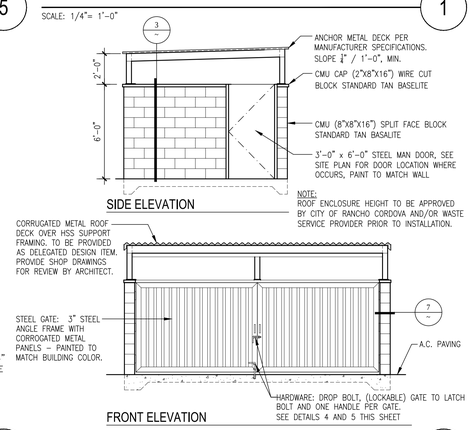
10



HINGE ELEVATION, TYP.

SCALE: 3"= 1'-0"

6

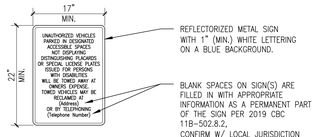


DUMPSTER ELEVATIONS

SCALE: 1/4"= 1'-0"

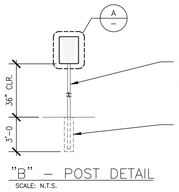
2

NOTE: UNAUTHORIZED VEHICLE PARKING SIGN SHALL BE PLACED IN A CONSPICUOUS PLACE AT EACH ENTRANCE TO AN OFF-STREET PARKING FACILITY OR VISIBLE FROM EACH PARKING SPACE, AS REQUIRED PER CBC 11B-502.8.



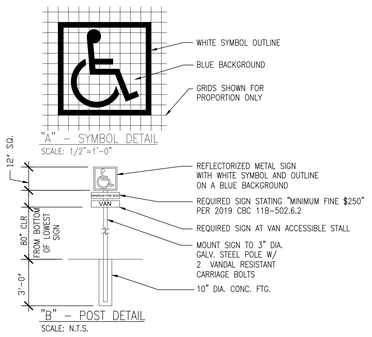
"A" – SIGN DETAIL

SCALE: N.T.S.



"B" – POST DETAIL

SCALE: N.T.S.



"A" – SYMBOL DETAIL

SCALE: 1/2"=1'-0"

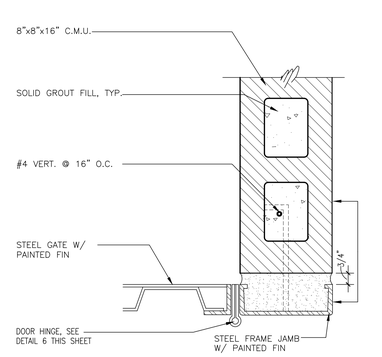
"B" – POST DETAIL

SCALE: N.T.S.

SIGN AT ACCESSIBLE PARKING STALLS

SCALE: NO SCALE

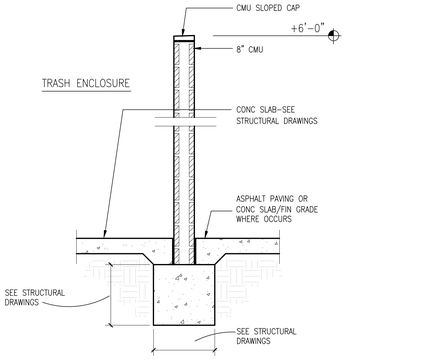
11



GATE JAMB

SCALE: 3"= 1'-0"

7



TRASH ENCLOSURE WALL SECTION

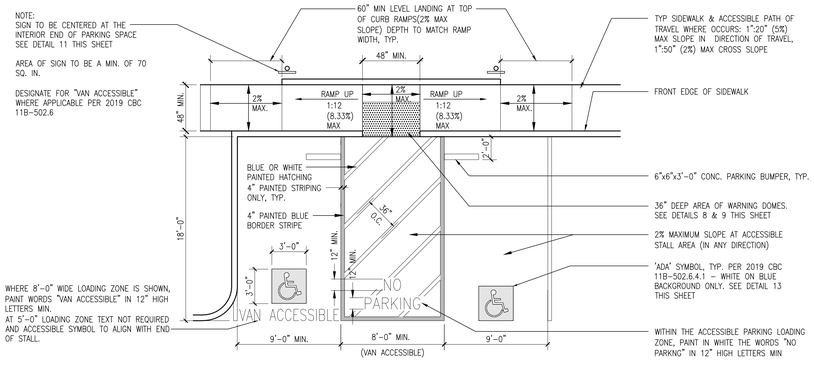
SCALE: 1/2"= 1'-0"

3

SITE ENTRY ACCESSIBLE SIGN

SCALE: 3/16" = 1'-0"

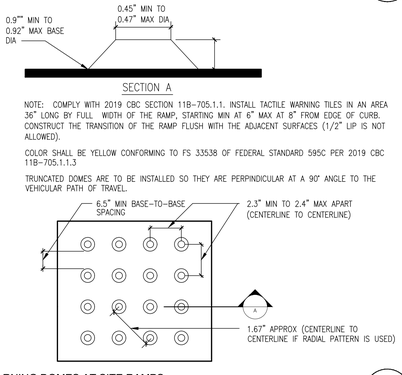
15



DOUBLE ACCESSIBLE STALLS

SCALE: 3/16" = 1' - 0"

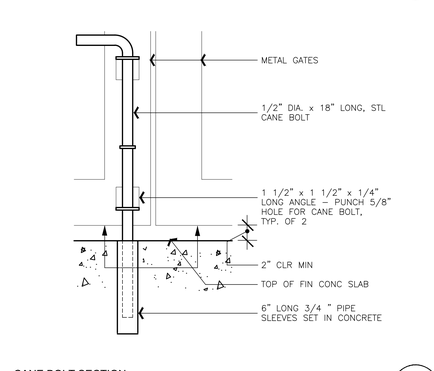
12



WARNING DOMES AT SITE RAMPS

SCALE: N.T.S.

8



CANE BOLT SECTION

SCALE: 3"= 1'-0"

4

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OWNER / DEVELOPER:

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PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 11-11-2020

checked by : JDL

stamp

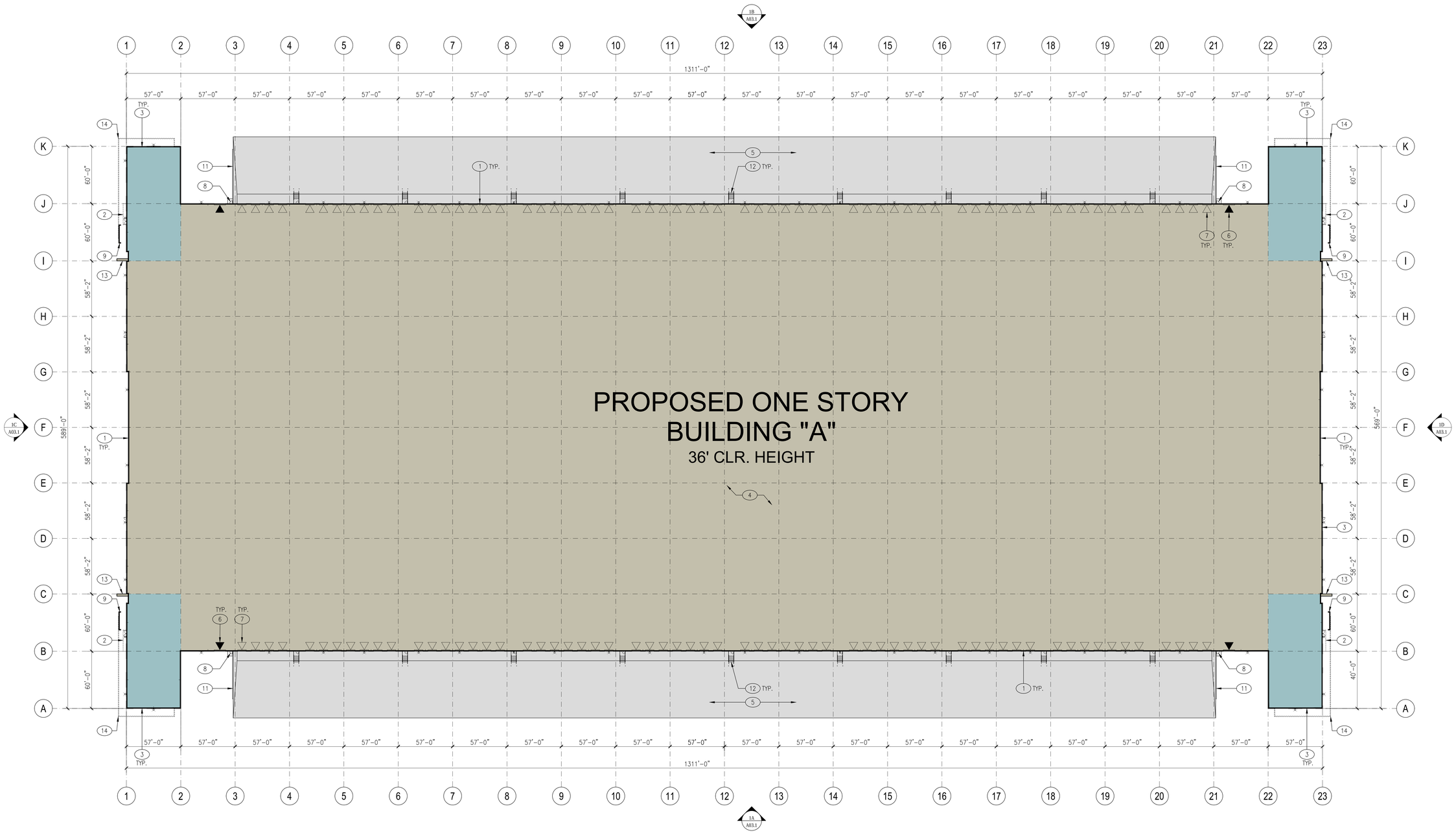
LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

scale : AS NOTED

project number : 2204049.00

SITE DETAILS

sheet no. : A01.7



NORTH PLAN

0 25' 50' 100'

FLOOR PLAN

SCALE: 1" = 50'-0"

1

KEYNOTES:

1. TYPICAL EXTERIOR WALLS TO BE TILT-UP CONCRETE WITH REVEALS AND A MULTICOLORED TEXTURED ELASTOMERIC FINISH SYSTEM. SEE EXTERIOR ELEVATIONS, SHEETS A03.1
2. LINE OF ENTRY CANOPY ABOVE, SEE EXTERIOR ELEVATIONS, SHEETS A03.1
3. TINTED GLAZING IN ALUMINUM FRAMES
4. CONCRETE FLOOR SLAB
5. DEPRESSED CONCRETE TRUCK DOCK
6. 12' X 14' GRADE LEVEL ROLL UP DOOR
7. 9' X 10' DOCK LEVEL ROLL UP DOOR
8. 3' X 7' STEEL MAN DOOR, WHERE DOORS ARE SHOWN AT GLAZING, DOORS TO BE STOREFRONT DOORS
9. EXTERIOR TILT-UP CONCRETE ACCENT WALL, TYP. SEE EXTERIOR ELEVATIONS, SHEET A03.1 FOR FINISHES
10. NOT USED
11. 6" TALL X 8" WIDE CONCRETE CURB AT EACH SIDE OF TRUCK DOCK, PAINT GUARDRAIL "SAFETY YELLOW"
12. PREFABRICATED STEEL STAIR AND FIXED BOLLARDS PAINTED "SAFETY YELLOW" TYPICAL. SEE 8/A09.1 FOR STAIR DETAIL AND 17/A01.2 FOR BOLLARD DETAIL. ENLARGE LANDING AS REQUIRED AT STAIRS WITH EXTERIOR AREA OF ASSISTED RESCUE.
13. EXTERIOR TILT-UP CONCRETE WING WALL, TYP. SEE EXTERIOR ELEVATIONS SHEETS FOR FINISHES
14. STEEL CHANNEL ACCENT ELEMENT ABOVE, SEE EXTERIOR ELEVATION SHEETS

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JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

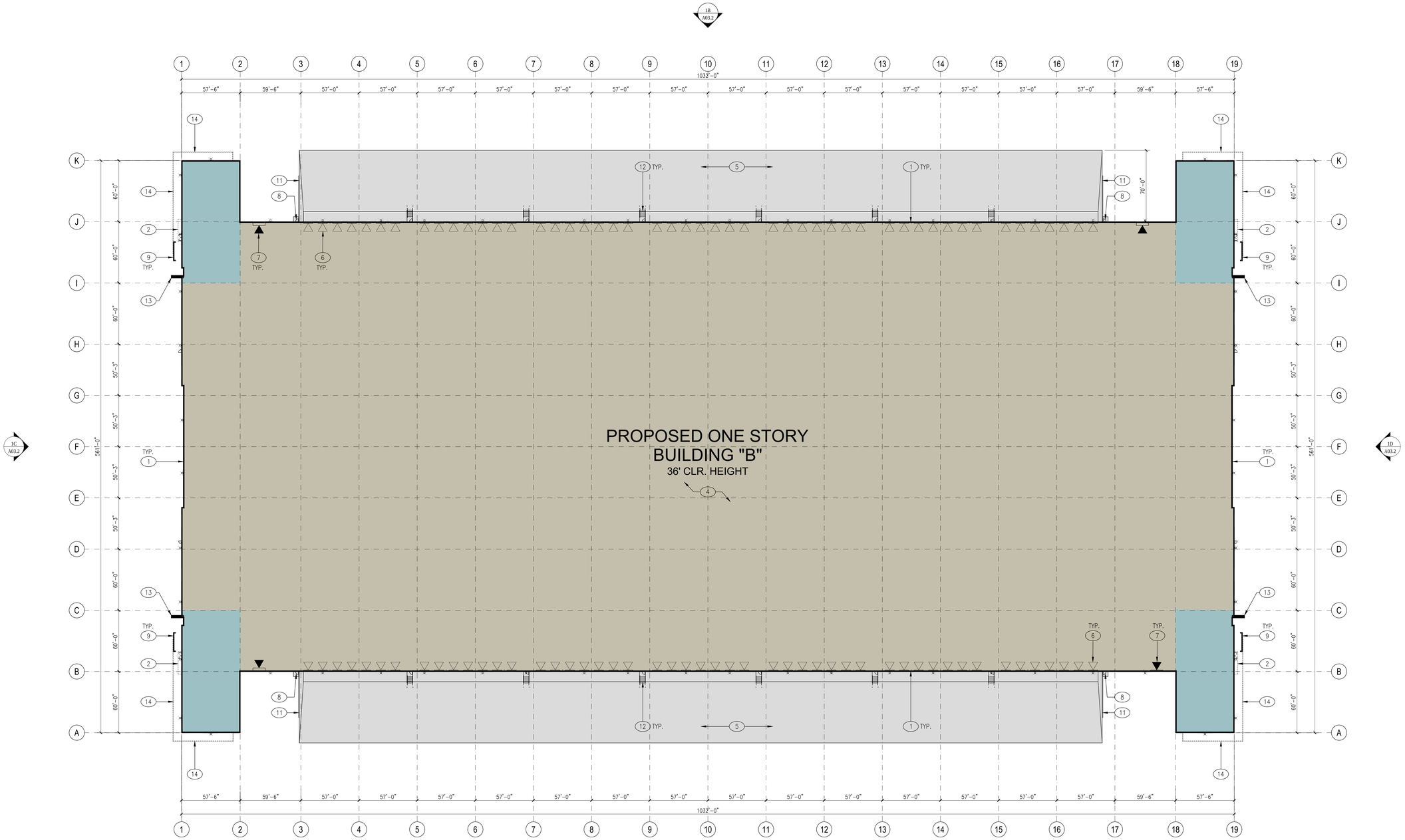
scale : AS NOTED

project number : 2204049.00

PRELIMINARY
FLOOR PLAN
BUILDING A

sheet no. :

A02.1



KEYNOTES:

1. TYPICAL EXTERIOR WALLS TO BE TILT-UP CONCRETE WITH REVEALS AND A MULTICOLORED TEXTURED ELASTOMERIC FINISH SYSTEM. SEE EXTERIOR ELEVATIONS, SHEETS A03.1
2. LINE OF ENTRY CANOPY ABOVE, SEE EXTERIOR ELEVATIONS, SHEETS A03.1
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10. NOT USED
11. 6" TALL X 8" WIDE CONCRETE CURB AT EACH SIDE OF TRUCK DOCK, PAINT GUARDRAIL "SAFETY YELLOW"
12. PREFABRICATED STEEL STAIR AND FIXED BOLLARDS PAINTED "SAFETY YELLOW" TYPICAL. SEE 8/A09.1 FOR STAIR DETAIL AND 17/A01.2 FOR BOLLARD DETAIL. ENLARGE LANDING AS REQUIRED AT STAIRS WITH EXTERIOR AREA OF ASSISTED RESCUE.
13. EXTERIOR TILT-UP CONCRETE WING WALL, TYP. SEE EXTERIOR ELEVATIONS SHEETS FOR FINISHES
14. STEEL CHANNEL ACCENT ELEMENT ABOVE, SEE EXTERIOR ELEVATION SHEETS

NORTH PLAN

0 40' 80' 160'

FLOOR PLAN 1

SCALE: 1" = 40'-0"

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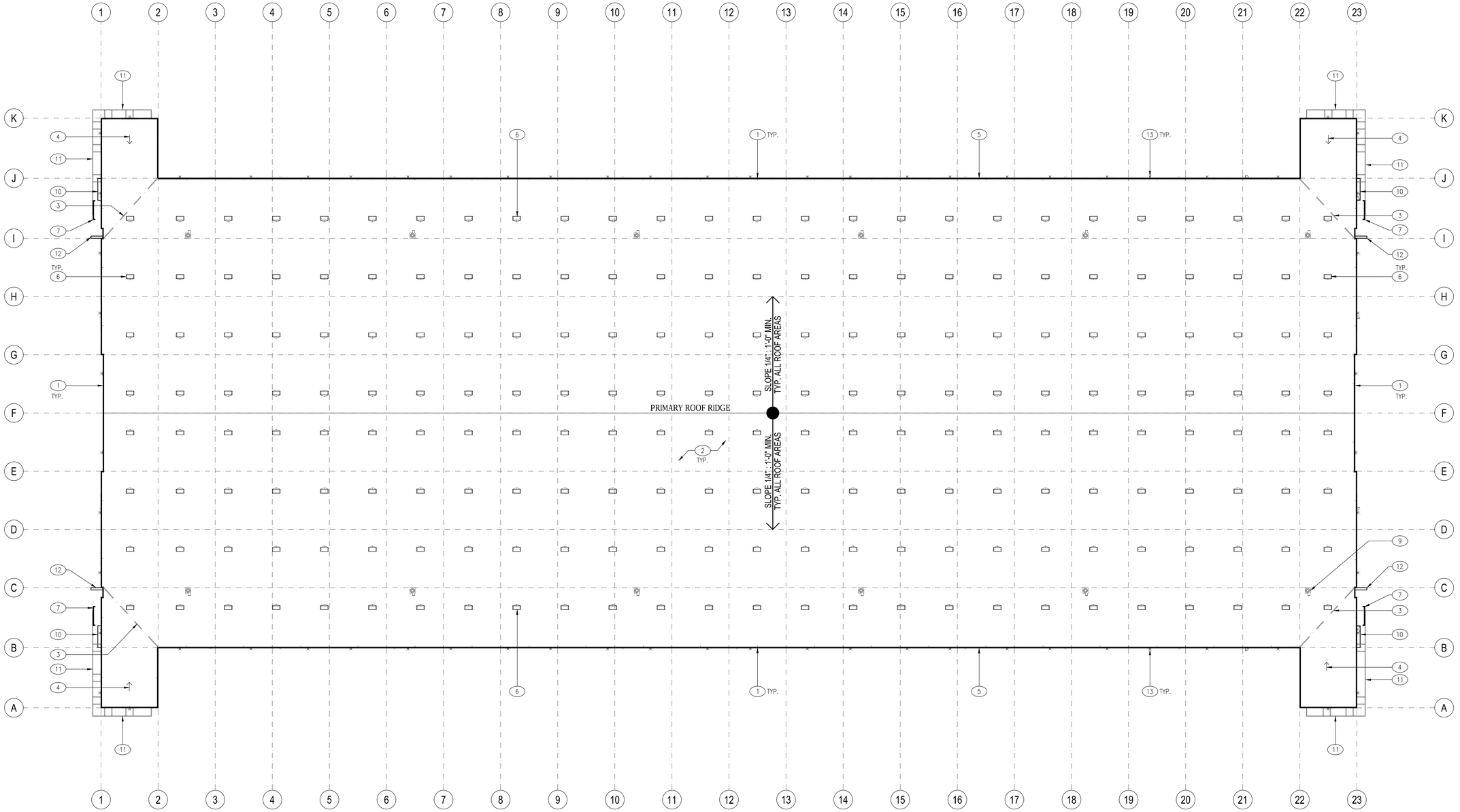
PRELIMINARY
FLOOR PLAN
BUILDING B

sheet no. :

A02.2



PLAN NORTH

0 25' 50' 100'

ROOF PLAN

SCALE: 1" = 50'-0"

1

KEYNOTES:

1. LINE OF TYPICAL PARAPET WALL
2. TYPICAL LOW SLOPE ROOF 1/4" PER 12" MIN SLOPE. ROOF ASSEMBLY CONSISTS OF A TPO SINGLE PLY SYSTEM OVER 1/2" STRUCTURAL SHEATHING OVER SLOPED STRUCTURAL FRAMING.
3. THICK DASHED GRAY LINE INDICATES WARPED ROOF AREA
4. INDICATES DIRECTION OF ROOF SLOPE
5. CONTINUOUS METAL GUTTER AND DOWNSPOUTS. PAINT TO MATCH ADJACENT BUILDING. SEE EXTERIOR ELEVATIONS FOR FINISH COLOR
6. INDICATES LOCATION OF 4' X 8' SELF-CURBING DUAL DOME SKYLIGHT. PROVIDE SHAPED FOAM CRICKET AT HIGH SIDE(S) OF SKYLIGHT CURB TO PROVIDE SLOPE FOR DRAINAGE.
7. EXTERIOR TILT-UP CONCRETE ACCENT WALL, TYP. SEE EXTERIOR ELEVATIONS SHEETS FOR FINISHES
8. ROOF DRAIN AND OVERFLOW
9. POTENTIAL LOCATION OF FUTURE ROOF MOUNTED HVAC EQUIPMENT. ALL ROOF MOUNTED EQUIPMENT SHALL BE DETERMINED AT TIME OF TENANT IMPROVEMENTS AND SHALL BE SCREENED FROM VIEW BY NATURE OF IT'S PLACEMENT OR BY A FUTURE MECHANICAL SCREEN.
10. STEEL CANOPY BELOW, PAINT AS SPECIFIED. SEE EXTERIOR ELEVATIONS, SHEETS FOR FINISHES.
11. STEEL CHANNEL ACCENT ELEMENT. PAINT AS SPECIFIED. SEE EXTERIOR ELEVATION SHEET FOR FINISHES.
12. EXTERIOR TILT-UP CONCRETE WING WALL, TYP. SEE EXTERIOR ELEVATIONS SHEETS FOR FINISHES
13. BUILDING WALL LIGHT FIXTURES, TYP. SEE EXTERIOR ELEVATIONS SHEETS

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NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

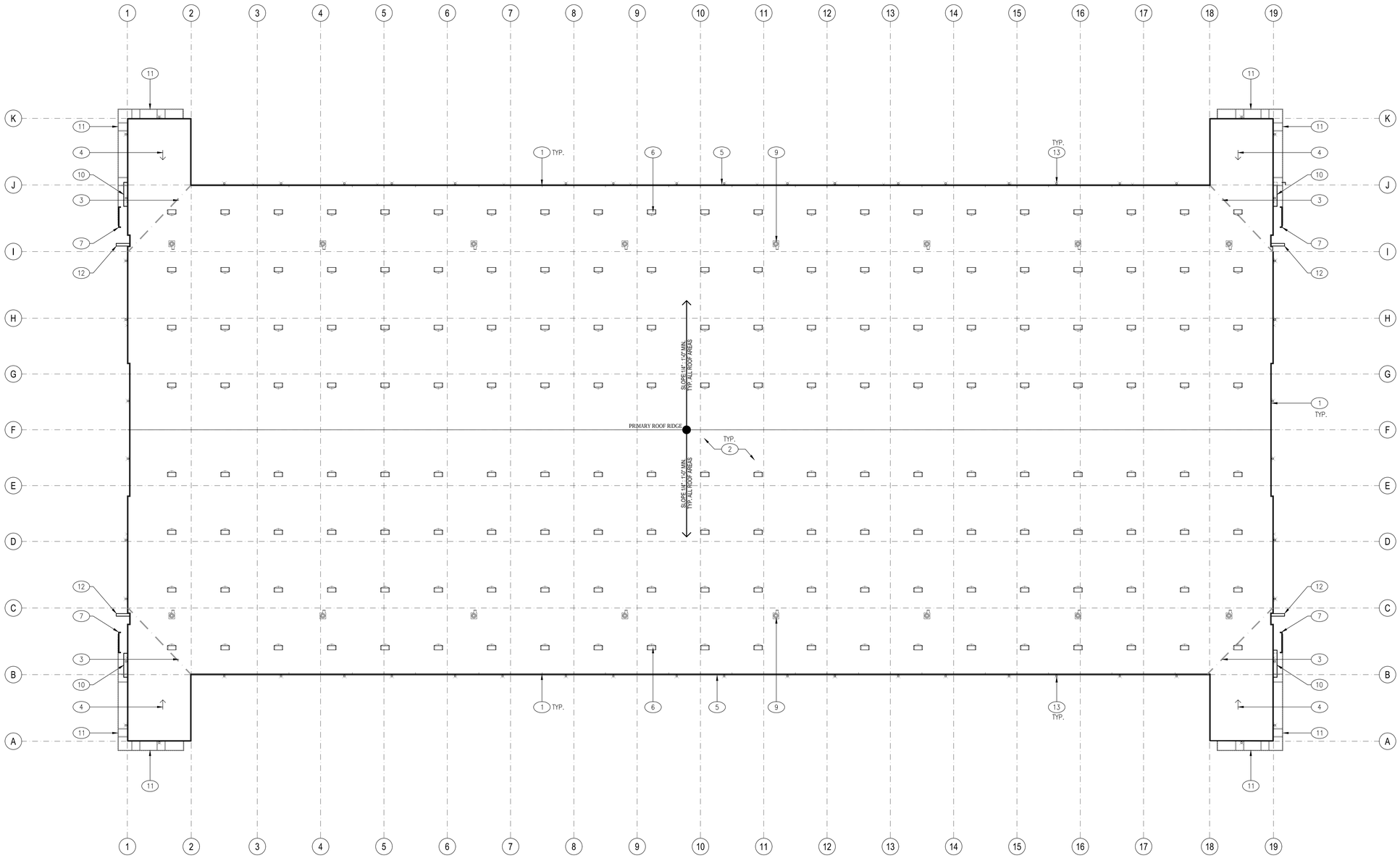
scale : AS NOTED

project number : 2204049.00

PRELIMINARY ROOF PLAN BUILDING A

sheet no. :

A02.7



ROOF PLAN

SCALE: 1" = 30'-0"

1

KEYNOTES:

1. LINE OF TYPICAL PARAPET WALL
2. TYPICAL LOW SLOPE ROOF 1/4" PER 12" MIN SLOPE. ROOF ASSEMBLY CONSISTS OF A TPO SINGLE PLY SYSTEM OVER 1/2" STRUCTURAL SHEATHING OVER SLOPED STRUCTURAL FRAMING.
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10. STEEL CANOPY BELOW, PAINT AS SPECIFIED. SEE EXTERIOR ELEVATIONS, SHEETS FOR FINISHES.
11. STEEL CHANNEL ACCENT ELEMENT. PAINT AS SPECIFIED. SEE EXTERIOR ELEVATION SHEET FOR FINISHES.
12. EXTERIOR TILT-UP CONCRETE WING WALL, TYP. SEE EXTERIOR ELEVATIONS SHEETS FOR FINISHES
13. BUILDING WALL LIGHT FIXTURES, TYP. SEE EXTERIOR ELEVATIONS SHEETS

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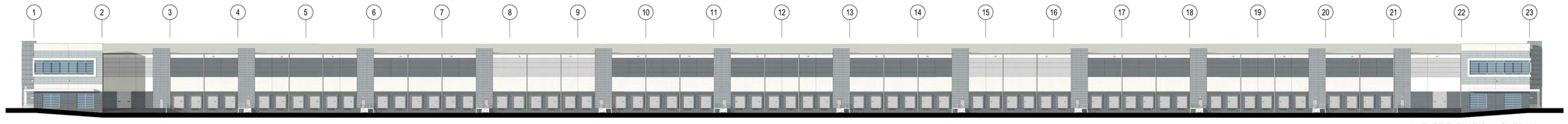
PRELIMINARY
ROOF PLAN
BUILDING B

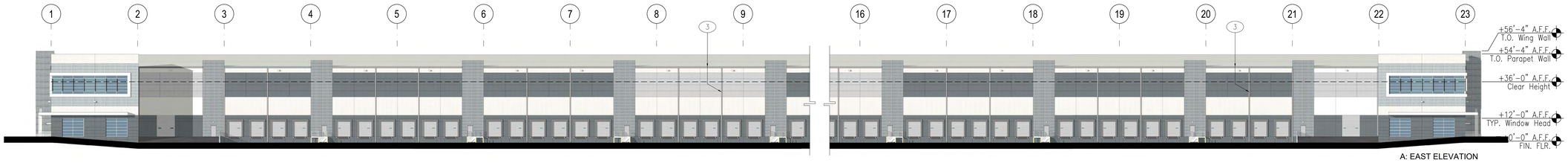
sheet no. :

A02.8

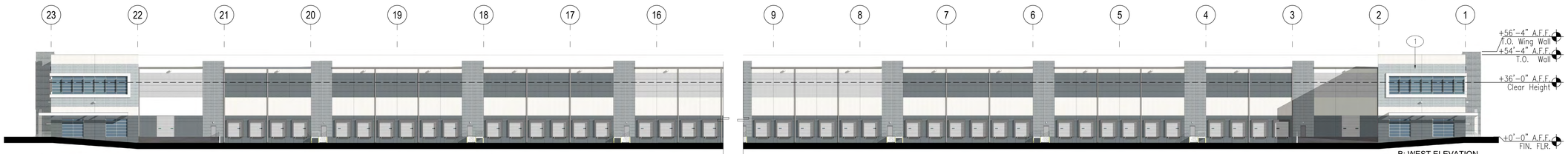


A: EAST ELEVATION - OVERALL

B: WEST ELEVATION - OVERALL



A: EAST ELEVATION



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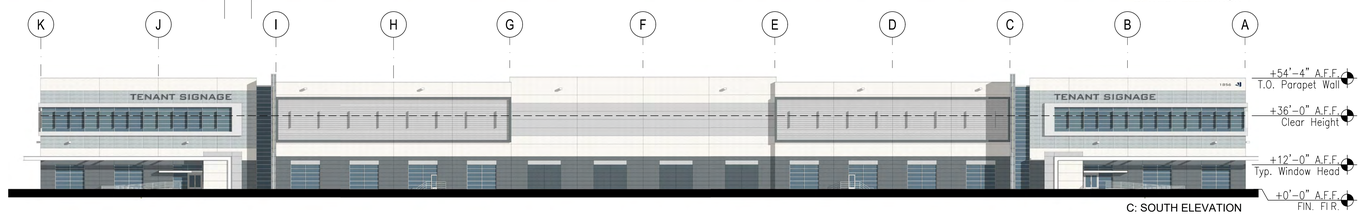
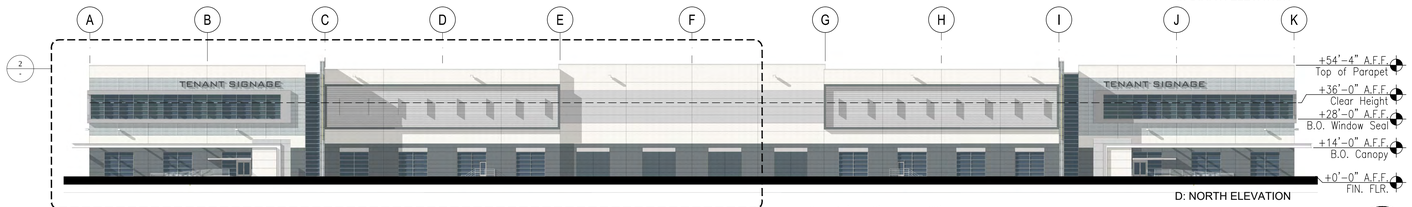


C: SOUTH ELEVATION



D: NORTH ELEVATION

0 15' 30' 60'

EXTERIOR ELEVATIONS

SCALE: 1" = 30'-0"

1

FINISH LEGEND:

GL1 : TYPICAL WINDOW SYSTEM 1" DUAL GLAZED INSULATING UNITS IN ALUMINUM FRAMES
OUTSIDE PANE: PPG SOLEXIA 1/4" THICK BLUE TINTED GLASS
INSIDE PANE: PPG CLEAR FLOAT 1/4" GLASS
FRAMES: CLEAR ANODIZED ALUMINUM FRAMES

GL2: SPANDREL GLAZING 1" SINGLE GLAZED IN ALUMINUM FRAMES
OUTSIDE PANE: PPG SOLEXIA 1/4" THICK BLUE TINTED GLASS
INSIDE PANE: PPG CLEAR FLOAT 1/4" GLASS
FRAMES: CLEAR ANODIZED ALUMINUM FRAMES

SC1: CONCRETE PANELS WITH SIMULATED CAST IN PLACE APPEARANCE CONSISTING OF 3/8" x 3/8" DOUBLE CHAMFER REVEALS AND 3/4" CONE SHAPED DIVOTS. SACK AND PATCH PANELS AND PAINT PER ARCHITECTS COLOR SAMPLE.

P1: TEXTURED COATING SYSTEM COLOR 1
SHERWIN WILLIAMS SW7757 - HIGH REFLECTIVE WHITE

P2: TEXTURED COATING SYSTEM COLOR 2
AT ENTRY, 24" THICK FOAM SURROUND / BAND AT SECOND LEVEL GLAZING SYSTEM.
COLOR: SHERWIN WILLIAMS SW6002 - ESSENTIAL GRAY

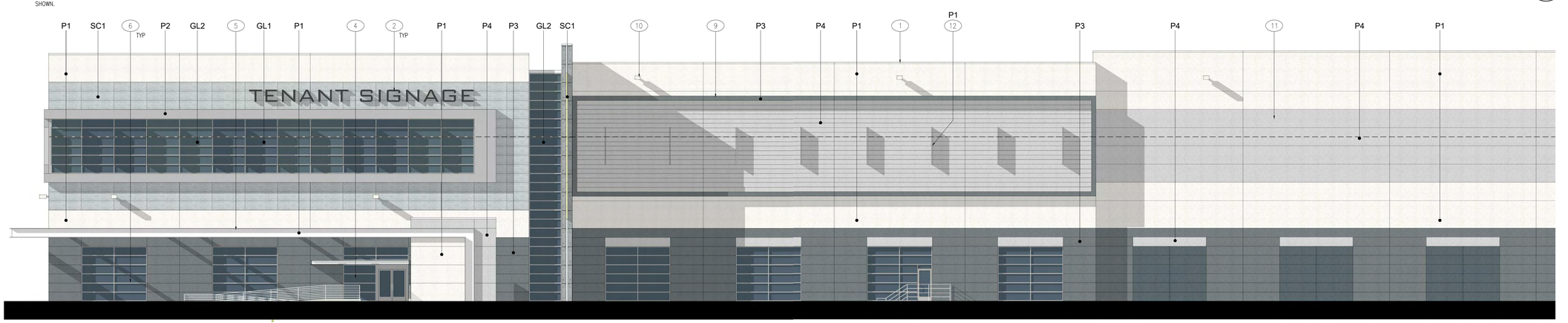
P3: TEXTURED COATING SYSTEM COLOR 3
SHERWIN WILLIAMS SW7665 - WALL STREET

P4: TEXTURED COATING SYSTEM COLOR 4
SHERWIN WILLIAMS SW7661 - REFLECTION

P5: TEXTURED COATING SYSTEM COLOR 5
SHERWIN WILLIAMS SW7075 - WEB GRAY

KEYNOTES:

1. TYPICAL SITE CAST, CONCRETE TILT-UP PANELS WITH 3/4" REVEALS AND A MULTI COLOR TEXTURED COATING SYSTEM.
2. TENANT SIGNAGE UNDER SEPARATE PERMIT. SIGNAGE TO COMPLY WITH THE CITY OF AMERICAN CANYON DESIGN STANDARDS.
3. CONTINUOUS GUTTER AND SURFACE MOUNTED DOWNSPOUTS. PAINT AS SPECIFIED.
4. 10" THICK x 3'-5" DEEP x 20' – 10 3/4" WIDE PAINTED STEEL CANOPIES, TYPICAL AT MAIN ENTRANCE STOREFRONT OPENINGS. PAINT AS SPECIFIED.
5. 24" THICK x 6" DEEP x PAINTED STEEL CHANNEL ACCENT. PAINT AS SPECIFIED.
6. TYPICAL WINDOW SYSTEM: DUAL PANE GLAZING IN 2" x 4" (NOMINAL) THERMALLY BROKEN, CLEAN ANODIZED ALUMINUM FRAMES. OUTER GLAZING PANE TO BE TINTED WITH LOW-E COATING ON INTERIOR SURFACE. INNER PANE CLEAR FLOAT. STOREFRONT DOORS WHERE SHOWN.
7. CONCRETE TILT PANEL WING WALL. SEE FINISH SCHEDULE FOR COLOR AND MATERIAL.
8. 24" TALL X 12" DEEP FOAM ACCENT AT UPPER GLAZING SYSTEM. PAINT AS SPECIFIED.
9. 12" TALL X 12" DEEP FOAM ACCENT SURROUND. PAINT AS SPECIFIED.
10. WALL PACK LIGHTING. SEE PHOTOMETRIC DRAWINGS FOR MORE INFORMATION.
11. DASHED LINE INDICATES INTERNAL CLEAR HEIGHT. SEE ELEVATIONS FOR HEIGHT.
12. FOAM ACCENT "FINS". PAINT AS SPECIFIED.



0 5' 10' 20'

PARTIAL ENLARGED SOUTH ELEVATION

SCALE: 1" = 10'-0"

2

RMW
Architecture
Interiors

1718 Third Street
Suite 101
Sacramento
California 95811

Office
916 449-1400

rmw.com

OWNER / DEVELOPER:

BUZZ OATES
555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 11-11-2020

checked by : JDL

stamp

LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

scale : AS NOTED

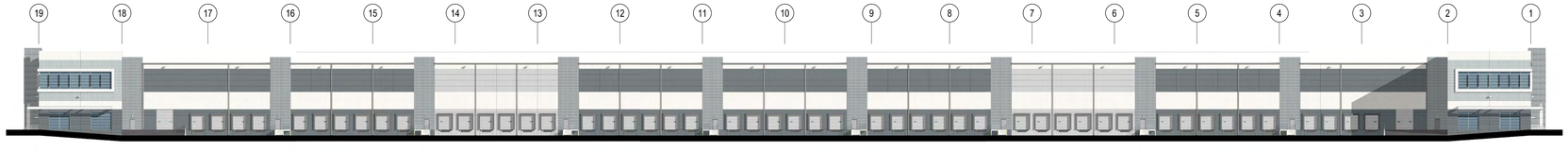
project number : 2204049.00

EXTERIOR ELEVATIONS : BUILDING A

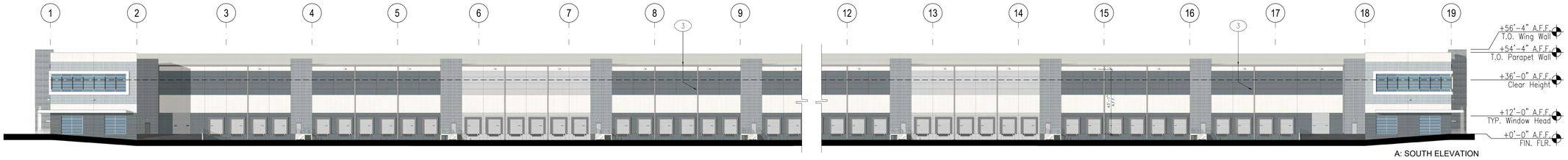
sheet no. :

A03.1

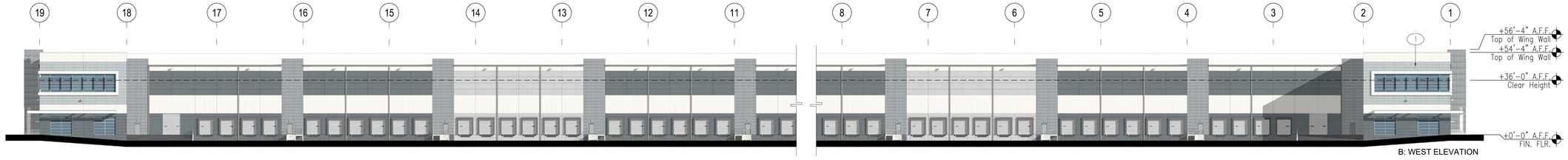
A: SOUTH ELEVATION - OVERALL



B: NORTH ELEVATION - OVERALL



A: SOUTH ELEVATION



B: WEST ELEVATION

FINISH LEGEND:

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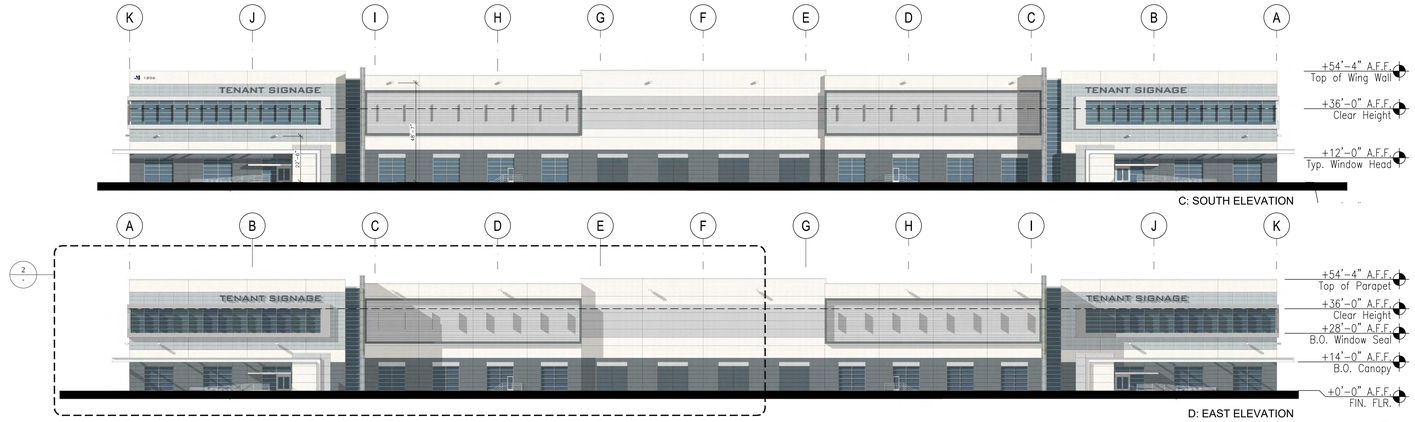


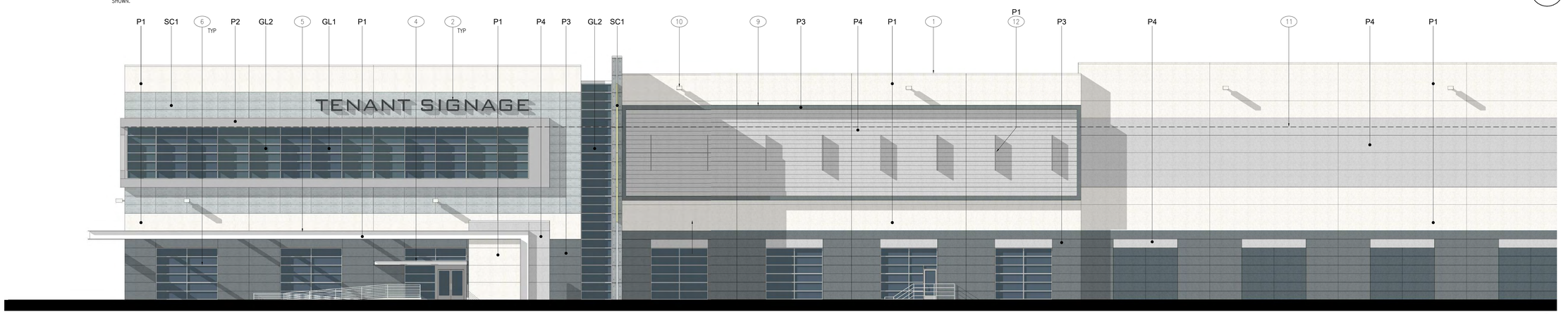
C: SOUTH ELEVATION

D: EAST ELEVATION

0 15' 30' 60'

EXTERIOR ELEVATIONS 1

SCALE: 1" = 30'-0"



0 5' 10' 20'

PARTIAL ENLARGED SOUTH ELEVATION 2

SCALE: 1" = 10'-0"

RMW
Architecture
Interiors

1718 Third Street
Suite 101
Sacramento
California 95811

Office
916 449-1400

rmw.com

OWNER / DEVELOPER:

BUZZ OATES
555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
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approved for the owner by :

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GENERAL CONTRACTOR:

drawn by : RDG/AG plot date : 11-11-2020

checked by : JDL

stamp

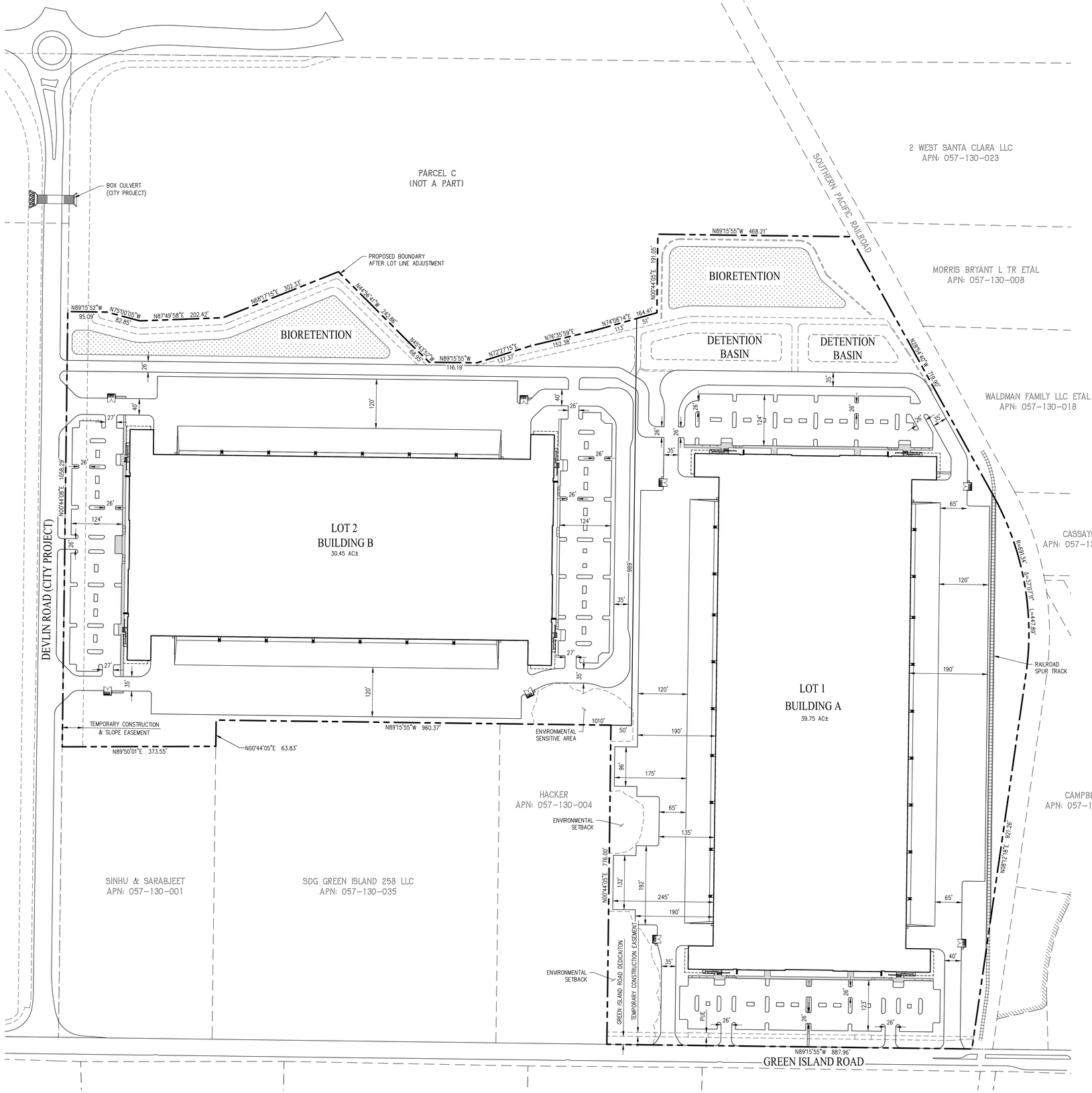
LICENSED ARCHITECT
JEFFREY D. LEONHARDT
NO. C33644
REN. 12-31-21
STATE OF CALIFORNIA

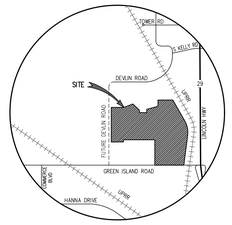
scale : AS NOTED

project number : 2204049.00

EXTERIOR ELEVATIONS : BUILDING B

sheet no. : A03.2





VICINITY MAP

NOT TO SCALE

GENERAL NOTES

1. OWNER: RIGHT FROM THE START
NON-PROFIT CORPORATION
3253 BROWNS VALLEY ROAD
NAPA, CA 94558
CONTACT: BILL KAMPTON
PHONE: 707-863-8377

2. DEVELOPER: BUZZ OATES
555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
CONTACT: JOE LIVAICH
PHONE: (916) 379-8874

3. CIVIL ENGINEER: CARLSON, BARBEE, & GIBSON, INC.
2633 CAMINO RAMON, SUITE 350
SAN RAMON, CA 94583
CONTACT: ANDREA BELLANCA, RCE #61806
PHONE: (925) 866-0322

4. ARCHITECT: RMW ARCHITECTURE
1718 3RD STREET SUITE 101
SACRAMENTO, CA 95811
CONTACT: JEFFERY LEONHARDT
PHONE: (916) 449-1400

5. BENCHMARK: PID = JT0406, DESIGNATION = Q 468
BENCHMARK DISK, SET IN THE TOP OF CONCRETE MONUMENT.
NAVD 88 ELEVATION = 86.7

6. BASIS OF BEARINGS: THE BEARING OF S 89°19'31" E BETWEEN THE FOUND MONUMENTS ON COMMERCE DRIVE AS SHOWN ON 34 RS 89

7. A.P.N.'S: 057-130-034 (PORTION), 057-130-036

8. EXISTING GENERAL PLAN: INDUSTRIAL
PROPOSED GENERAL PLAN: INDUSTRIAL

9. EXISTING ZONING: LIGHT INDUSTRIAL
PROPOSED ZONING: LIGHT INDUSTRIAL

10. EXISTING LAND USE: VACANT LAND
PROPOSED LAND USE: INDUSTRIAL

11. SITE AREA: 70.2± ACRES (GROSS)

12. UTILITIES:
WATER: CITY OF AMERICAN CANYON
SANITARY SEWER: CITY OF AMERICAN CANYON
STORM DRAIN: CITY OF AMERICAN CANYON
GAS & ELECTRIC: PG&E
TELEPHONE: AT&T

13. FLOOD ZONE: ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
FLOOD INSURANCE RATE MAP NUMBER 06055C0609F
DATE: AUGUST 3, 2016

14. DIMENSIONS: ALL DIMENSIONS ARE PRELIMINARY AND SUBJECT TO FINAL SUBDIVISION MAP.

15. EASEMENTS: EXISTING EASEMENTS MAY REQUIRE VACATION OR RELOCATION TO FACILITATE DEVELOPMENT. ALL PROPOSED, EXISTING, RELOCATED AND VACATED EASEMENTS TO BE SHOWN ON THE FINAL MAP OR BY SEPARATE INSTRUMENT AS NECESSARY.

16. PHASING: THIS PROJECT MAY BE PHASED. MULTIPLE FINAL MAPS MAY BE FILED ON THE LANDS SHOWN ON THIS VESTING TENTATIVE MAP IN ACCORDANCE WITH ARTICLE 4, SECTION 66.456.1 OF THE SUBDIVISION MAP ACT.

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		SUBDIVISION BOUNDARY
		CENTERLINE
		LOT LINE
		RIGHT OF WAY
		EASEMENT LINE
		CONCRETE
		TOP/TOE OF SLOPE
		RETAINING WALL

ABBREVIATIONS

AC	ACRES/ASPHALT CONCRETE	PR	PROPOSED
AB	AGGREGATE BASE	PUE	PUBLIC UTILITY EASEMENT
BD	BOUNDARY	PAE	PUBLIC ACCESS EASEMENT
BGL	BOTTOM OF GRAVEL LAYER	R	RADIUS
CB	CATCH BASIN	RET	RETURN/RETAINING
CL	CENTERLINE	RM	RECORDED MAP
CY	CUBIC YARD	R/W	RIGHT-OF-WAY
ESMT	EASEMENT	SF	SQUARE FOOT
EVA	EMERGENCY VEHICLE ACCESS EASEMENT	SD	STORM DRAIN
		SS	SANITARY SEWER
EX	EXISTING	S/W	SIDEWALK
FH	FIRE HYDRANT	TGL	TOP OF GRAVEL LAYER
INV	INVERT	TSL	TOP OF SOIL LAYER
L/S	LANDSCAPE	TYP	TYPICAL
MH	MANHOLE	W/WT	WATER
PUE	PUBLIC UTILITY EASEMENT		

SHEET INDEX

SHEET NUMBER	SHEET TITLE
TM-1	TITLE SHEET AND SITE PLAN
TM-2	EXISTING CONDITIONS
TM-3	PRELIMINARY GRADING & DRAINAGE PLAN
TM-4	PRELIMINARY UTILITY PLAN
TM-5	PRELIMINARY STORM WATER CONTROL PLAN
TM-6	PRELIMINARY FIRE ACCESS PLAN

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

TITLE SHEET AND SITE PLAN

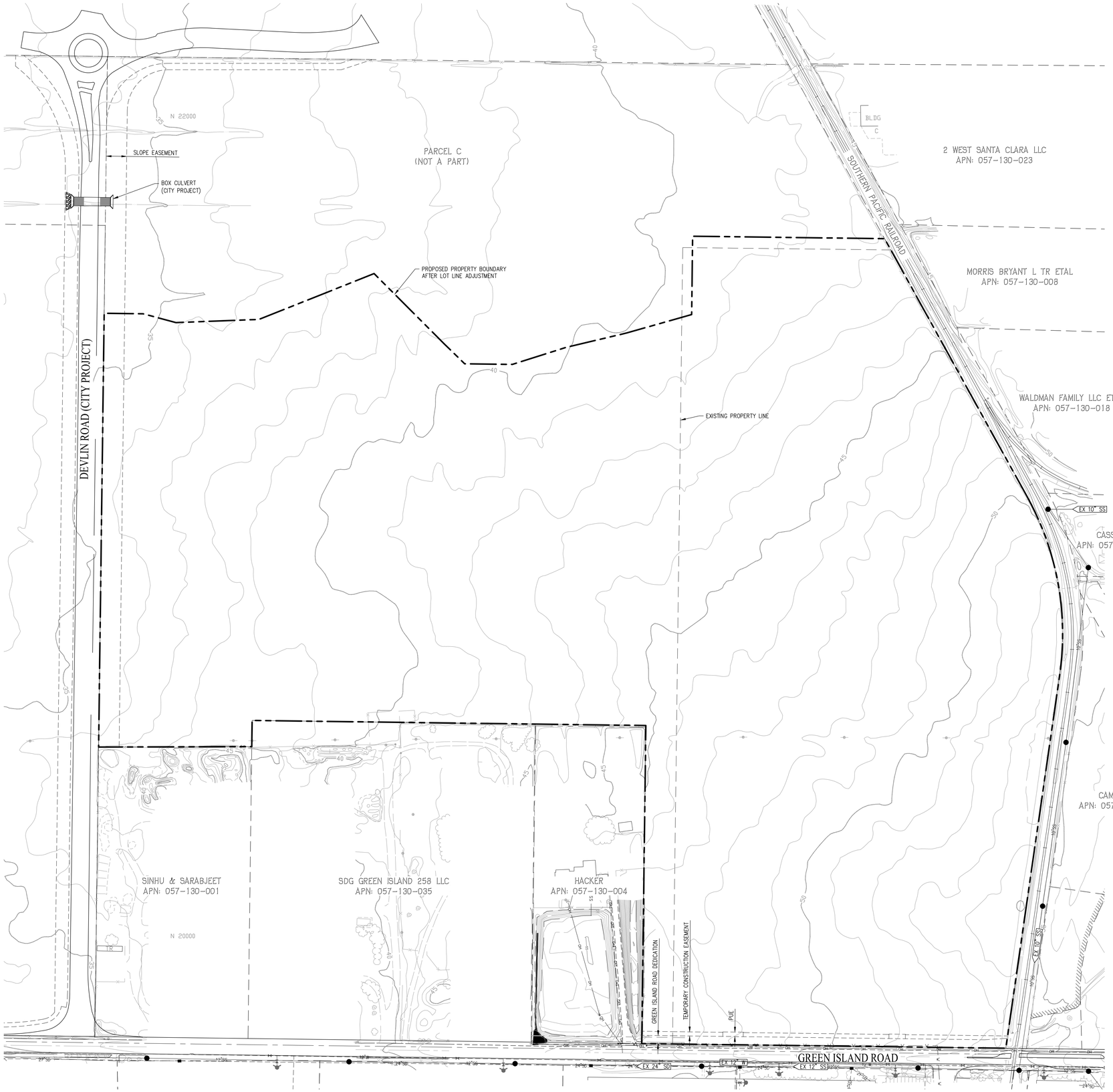
CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

0 100 200 300

cbg CIVIL ENGINEERS • SURVEYORS • PLANNERS
SAN RAMON • (925) 866-0322
ROSEVILLE • (916) 788-4456
WWW.CBANDG.COM

SHEET NO. TM-1 OF 6 SHEETS



LEGEND

EXISTING

- SUBDIVISION BOUNDARY
- EASEMENT
- EXISTING LOT LONE
- EXISTING RIGHT OF WAY
- CATCH BASIN
- FIRE HYDRANT
- MANHOLE
- STREET LIGHT
- EX 15" SD — STORM DRAIN
- EX 8" SS — SANITARY SEWER
- EX 8" W — WATER LINE
- EX 8" RW — RECYCLED WATER

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

EXISTING CONDITIONS

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

0 100 200 300

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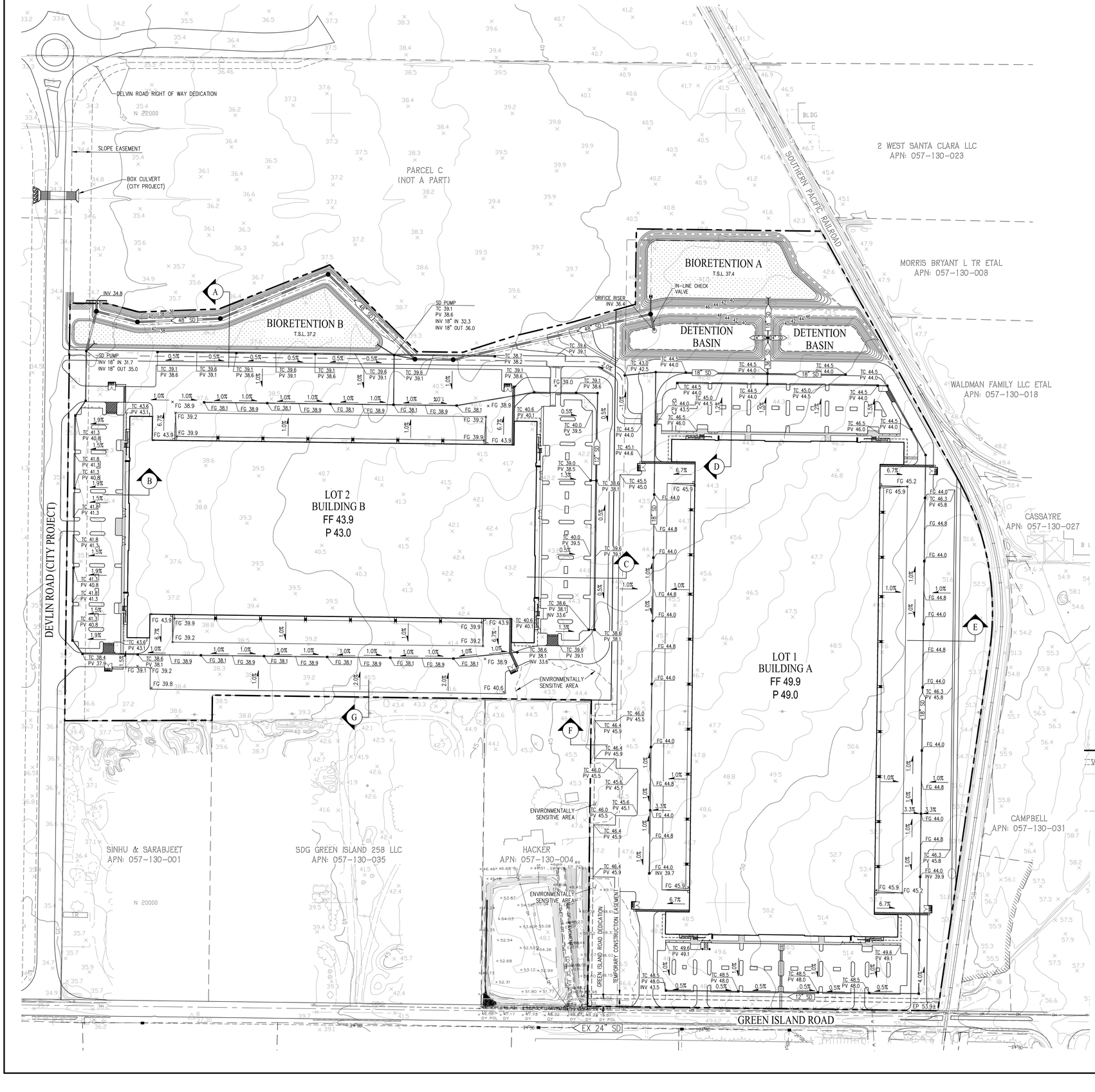
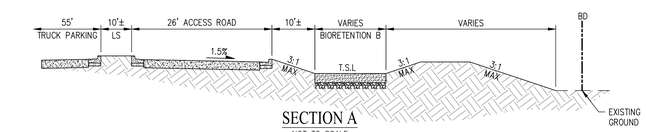
SAN RAMON ▪ (925) 866-0322
ROSEVILLE ▪ (916) 788-4456
WWW.CBANDG.COM

SHEET NO.
TM-2
OF 6 SHEETS





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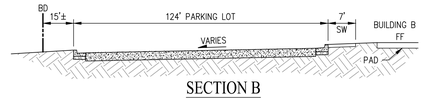
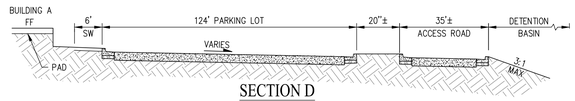


SECTION B
NOT TO SCALE

SECTION C
NOT TO SCALE



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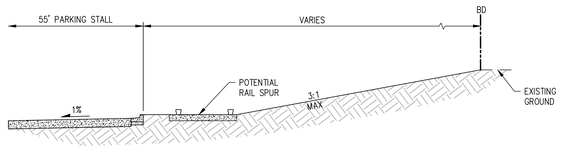

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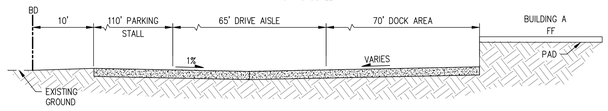

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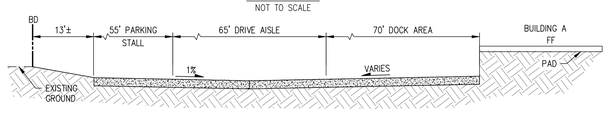


SECTION G
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		SUBDIVISION BOUNDARY
		TOP/TOE OF SLOPE
		CONCRETE
12.0	12.0	SPOT ELEVATION
		FLOW DIRECTION
EX 18" SD	18" SD	STORM DRAIN PIPE
		STORM DRAIN MANHOLE
		DRAINAGE INLET
		STORMWATER QUALITY/DETENTION BASIN
		DIRECTION OF OVERLAND RELEASE

PRELIMINARY EARTHWORK SUMMARY

DESCRIPTION	CUT (CY)	FILL (CY)
ROUGH GRADING	139,500	146,900
UTILITY/DEVELOPMENT SPOILS	2,000	--
SUBTOTAL	141,500	146,900
NET (BALANCE)		5,400

EARTHWORK NOTES:

1. ALL SPOIL QUANTITIES ARE PRELIMINARY. QUANTITIES EXCLUDE BUILDING SPOILS, UTILITY SPOILS (BELOW BUILDING), FOOTING SPOILS, RETAINING WALL SPOILS, AND SPOILS FOR LANDSCAPE ELEMENTS AND TREES. CONTRACTOR TO VERIFY ALL SPOILS WITH FINAL UTILITY, ARCHITECTURAL, AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION.
2. DETENTION BASIN/STORMWATER QUALITY BASIN EARTHWORK IS INCLUDED IN THE ROUGH GRADING QUANTITY. THIS INCLUDES CUT TO THE BOTTOM OF THE GRAVEL LAYER.
3. EARTHWORK QUANTITIES DO NOT INCLUDE ANY SHRINK OR SWELL ADJUSTMENT.

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY GRADING & DRAINAGE PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

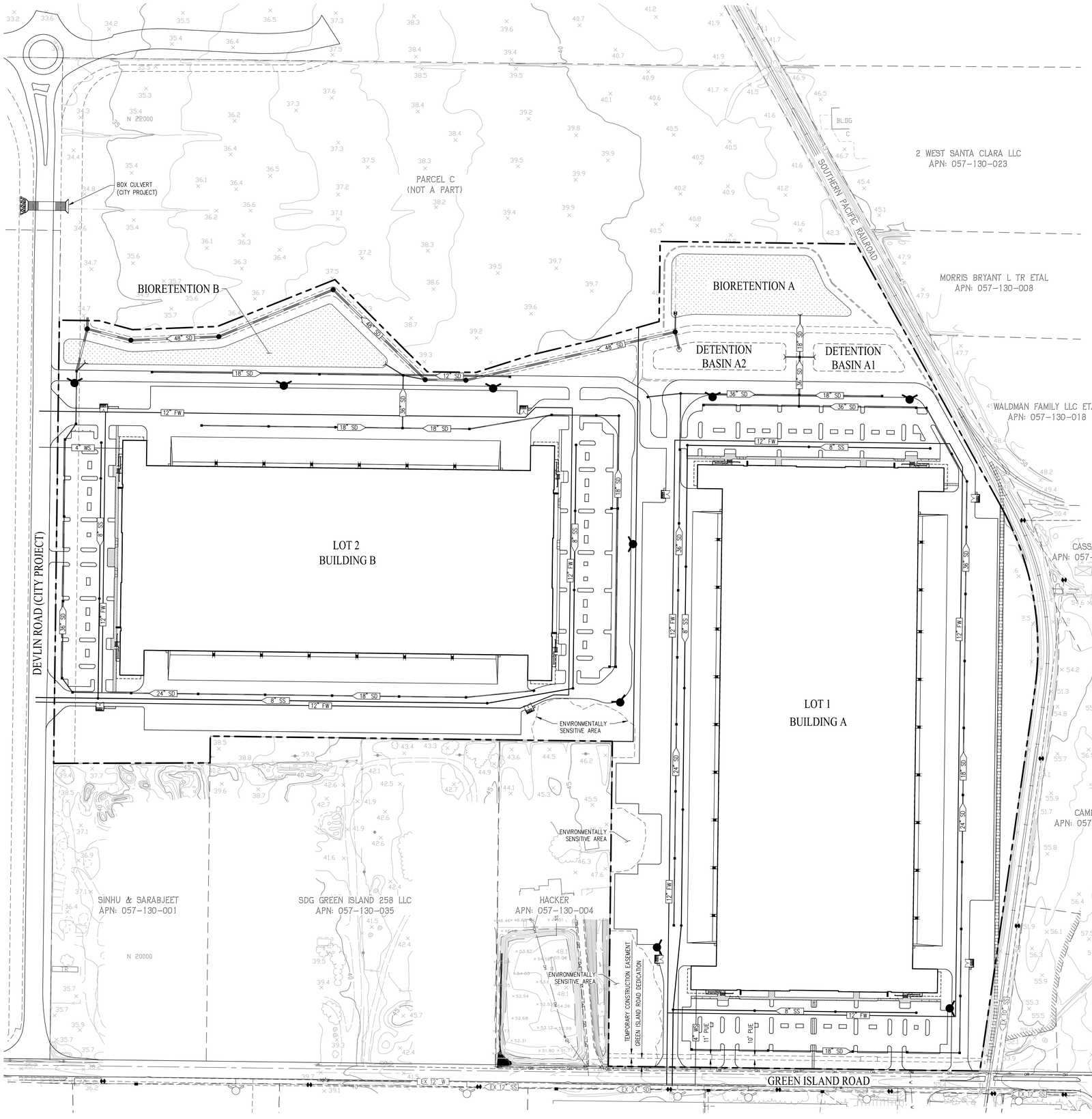
SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

0 100 200 300

cbg CIVIL ENGINEERS • SURVEYORS • PLANNERS
SAN RAMON • (925) 866-0322
ROSEVILLE • (916) 788-4456
WWW.CBANDG.COM

SHEET NO.
TM-3
OF 3 SHEETS

F:\2637-000\ACAD\TM\EAST\TM-03E.DWG



LEGEND

EXISTING	PROPOSED	DESCRIPTION
		SUBDIVISION BOUNDARY
EX 15" SD	18" SD	STORM DRAIN PIPE
EX 8" SS	6" SS	SANITARY SEWER PIPE
EX 8" W	8" W	DOMESTIC WATER PIPE
	12" FW	PRIVATE FIRE SERVICE
	4" WS	DOMESTIC WATER SERVICE
•	•	MANHOLE
■	▪	DRAINAGE INLET
		STORMWATER QUALITY/DETENTION BASIN
		FIRE HYDRANT

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY UTILITY PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

0 100 200 300

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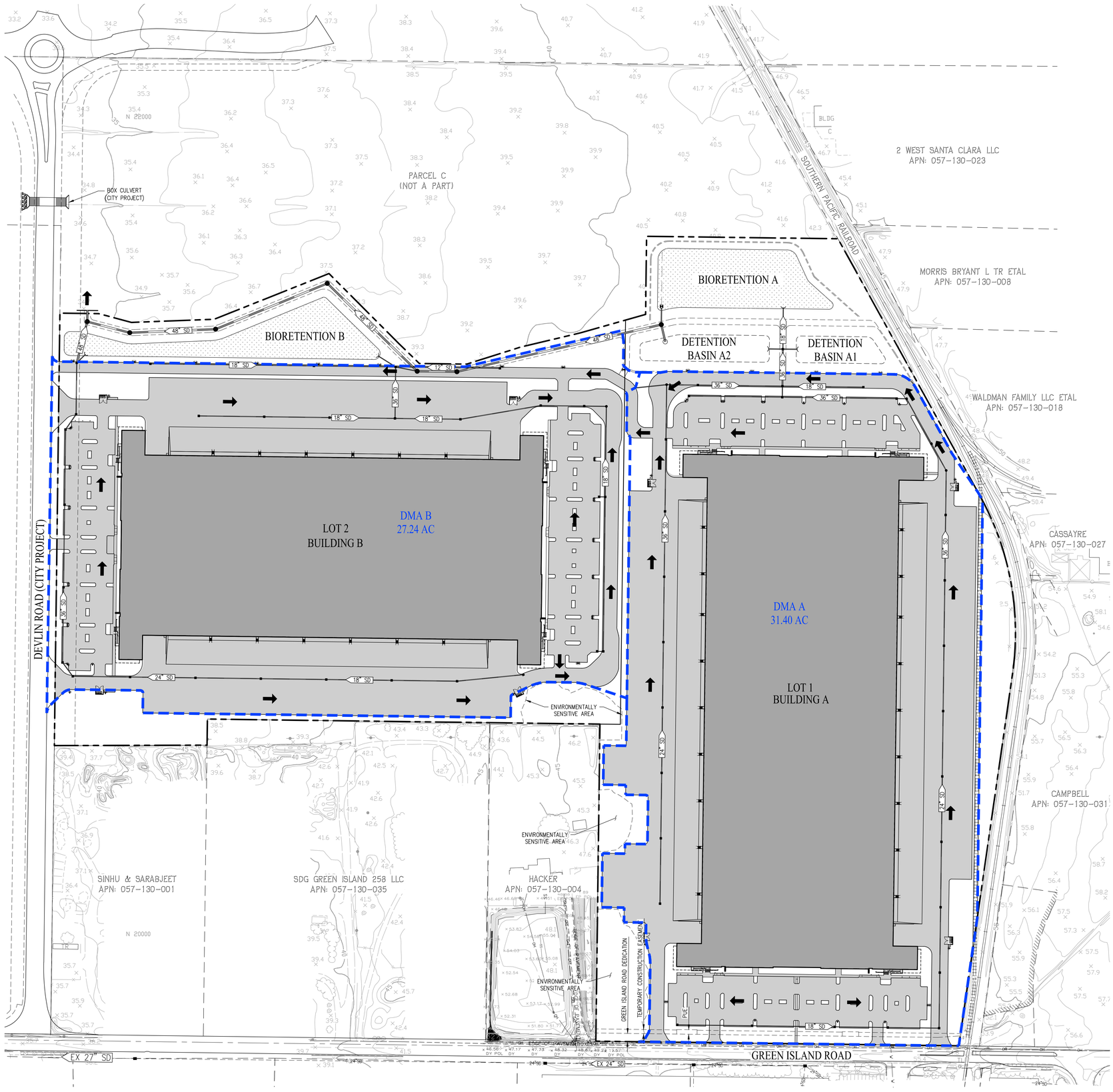
SHEET NO.
TM-4
OF 6 SHEETS



WATER QUALITY TABLE

DRAINAGE MANAGEMENT AREA (DMA)	DRAINAGE AREA (AC)	TREATMENT AREA REQUIRED (SF)	TREATMENT AREA PROVIDED (SF)	BIORETENTION FACILITY
A	31.40	54,711	54,183	A
B	27.50	47,916	52,524	B

STAGE STORAGE TABLES

DETENTION BASIN A1

ELEVATION (FT)	STAGE (FT)	AREA (SF)	STORAGE (CF)	AREA (AC)	VOLUME (AC-FT)
38.5	0.0	13,231	–	0.30	–
39.0	0.5	14,065	6,824	0.32	0.16
40.0	1.5	15,813	21,763	0.36	0.50
41.0	2.5	17,633	38,486	0.40	0.88
42.0	3.5	19,533	57,069	0.45	1.31
43.0	4.5	21,513	77,592	0.49	1.78
44.0	5.5	23,572	100,135	0.54	2.30
45.0	6.5	25,710	124,776	0.59	2.86

DETENTION BASIN A2

ELEVATION (FT)	STAGE (FT)	AREA (SF)	STORAGE (CF)	AREA (AC)	VOLUME (AC-FT)
38.5	0.0	19,493	–	0.45	–
39.0	0.5	20,616	10,027	0.47	0.23
40.0	1.5	22,915	31,793	0.53	0.73
41.0	2.5	25,284	55,892	0.58	1.28
42.0	3.5	27,724	82,396	0.64	1.89
43.0	4.5	30,234	111,375	0.69	2.56
44.0	5.5	32,814	142,899	0.75	3.28
45.0	6.5	35,464	177,038	0.81	4.06

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		SUBDIVISION BOUNDARY
		DMA (DRAINAGE MANAGEMENT AREA)
		CONCRETE
		FLOW DIRECTION
EX 18" SD	18" SD	STORM DRAIN PIPE
		STORM DRAIN MANHOLE
		DRAINAGE INLET
		STORMWATER QUALITY/DETENTION BASIN
		IMPERVIOUS PAVEMENT & SIDEWALK
		BUILDING AREA
		DIRECTION OF OVERLAND RELEASE

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY STORM WATER CONTROL PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVMEBER 13, 2020

0 100 200 300

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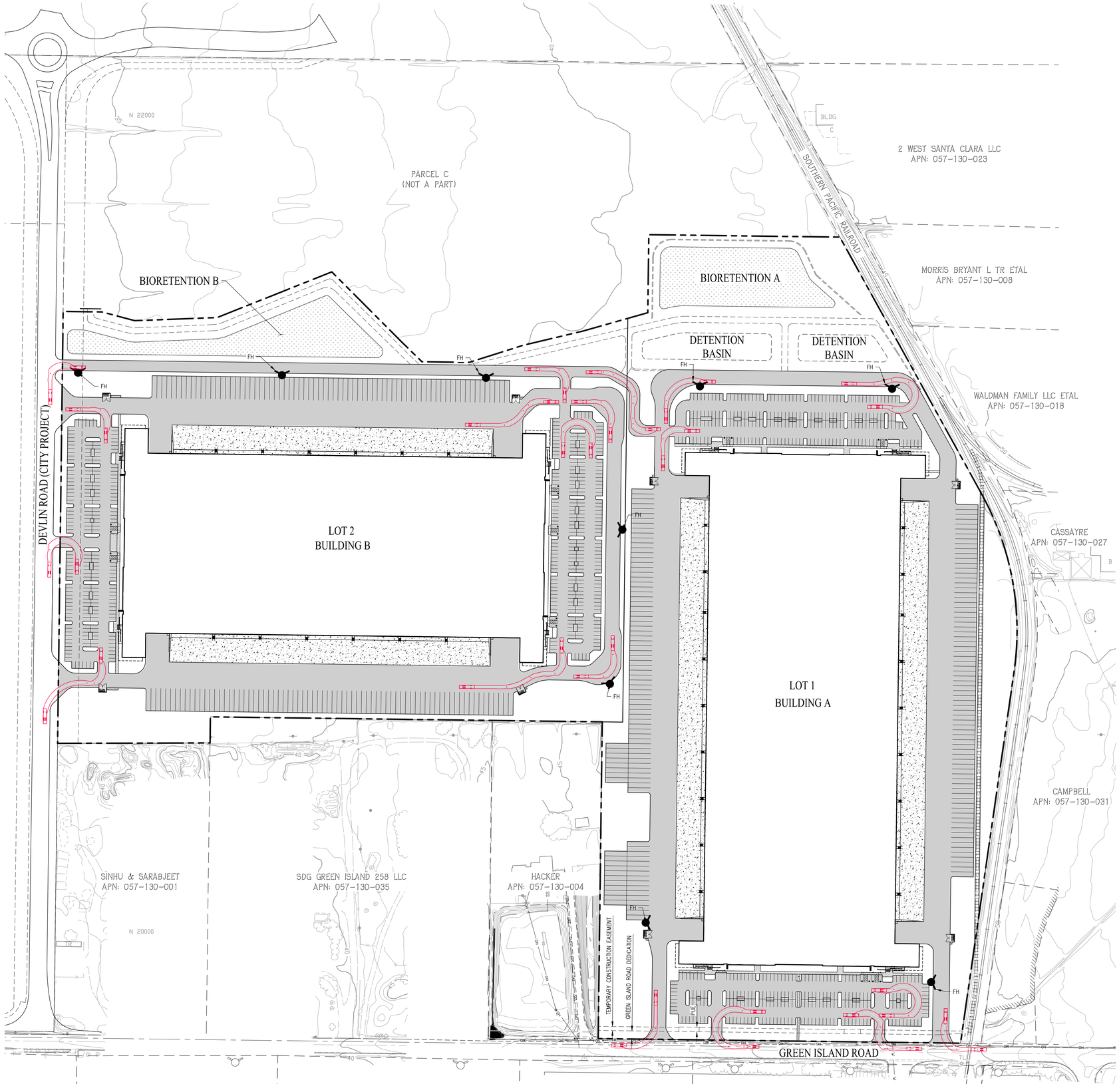
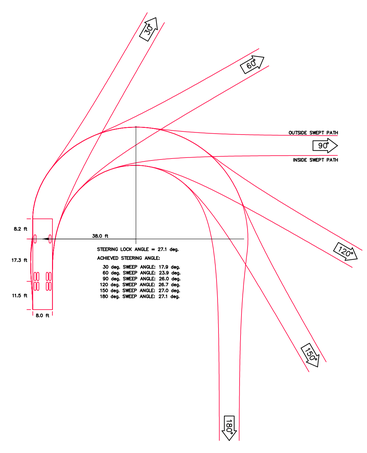
SHEET NO. TM-5 OF 6 SHEETS



LEGEND

- SUBDIVISION BOUNDARY
- FIRE ACCESSIBLE ROADWAY
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT



FIRE TRUCK TURNING TEMPLATE
NOT TO SCALE

TENTATIVE MAP

GIOVANNONI LOGISTICS CENTER - EAST

PRELIMINARY FIRE ACCESS PLAN

CITY OF AMERICAN CANYON NAPA COUNTY CALIFORNIA

SCALE: 1" = 100' DATE: NOVEMBER 13, 2020

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SHEET NO.
TM-6
OF 6 SHEETS

PRELIMINARY PLANT LEGEND

TREES

Acer buergeranum	Trident Maple	Med	15 Gallon	Deciduous Shade Tree
Acer r. 'October Glory'	Red Maple	Med	15 Gallon	Deciduous Shade Tree
Ginkgo 'Princeton Sentry'	Maidenhair Tree	Low	36" Box	Flowering Accent Tree
Lagerstroema f. 'Catawba'	Crepe Myrtle	Low	24" Box	Flowering Accent Tree
Pistacia chinensis	Chinese Pistache	Low	24" Box	Deciduous Shade Tree
Platanus a. 'Columbia'	London Plane Tree	Low	15 Gallon	Deciduous Shade Tree
Quercus r. Shumardii	Shumard Oak	Low	15 Gallon	Deciduous Shade Tree
Quercus lobata	Valley Oak	Low	15 Gallon	Deciduous Shade Tree
Quercus suber	Cork Oak	Low	15 Gallon	Evergreen Screen Tree
Sequoia s. 'Aptos Blue'	Redwood	Med	15 Gallon	Evergreen Screen Tree
Ulmus 'Frontier'	Frontier Elm	Med	15 Gallon	Deciduous Shade Tree

FOUNDATION SHRUBS

Arctostaphylos 'Sunset'	Manzanita	Low	5 Gallon	5' OC	5' x 5'
Ceanothus 'Skylark'	California Lilac	Low	5 Gallon	5' OC	5' x 5'
Cistus purpureus	Purple Rockrose	Low	5 Gallon	6' OC	4' x 6'
Coleonema pulchrum	Breath of Heaven	Med	1 Gallon	4' OC	3' x 4'
Grevillea noelli	Noel Grevillea	Low	5 Gallon	5' OC	5' X 5'
Loropetalum 'Ever Red'	Fringe Flower	Low	5 Gallon	6' OC	6' X 6'
Nandina varieties	Heavenly Bamboo	Low	5 Gallon	5' OC	5' X 5'
Raphiolepis 'Indian Princess'	Indian Hawthorne	Low	5 Gallon	5' OC	5' X 3'
Rosa Carpet varieties	Carpet Rose	Med	5 Gallon	5' OC	4' X 5'
Rosemarinus 'Tuscan Blue'	Tuscan Rosemary	Low	5 Gallon	5' OC	6' X 5'
Xylosma c. compacta	Compact Xylosma	Low	5 Gallon	6' OC	6' X 6'
Tulbaghia violacea	Society Garlic	Low	1 Gallon	2' OC	2' X 2'

GRASSES & ACCENTS

Achillea 'Moonshine'	Yarrow	Low	1 Gallon	2' OC	2' X 2'
Calamagrostis 'Karl Foerster'	Feather Reed Grass	Low	1 Gallon	3' OC	4' X 3'
Muhlebergia capillans	Pink Muhly Grass	Low	1 Gallon	4' OC	4' X 5'
Pennisetum 'Karley Rose'	Fountain Grass	Med	1 Gallon	3' OC	3' X 3'
Pennisetum s. Cupreum'	Red Fountain Grass	Low	1 Gallon	4' OC	4' X 4'
Tulbaghia violacea	Society Garlic	Low	1 Gallon	2' OC	2' X 2'

GROUNDCOVER

Coprosma p. 'Verde Vista'	NCN	Low	1 Gallon	3' OC	2' X 4'
Cotoneaster dammen	Bearberry	Low	1 Gallon	4' OC	1' X 6'
Juniper c. 'Blue Pacific'	Shore Juniper	Low	1 Gallon	4' OC	1' X 6'
Myoporum 'Pink'	NCN	Low	1 Gallon	5' OC	1' X 8'

COVER

Landscape Planters-3" Layer of Recycled Wood mulch in all landscape planters

BIO RETENTION TREATMENT

48 lbs. per acre Pacific Coast Seed

Apply Compact Bio Swale Mix via hydroseed at the following rates:

Bio Swale Seed Mix	48/lbs/ac
Mulch	2000 lbs/ac
M-Binder Tackifier	180 lbs/ac

WELO NOTES

1. ALL PLANTS AND TREES ARE WUCOLS LOW OR MEDIUM WATER VARIETIES.
2. SOIL AMENDMENTS WILL BE INCORPORATED PER SOILS TEST. COMPOST WILL BE ORGANIC COMPOSTED GREEN WASTE.
3. ALL PLANTER AREAS SHALL BE TREATED WITH A 3" LAYER OF RECYCLED MULCH.
4. A FULLY AUTOMATIC IRRIGATION SYSTEM THAT MEETS THE CURRENT WATER EFFICIENT LANDSCAPE ORDINANCE REQUIREMENTS SHALL BE INSTALLED INCLUDING THE FOLLOWING:
5. AN ET (SMART) CONTROLLER AND ET SENSOR SHALL BE USED FOR WEATHER BASED IRRIGATION CONTROL.
6. A MASTER VALVE AND FLOW SENSOR SHALL BE INSTALLED IN THE SYSTEM.
7. ALL PLANTER AREAS SHALL BE IRRIGATED WITH POINT SOURCE-DRIP IRRIGATION.
8. TREES SHALL RECEIVE DEEP WATER BUBBLERS ON SEPARATE VALVES.
9. WELO DOCUMENTATION SHALL BE SUBMITTED WITH LANDSCAPE IMPROVEMENT PLANS (CONSTRUCTION DOCUMENTS).

BUILDING A PRELIMINARY LANDSCAPE NOTES

1. THERE IS APPROXIMATELY 195,250 SQ' OF LANDSCAPE PLANTER AREA.
2. THERE IS 10.4% LANDSCAPE AREA WITHIN THE PARKING AND CIRCULATION AREAS.
3. THERE ARE 430 PARKING STALLS AND 143 SHADE TREES. REQUIREMENT OF 1 TREE PER 3 STALLS SINGLE LOADED AND 1 PER 6 STALLS DOUBLE LOADED HAS BEEN MET.

BUILDING B PRELIMINARY LANDSCAPE NOTES

1. THERE IS APPROXIMATELY 186,547 SQ' OF LANDSCAPE PLANTER AREA.
2. THERE IS 11.3% LANDSCAPE AREA WITHIN THE PARKING AND CIRCULATION AREAS.
3. THERE ARE 430 PARKING STALLS AND 139 SHADE TREES. REQUIREMENT OF 1 TREE PER 3 STALLS SINGLE LOADED AND 1 PER 6 STALLS DOUBLE LOADED HAS BEEN MET.

WELO WORKSHEETS

Green Island Road Logistics Center Bldg A WELO Worksheet
Reference Evapotranspiration (Eto) 45.8

Regular Landscape Areas — There are no special landscape areas. — Trees are value of 25 sq'

Hydrozone#	Plant Factor	Irrigation Method	Irrigation Efficiency	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF X Area	Estimated Total Water Use (GPY)
1	0.2	Drip	0.81	0.25	8836	2209	62714
2	0.2	Drip	0.81	0.25	17048	4262	120998
3	0.2	Drip	0.81	0.25	4342	1086	30817
4	0.2	Drip	0.81	0.25	11930	2983	84673
5	0.2	Drip	0.81	0.25	12174	3044	86405
6	0.2	Drip	0.81	0.25	20089	5022	142582
7	0.2	Drip	0.81	0.25	15087	3772	107080
8	0.2	Drip	0.81	0.25	15087	3772	107080
9	0.2	Drip	0.81	0.25	15087	3772	107080
10	0.2	Drip	0.81	0.25	8552	2138	60698
11	0.2	Drip	0.81	0.25	13822	3456	98102
12	0.2	Drip	0.81	0.25	17442	4361	123795
13	0.2	Drip	0.81	0.25	12035	3009	85418
14	0.2	Drip	0.81	0.25	18019	4505	127890
15	0.4	Bubbler	0.81	0.49	925	453	12868
16	0.4	Bubbler	0.81	0.49	1300	637	18084
17	0.4	Bubbler	0.81	0.49	1075	527	14954
18	0.4	Bubbler	0.81	0.49	1250	613	17389
19	0.4	Bubbler	0.81	0.49	1150	564	15998
Totals					195250		1424624

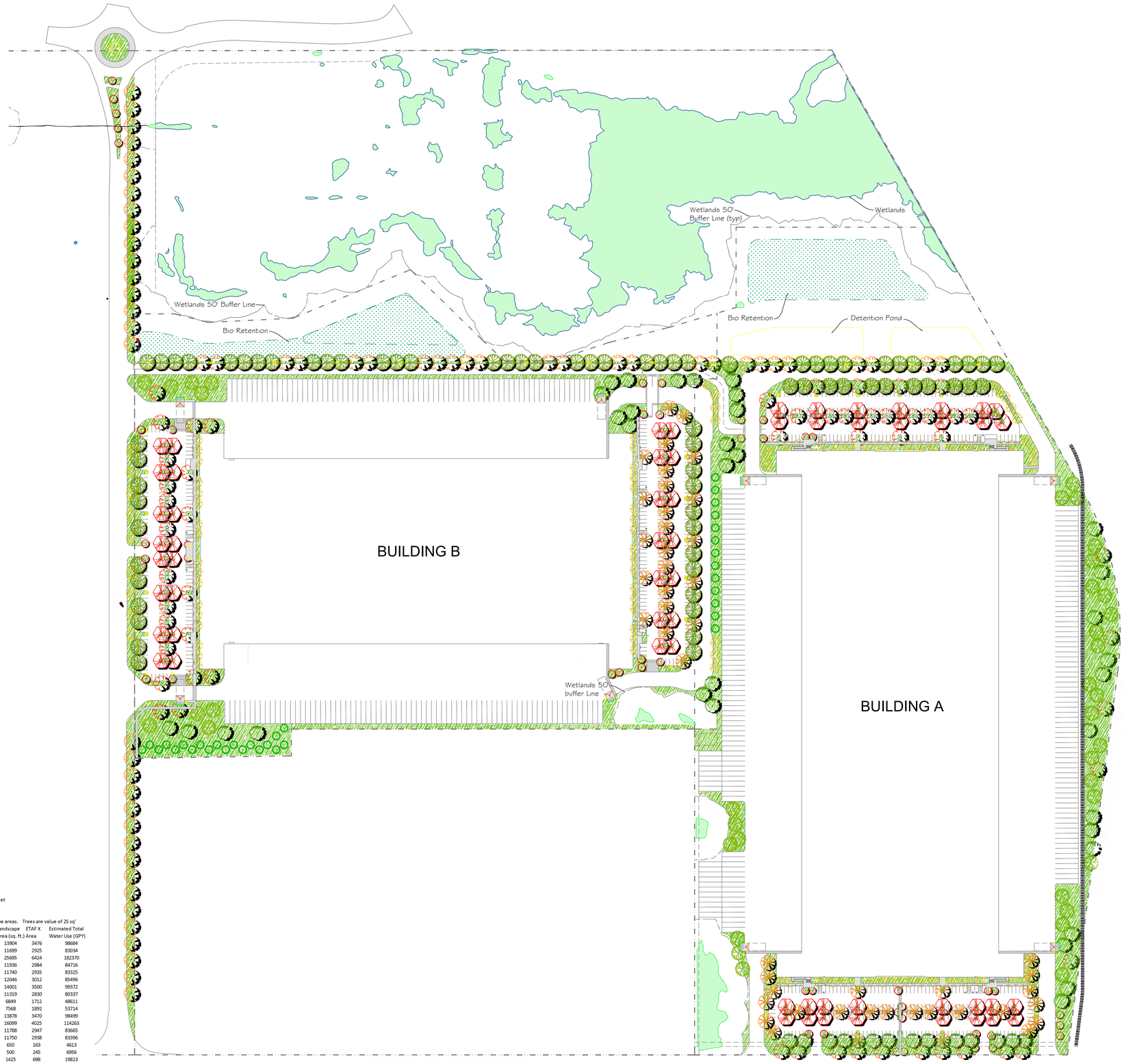
Maximum Allowed Water Allowance (MAWA) 2494416
Estimated Total Water Use (ETWU) 1424624
Average ETAF 0.26
Allowed ETAF 0.45

Green Island Road Logistics Center Bldg B WELO Worksheet
Reference Evapotranspiration (Eto) 45.8

Regular Landscape Areas — There are no special landscape areas. — Trees are value of 25 sq'

Hydrozone#	Plant Factor	Irrigation Method	Irrigation Efficiency	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF X Area	Estimated Total Water Use (GPY)
1	0.2	Drip	0.81	0.25	13904	3476	98684
2	0.2	Drip	0.81	0.25	11699	2925	83034
3	0.2	Drip	0.81	0.25	25695	6424	182370
4	0.2	Drip	0.81	0.25	11936	2984	84716
5	0.2	Drip	0.81	0.25	11740	2935	83325
6	0.2	Drip	0.81	0.25	12046	3012	85496
7	0.2	Drip	0.81	0.25	14001	3500	99372
8	0.2	Drip	0.81	0.25	11319	2830	80337
9	0.2	Drip	0.81	0.25	6849	1712	48611
10	0.2	Drip	0.81	0.25	7568	1892	53714
11	0.2	Drip	0.81	0.25	13878	3470	98499
12	0.2	Drip	0.81	0.25	16099	4025	114263
13	0.2	Drip	0.81	0.25	11788	2947	83665
14	0.2	Drip	0.81	0.25	11750	2938	83396
15	0.2	Bubbler	0.81	0.25	650	163	4613
16	0.4	Bubbler	0.81	0.49	500	245	6956
17	0.4	Bubbler	0.81	0.49	1425	698	19823
18	0.4	Bubbler	0.81	0.49	550	270	7651
19	0.4	Bubbler	0.81	0.49	1150	564	15998
20	0.4	Bubbler	0.81	0.49	750	368	10433
21	0.4	Bubbler	0.81	0.49	1250	613	17389
Totals					186547		1362344

Maximum Allowed Water Allowance (MAWA) 2383251
Estimated Total Water Use (ETWU) 1362344
Average ETAF 0.26
Allowed ETAF 0.45



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Scale 1" = 100'

RMW
Architecture
Interiors

1718 Third Street
Suite 101
Sacramento
California 95811

Office
916 449-1400

rmw.com

OWNER / DEVELOPER:

BUZZ OATES

555 CAPITOL MALL SUITE 900
SACRAMENTO, CA 95814
PHONE: 916.379.3800

PRELIMINARY DESIGN DOCUMENTS FOR:

GIOVANNONI LOGISTICS CENTER

GREEN ISLAND ROAD AT HIGHWAY 29
CITY OF AMERICAN CANYON, CALIFORNIA

approved for the owner by :

approved for the architect by :

issue :	description :	date :
A	PLANNING SUBMITTAL INITIAL DESIGN REVIEW	11-11-2020

VISTA PARKS
design /build /construction
8264 Barryman Court Sacramento, CA 95829
PH. (916) 681-2227 FAX (916) 681-2228

drawn by : EJD plot date : 11-11-2020

checked by : JN

stamp

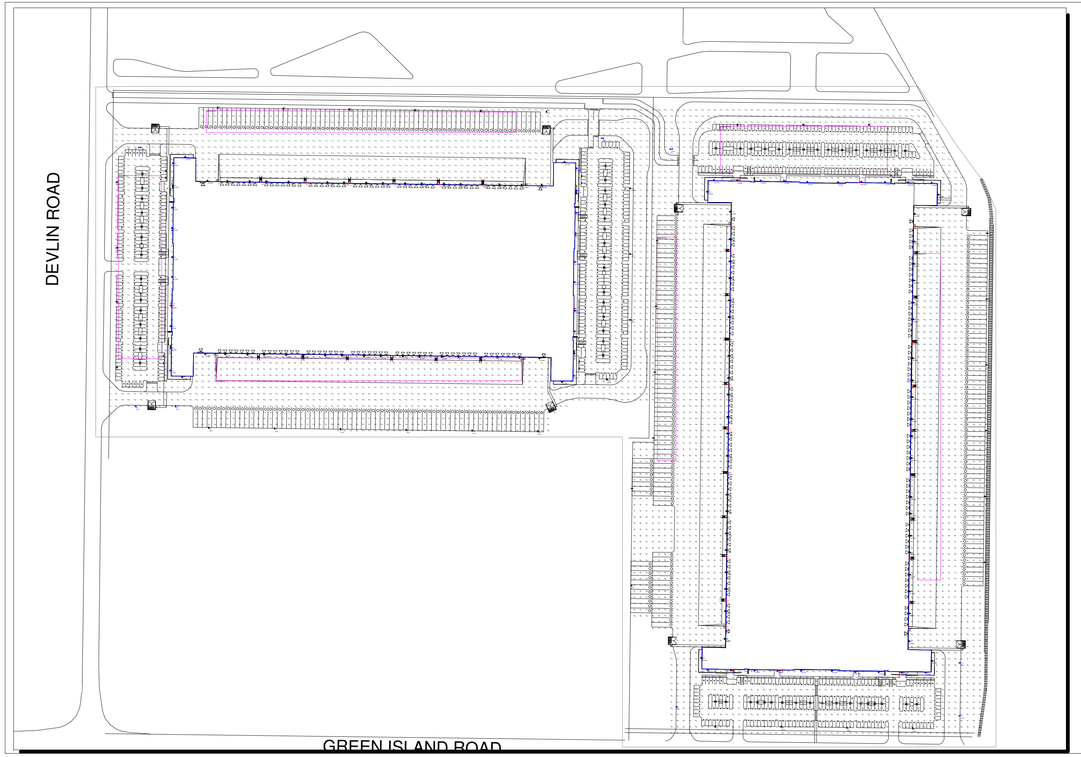
scale : AS NOTED

project number : 2204049.00

PRELIMINARY PLANTING PLAN

sheet no. :

LP

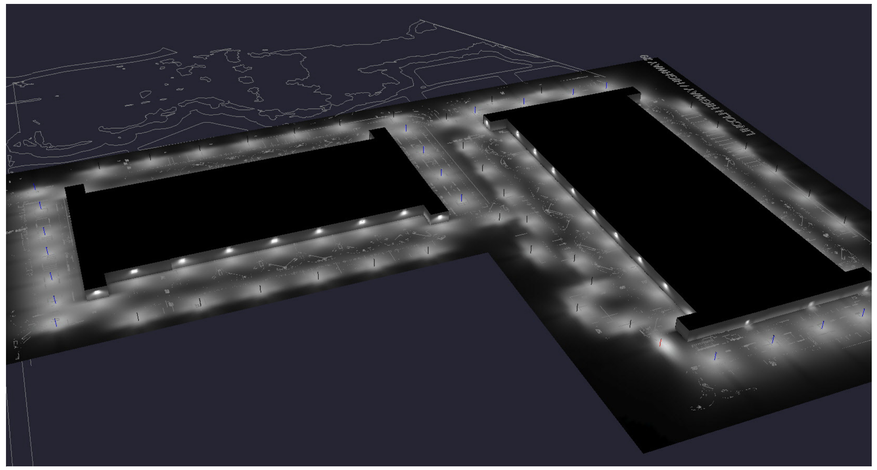


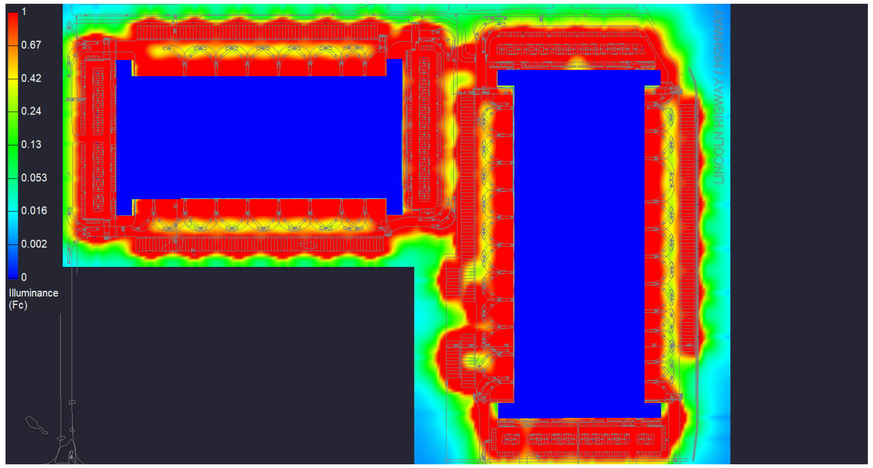
PRV / PRV-XL
PREVAIL

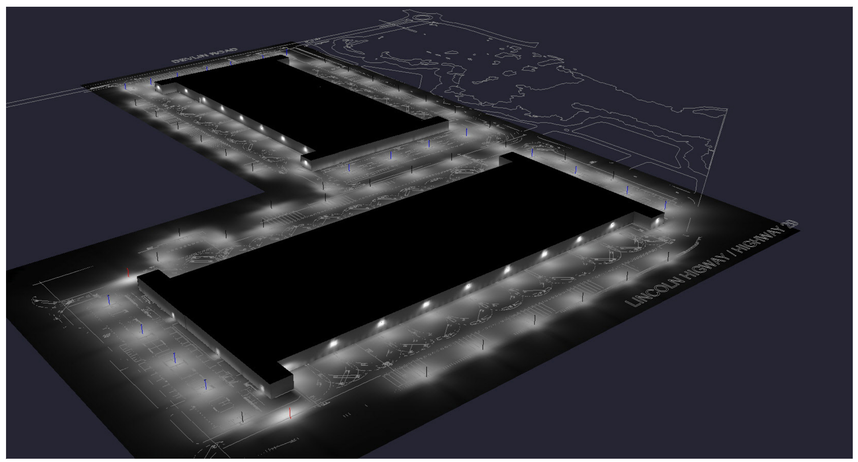
TBLW-LED

Type:	
Job Name:	

RENDERS: **ATTACHMENT 2.A2**







SUMMARY TABLES & PARAMETERS:

Luminaire Schedule

Symbol	Qty	Label	LLF	Description	Lum. Watts	Lum. Lumens
	5	S1A	0.900	PRV-XL-PA3B-740-U-T3-SINGLE @ 25' MTG. HT.	234	30527
	39	S1B	0.900	PRV-XL-PA3B-740-U-T4W-SINGLE @ 25' MTG. HT.	234	30161
	3	S2	0.900	PRV-XL-PA3A-740-U-5WQ-TWIN @ 25' MTG. HT.	172	25453
	40	WM-2	0.900	TBLW-13-LED-O2B-4-Z3-CEG WALL MT @ 8' MTG. HT. EMERG	15	2328
	41	WM-3	0.900	PRV-PA2B-740-U-T4W-WALL MT @ 48' 7in MTG. HT.	151	19431
	87	WM-4	0.900	PRV-XL-PA3B-740-U-T4W-WALL MT @ 43' 1in MTG. HT.	234	30161

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE CALCS	Illuminance	Fc	2.85	65.1	0.1	28.50	651.00
Building A East Dock	Illuminance	Fc	4.50	5.7	3.4	1.32	1.68
Building A North Parking	Illuminance	Fc	2.51	5.6	1.5	1.67	3.73
Building A West Trailer	Illuminance	Fc	2.73	5.7	1.4	1.95	4.07
Building B North Trailer	Illuminance	Fc	2.43	4.8	1.3	1.87	3.69
Building B South Dock	Illuminance	Fc	4.64	5.4	3.5	1.33	1.54
Building B West Parking	Illuminance	Fc	2.67	5.1	1.6	1.67	3.19

Fixture/Pole 25' AFF / 8' MTG FOR DOORWAY FIXTURE>>Wall Mts/ 48' 7" / 43' 1" / 22' 6"
.5 Surface Reflectance >>> Calcs 15' Centers @ Grade>>

DISCLAIMER:

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY (IESNA) APPROVED METHODS. ADDITIONALLY, THE PREPARER USED INFORMATION PROVIDED BY THE CUSTOMER. IF/WHEN SUFFICIENT INFORMATION WAS NOT PROVIDED, PREPARER USED EDUCATED ASSUMPTIONS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE(S) MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER FIELD CONDITIONS NOT ACOCUNTED FOR IN THIS PHOTOMETRIC ANALYSIS.
THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR ENERGY CODE AND RELEVANT LIGHTING QUALITY COMPLIANCE.

CAL LIGHTING

Date:11/13/2020

PROJECT:

Giovannoni Logistics Center - Rev1
PH1.0 Title Sheet

NO	DATE	ISSUE

Drawing:

2440

CAL LIGHTING

Date:11/13/2020

PROJECT:

Giovannoni Logistics Center - Rev1

PH2.0 BLDG B Site Lighting

NO	DATE	ISSUE

Drawing:

2441

CAL LIGHTING

Date:11/13/2020

PROJECT:

Giovannoni Logistics Center - Rev1

PH2.1 BLDG A NORTH Site Lighting

NO	DATE	ISSUE

Drawing:

2442

CAL LIGHTING

Date:11/13/2020

PROJECT:

Giovannoni Logistics Center - Rev1

PH2.1 BLDG A SOUTH Site Lighting

NO	DATE	ISSUE

Drawing:

2443

RESOLUTION NO. 2022-XX

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF AMERICAN CANYON, CALIFORNIA, RECOMMENDING THE CITY COUNCIL OF THE CITY OF AMERICAN CANYON APPROVE THE GIOVANNONI LOGISTICS CENTER PHASE 1 DESIGN PERMIT TO ALLOW UP TO 1,069,904 SQUARE FEET OF HIGH-CUBE WAREHOUSE USES ON 70.2 ACRES LOCATED NORTH OF GREEN ISLAND ROAD AND EAST OF DEVLIN ROAD, APN 057-090-008, 057-130-034, 057-130-036, (FILE NO. PL 20-0042)

WHEREAS, pursuant to Section 65300 of the State Planning and Zoning Law, the City of American Canyon (City) adopted a General Plan to provide comprehensive long-range planning and a blueprint of the City's future form, including land use and circulation maps that specify the roadway network and the distribution of types and intensities of land; and

WHEREAS, Buzz Oates LLC, ("applicant"), submitted a Giovannoni Logistics Center Phase 1 Design Permit application to develop a 70.2-acre area east of Devlin Road for two high-cube warehouse buildings totaling 1,069,904 square feet (the proposed project); and

WHEREAS, Building A, located at 300 Green Island Road, is proposed to be 627,976 square feet, and may be rail-served by the adjacent Napa Branch Line; and

WHEREAS, Building B, located at 1200 Devlin Road, is proposed to be 469,512 square feet; and

WHEREAS, both buildings would provide docks, grade level roll-up doors, and trailer parking stalls and enclosed with a secure perimeter; and

WHEREAS, access would be restricted to authorized users; and

WHEREAS, on November 17, 2022, the Planning Commission recommended the City Council certify that the Final Environmental Impact Report (EIR) (SCH# 2021010104) has been completed in compliance with the California Environmental Quality Act (CEQA) and as adequately reflects the City's independent judgement and analysis regarding the potential environmental impacts associated with the Giovannoni Logistics Center Project, and adopt CEQA Findings of Fact, a Statement of Overriding Considerations, for the Project, and adopt a the Mitigation Monitoring and Reporting Program for the Project; and

WHEREAS, the Giovannoni Logistics Center Final EIR specifically evaluated the Phase 1 Design Permit at a Project level and the Planning Commission reviewed and considered the information contained in the Final EIR prior to making recommendations concerning the approval of the proposed project; and

WHEREAS, on November 17, 2022, the Planning Commission conducted a duly-noticed public hearing to evaluate the Giovannoni Logistics Center Phase 1 Design Permit and heard all public speakers and considered all written materials including the staff report and oral testimony given at the meeting.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends the City Council make all the required findings to approve the Giovannoni Logistics Center Phase 1 Design Permit, as follows:

SECTION 1: Design Permit Findings

Approval of the Design Permit requires all the following findings be made, pursuant to American Canyon Municipal Code Section 19.41.050:

A. The project complies with all applicable provisions of the Zoning Ordinance and any applicable approvals granted for the project by any decision-making authority.

The proposed two warehouses comply with the General Industrial zoning height, bulk, and setback regulations.

B. The project and its design comply with any applicable design guidelines.

The project complies with the design and development principles set out in the General Plan as Policy 1.22.4 and 1.22., as follows:

- *The architectural façade includes a variety of colors, materials, and articulating features. There are changes in color that vary from white and gray. The architectural detailing around windows, building corners, parapet, and articulated sidings of the main entrance gives a sense of human scale. There are also scoring lines on the concrete shell walls that break up the expanse.*

- *The main entry into the warehouse provides transparent building elements into the ground floor, and the exterior scoring lines gives the external appearance a modern look for an industrial facility. The ground floor of the southern elevation has store-front like windows that capture natural light.*

- *The façade includes articulation, gray painted squares, and a white parapet trim to provide visual relief and interest.*

- *The southwest building entrance is clearly identified with the articulated white and grey siding. The entrance also has storefront like windows for natural light.*

- *The building design includes tall parapet to screen rooftop structures and the mechanical equipment and a condition of approval requires adequate equipment screening at the time of building permit issuance.*

- *The site is well landscaped, including trees throughout the parking areas and along the southern, western, and northern edges of the site, and plantings within the stormwater bio-retention area that runs along the northwest side of the site.*

- *There are clearly marked pedestrian routes in the parking lot leading to the front office of the building.*

C. The project and its design comply with all applicable general plan policies.

The project complies with all applicable general plan policies because the proposed use is included in the Industrial use designation; the building and site design comply with the Design Guidelines set out in the General Plan as Policy 1.22.4 and 1.22.7; and the project will contribute to the provision of necessary transportation improvements called for in the 2018 Circulation Element update because it will pay the Traffic Impact Fees, as periodically adjusted.

D. The project complies with applicable policies of Napa County Airport Land Use Compatibility Plan.

The project site falls entirely within Zone D of the Napa County Airport Land Use Compatibility Plan (ALUCP) Area. Zone D is characterized by moderate risk, frequent noise intrusion, and routine overflights below 1,000 feet above ground level. The ALUCP indicates that warehousing, low intensity light industrial uses and office uses are normally acceptable uses.

The ALUCP sets forth maximum density criterion of 100 people per net acre for Zone D Therefore, the proposed project complies with the building height requirements of the Napa County Airport land use compatibility plan. As described in the Giovannoni Logistics Center Final EIR (SCH# 2021010104), the maximum site density complies with the density recommendation of no more than 100 persons per net acre.

In addition to the 70.2-acre development site, an additional 45 acres of the project site would be permanently preserved as a Wetland Preserve. This area contains wetlands that currently attract wildlife (e.g., avian species). Avian species are considered potential hazards to aviation activities due to the potential for bird strikes. The two aspects of the proposed project that have the greatest potential for creating aviation safety hazards are the open space area and the stormwater basins.

The proposed project would create new wetland features to offset those impacted as result of the proposed project. However, it would not substantially increase the bird attractant potential because the new compensatory wetlands represent a small portion of the total open space area. Thus, the proposed project would not introduce new aviation hazards in this respect.

The proposed stormwater basins would be designed to drain out within 48 hours of a 10-year storm event. This rapid drainage rate would minimize the amount of time the basins would hold standing water, which, in turn, would reduce their avian attractant attributes. Additionally, standing water would be prevalent in many areas in the project vicinity during and immediately after a storm event; thus, the basins would not represent a greater attractant in this respect. Moreover, the basins are not intended to hold water for extended periods or to be used as an aesthetic water feature.

Furthermore, the proposed project overall would result in an approximately 163-acre reduction in avian foraging habitat as a result of the development of the proposed structures and infrastructure. This would further minimize the avian attractant attributes of the project site relative to existing conditions.

The ALUCP indicates that projects that have the potential to attract wildlife are required to prepare a Wildlife Hazards Assessment. Accordingly, Mitigation Measure LU-3 requires the preparation of such an assessment and implementation of the recommendations into the design of the open space area. This would serve to minimize, if not eliminate, the wildlife attractant attributes in a manner that reduces impacts to a level of less than significant. This mitigation measure has already been satisfied through the preparation by biologists in the consulting firm AECOM of the September 27, 2022, Wildlife Hazard Assessment for the Giovannoni Logistics Center Property. This document concluded, for a variety of reasons, that the proposed project would not cause an increase above the existing level of activity of birds or other wildlife, and thus did not propose any recommendations to modify the open space area design.

The proposed project's end uses include high-cube warehouse and ancillary office, which are considered normally acceptable by the ALUCP as long as they do not create hazards. In this case, Mitigation Measure AES-3 requires all exterior lighting to use full cut-off fixtures and be directed downward to prevent interference with Napa County Airport operations. Moreover, the proposed project would reduce the amount of natural vegetation on the project site by 163 acres. The proposed project also would include landscaping and on-site drainage facilities that would be designed and managed to discourage wildlife use of the site. Mitigation Measure LU-3 requires the applicant to retain a qualified Biologist to prepare a

wildlife hazard assessment that would identify any measures needed to reduce the bird attractant potential of the wetland area, consistent with the ALUCP's policies. Collectively, the implementation of these two mitigation measures would ensure that the proposed project would not create hazards to aviation. As noted above, Mitigation Measure LU-3 has already been satisfied. The September 27, 2022, Wildlife Hazard Assessment for the Giovannoni Logistics Center Property summarized its key conclusions as follows:

> *The buildings associated with the project development site are not expected to result in a significant attraction of birds or other wildlife to the property. Some vegetation will be removed and replaced with buildings, resulting in the reduction of existing non-native grassland habitat within the development site. Anticipated changes to the existing wildlife habitat associated with the proposed construction activities include grading, excavation, permanent development, storm water controls, lighting, irrigation, noise, and increased human presence.*
>
> *The development of Phase 1 and Phase 2 features is unlikely to result in an increase in wildlife activity due to the disturbances caused by the lighting, human presence, and noise associated with the new development site, in addition to the existing baseline noise and activity from nearby vehicular traffic and the Napa County Airport air and vehicular traffic. Natural or man-made features that could attract wildlife to the property post-construction include the proposed stormwater retention basins; however, the stormwater retention basins are unlikely to result in significant additional wildlife attraction because the systems are designed for quick drainage, and because the basins will be surrounded by development.*
>
> *A majority of the wetland impacts will be mitigated at a 1:1 ratio, with only 0.496 acres of net gain in palustrine emergent wetlands across the site. The impacted wetlands are located within a contiguous grassland landscape and are, on average, no more than 1,500 feet south of the Proposed Wetland Preserve, where mitigation wetlands would be created among approximately 45 acres of existing wetlands. The creation of wetlands associated with the project is not expected to cause an overall increase in the current level of bird or other wildlife activity at the project site, because most of the wetlands being filled within the parcel would be replaced at a 1:1 ratio and would be located among existing wetland features that dominate the northern portion of the project site.*

In summary, the construction and development associated with the Giovannoni Logistics Center would not cause an increase above the existing level of activity of birds or other wildlife. Therefore, the project land uses would not present a hazard to Napa County Airport flight operations. It is predicted that the overall wildlife activity on the property would remain at or below current levels, based on our understanding of the planned development and our best professional assessment of the existing habitat.

E. The project's quality and character are compatible with the surrounding area, unless physically deteriorated or blighted, and will not be materially detrimental to existing development.

The project is compatible with the quality and character of the surrounding area because it maintains sufficient setbacks and has landscaped parking areas and perimeters. Additionally, the building is detailed with appropriate windows, doors, awnings, and a roofline with a parapet to screen roof level installations. The white and gray colors and sequential scoring match the adjacent warehouse buildings to the west and east of the site.

F. The proposed design is compatible with existing development in the area in terms of scale, height, bulk, proportion, materials, cohesiveness, and color, and the preservation of privacy.

The project is compatible with existing development in the area as adjacent planned buildings are a similar scale and height. The building is setback from Devlin Road and Green Island Road and screened with landscaping that is native or adapted to the region. The design, exterior materials, and colors are industrial in character, but fit with the palette of other newly-constructed industrial buildings.

G. The design improves the community's appearance by avoiding both excessive variety and monotonous repetition.

The project avoids monotonous repetition with architectural features around entrances and building corners, variation in elevation treatment, and a range of compatible colors on the exterior walls. The grey trim differentiates this building from its neighbors. The site also has many landscaped areas which create separation and interest in the design.

H. The proposed design promotes a harmonious transition in terms of scale and character between areas of different general plan land use designations and zoning districts.

The project consists of two one-story distribution facilities. The perimeter landscaping consists of numerous deciduous and evergreen trees that complement the surroundings. The project buildings will be painted gray and white. The buildings will also be scored and the offices will have soft corners with transparent glass walls to reduce monotony.

I. The proposed design provides for adequate and safe on-site vehicular and pedestrian circulation.

Each building will have two driveway access points to the adjacent street. Entry points for each building provide good sight lines. The parking lot provides accessible parking, electric vehicle parking, and striped pedestrian pathways. The site will also provide sidewalks for the street and building entries. The site has adequate parking lot lighting that illuminates at night without producing glare onto neighboring parcels. The site will safely accommodate vehicular and pedestrian movements related to this industrial project.

SECTION 2: Conditions of Approval

General

1. The Design Permit approval is granted for two high-cube warehouse buildings within the Project totaling 1,069,904 square feet on a 70.2-acre site east of Devlin Road and north of Green Island Road. Building A, located at 300 Green Island Road is proposed to be 627,976 square feet; and Building B, located at 1200 Devlin Road is proposed to be 469,512 square feet. (APN 057-360-007) as shown on Exhibit A. Exhibit A includes the following:
    a. Architectural Plans prepared by RMW Architecture, dated 11-11-2020 consisting of 12 sheets, including Photometric Renderings, Preliminary Site Plan, Roof Plan Floor Plan, and Elevations
    b. Civil Plans prepared by CBG Engineers, dated 09-17-21 consisting of 6 sheets, Tentative Map, Existing Site Conditions, Preliminary Grading and Drainage Plan, Preliminary Utility Plan, Preliminary Stormwater Control Plan, and Preliminary Fire Access Plan.
    c. Preliminary Planting Plan prepared by RMW Architecture, dated 11-11-2020 consisting of 1 sheet.
    d. Photometric Plans prepared by Cal Lighting, dated 11-13-2020 consisting of 4 sheets, showing proposed lighting and site photometric plan.

2. The applicant shall defend, indemnify, and hold harmless the City of American Canyon ("City"), its elected and appointed officials, officers, employees, attorneys, representatives, boards, commissions, consultants, volunteers and agents from and against all claims, actions, including actions to arbitrate

or mediate, damages, losses, judgments, liabilities, expenses and other costs, or proceedings against the City, its elected and appointed officials, officers, employees, attorneys, representatives, boards, commissions, volunteers, or agents to attack, modify, set aside, void, or annul an approval, conditional approval, permit, entitlement, environmental document, environmental clearance, mitigation plan, or any other document or any of the proceedings, acts, or determinations taken, done, or made prior to granting of such approval, conditional approval, permit, entitlement, environmental clearance, environmental document, mitigation plan, or other documents, by the City, including, without limitation, an action against an advisory agency, appeal board, or legislative body within the applicable limitation period.

The obligation to defend, indemnify and hold the City harmless shall include the payment of all legal costs and attorney's fees (including a third party award of attorney's fees), arising out of, resulting from, or in connection with the City's act or acts leading up to and including approval of any environmental document or mitigation plan granting approvals to the applicant, incurred on behalf of, or by, the City, its elected and appointed officials, officers, employees, representatives, attorneys, boards, commissions, volunteers and agents in connection with the defense of any claim, action, or proceeding challenging the entire or a portion of an approval, conditional approval, permit, entitlement or any other document of any related claim.

The obligation to defend, indemnify, and hold the City harmless shall include, but not be limited to, the cost of preparation of any administrative record by the City, staff time, copying costs, court costs, or attorney's fees arising out of a suit or challenge contesting the adequacy of a permit, approval, conditional approval, entitlement, environmental document, mitigation plan, environmental clearance, or any other document or approval related to the applicant's project.

The City will promptly notify the applicant of any claim, action, or proceeding and will cooperate fully in the defense. If the City fails to promptly notify the applicant of any claim, action, or proceeding, or the City fails to cooperate fully in the defense, the applicant shall not be responsible to defend, indemnify, or hold harmless the City.

In the event a legal challenge to a City permit, approval, conditional approval, environmental document, environmental clearance, mitigation plan, entitlement or any other document, proceeding, determination, or action related to the applicant's project is successful, and an award of attorneys' fees is granted against the City, the applicant shall be responsible to timely pay the full amount of such an award.

3. The applicant is responsible for paying all charges related to the processing of this discretionary case application within 30 days of the issuance of the final invoice or prior to the issuance of building permits for this project, whichever occurs first. Failure to pay all charges shall result in delays in the issuance of required permits or the revocation of the approval of this application.

4. The date upon which the approval is final shall be considered the day of the imposition of the fees, dedications, reservations and exactions required by these conditions approval for the purposes of protesting the imposition pursuant to California Government Code Section 66020.

5. The application shall not be deemed final until the applicant and property owner(s) execute and return the "Confirmation of Conditions of Approval" form as shown as Exhibit B to this Resolution.

6. Expiration of this Approval. In accordance with American Canyon Municipal Code (ACMC) Section 19.41.060 the approval shall become null and void and of no effect if no construction permits have been issued and construction commenced within two years of the date upon which this approval is final.

This provision shall not apply to applications approved in conjunction with another discretionary permit. In these cases, the expiration period shall coincide with that of the associated period.

An extension of time may be granted by the Community Development Director upon the written request by a responsible party before the expiration of the two-year period, provided that the Director can make the findings that there have been no substantial changes in the approved plans, and that there has been no change of circumstances which would prevent any of the required findings of approval to be made.

Planning

7. All plans submitted for review and approval and all development shall be in substantial conformance with the approved exhibits, except where modified by a condition of approval. The Community Development Director or designee may approve minor changes to the project as approved by the City Council on the plans submitted for the construction permits with a determination that the changes are in substantial compliance with the representation of the project as reviewed by the Planning Commission and City Council, that the proposed change will be in compliance with the required development standards, and the change will not materially affect adjacent private or public property.

8. The conditions of this Permit shall be printed on the first sheet of each plan set submitted for a building permit pursuant to this Design Permit, under the title 'Design Permit Conditions'. The second sheet may also be used if the first sheet is not of sufficient size to list all of the conditions. The sheet(s) containing the conditions shall be of the same size as those sheets containing the construction drawings; 8-1/2" by 11" sheets are not acceptable.

9. Plans submitted for building permits shall include all exterior site lighting including building mounted lighting, lighting within the parking areas and along walkways that provide a minimum of 1-foot candle illumination of these areas. Lighting shall be shielded as appropriate and avoid light spillage or glare from the project site. Exterior light fixtures on buildings shall be oriented downward and shall be shielded to return potential light and glare impacts.

10. All new roof top equipment is required to be screened with a parapet equal or taller than the mechanical equipment. Alternative methods and materials for screening will be subject to the review and approval of the Community Development Director.

11. This permit does not include approval for signs. The applicant shall obtain a separate sign permit prior to installation of any sign. The signs shall be subject to ACMC Section 19.23.

12. Prior to building permit issuance, the applicant shall submit final landscape plans that comply with the State of California Water Efficient Landscape Ordinance. The landscape architect shall document and attest to the compliance with the State ordinance on the landscape plans. The plans shall incorporate the following requirements:

    a. All trees must be 15 gallons in size or larger.

    b. Provide cross sections for the north and south landscaping areas showing trees, landscaping, etc. that ensure that proposed trees would not be planted above proposed utilities or inappropriately planted in bio-retention areas. Ensure the landscape plans are reconciled with the civil plans and continue to provide a robust tree palette.

13. Prior to the issuance of a certificate of occupancy, the project landscape architect shall certify that all plant materials have been installed in accordance with the approved landscape plan.

14. All tree stakes and ties shall be removed within one year following installation or as soon as trees are able to stand erect without support.

15. Clear sight triangles shall be maintained at all driveways. Low-lying plantings and other site fixtures, including signs, shall be no taller than 30 inches within the site vision triangles.

16. All planting shall be maintained in good growing condition. Such maintenance shall include, where appropriate, pruning, mowing, weeding, cleaning of debris and trash, fertilizing, and regular watering. Whenever necessary, planting shall be replaced with other plant materials to ensure continued compliance with applicable landscaping requirements. Required irrigation systems shall be fully maintained in sound operating condition with heads periodically cleaned and replaced when missing to insure continued regular watering of landscape areas, and health and vitality of landscape materials.

Building and Safety

17. Construction and grading activities on the site shall be limited to between 7:00 a.m. and 6:00 p.m. Monday through Friday. Work between the hours of 6:00 pm and 7:00 am and work on weekends and holidays requires prior written approval from the Building Official. If weekends and holiday work is approved construction and grading activities on the site shall be limited to between 8:00 a.m. to 6:00 p.m. on Saturdays, and between 10:00 a.m. and 6:00 p.m. on Sundays and State and Federal holidays.

18. All construction plans and buildings onsite shall conform to the California Code of Regulations, Title 24. All building plans shall include all necessary recommendations from the Geotechnical Report for the site, to be superseded only by the California Code if any conflicts arise.

19. According to CBC 11B-228.3.2.1, provide the applicable amount of electrical vehicle charging stations (EVCS) and van accessible EVCS spaces for the employee parking lot.

20. Prior to the final inspection, the applicant shall submit a letter of certification to the Building Official from the project architect, civil engineer, and landscape architect certifying that all improvements have been constructed in accordance with the approved building plans. A Certified Access Specialist (CASP) shall also submit a letter certifying that all improvements have been constructed in compliance with applicable state and federal accessibility standards. Determination of consistency shall be subject to the review and approval of the Building Official.

21. Construction and Demolition Debris Recycling: Prior to issuance of a building permit the applicant shall submit a Construction Waste Management (CWM) plan for the diversion of at least 70 percent of the debris from the building demolition and construction. The plan shall include the qualified recycler that will be used, the methods of managing diversion of construction materials on site, and the proposed documentation that will be submitted to confirm that the diversion goal has been met.

Fire Protection

The following Fire Protection conditions shall be satisfactorily addressed on the building permit submittal:

22. Prior to City issuance of the first building permit, in accordance with ACFPD Agreement 2022-29, the Applicant shall form a Mello-Roos Community Facilities District or similar public financing mechanism

(CFD) on full legal parcels that are a part of the Project. A copy of Agreement 2022-29 is included with this Resolution as Exhibit C.

23. In accordance with the standard mitigation measures and conditions of approval set forth by the City of American Canyon, the developer shall pay the Fire Impact Fees (see current Standard Fees and Charges adopted by resolution), prior to the issuance of any building permits.

24. New buildings and additions to existing buildings shall conform to requirements set forth in the currently adopted editions of the California Building Code, California Fire Code, City of American Canyon standards and Nationally Recognized Standards.

25. There shall be no deferred submittals for fire protection equipment and related utilities. Fire protection plans shall not be attached to or bound with the building plan submittal package. This includes but is not limited to Automatic Fire Sprinkler, Fire Alarm, Fixed Fire Protection, and Civil plans.

26. All Fire-related underground piping and fire appurtenances shall be shown on the Civil plan submittal. In addition to the Civil plan submittal, at least one (1) plan set under separate cover shall be submitted to American Canyon Building Division for routing to the American Canyon Fire Protection District detailing all underground piping and related fire appurtenances including but not limited to underground piping, underground sweep detail, underground trench details showing depth of burial, type of backfill, manufacturer's specifications of piping, valves joints, fittings and calculated size and locations of thrust blocks, hydrants locations (designate public or private), gate shut-off valves, PIV's, FDC's, fire pumps, fire pump and/or riser rooms. The applicant will need to submit all related Fire information on a separate plan for Fire review. The Fire-related portions of the civil plan shall not be bound with the building plan.

27. Underground utility contractor, architect and fire sprinkler contractor shall coordinate the location of risers and control valves prior to the issuance of a building permit.

28. An approved water supply capable of supplying the required fire flow for fire protection systems shall be provided to all premises upon which facilities or buildings are hereby constructed or moved into or within the City. Required fire flow and hydrant distribution shall be in accordance with Appendix B and C of the California Fire Code. Applicant shall demonstrate on plan submittal; square footage of each building on plan and provide the required fire flow information. Applicant shall demonstrate that the number and spacing of onsite fire hydrants meets with requirements of the California Fire Code. ***See sample below regarding fire flow and hydrant detail information needed.***

BUILDING FIRE FLOW REQUIREMENTS – CFC TABLES B105.2 & B105.1(2)

INFORMATION BELOW IS A SAMPLE AND FOR REFERENCE ONLY

Table B105.1(2) – Building size = 129, 600 square feet

Construction type = Type IIA

FF = 5,250 gpm at 20 psi

Duration = 4 hours

Table B105.2 – Fire sprinkler allowance = - 50%

5,250 – 2,625 = 2,625 gpm

FF = 2,625 gpm @ 20 psi

Duration = 2 hours

Table CC105.1 – Approximate number of hydrants = 3

Average spacing = 400 feet + 25% allowable increase = 500

Maximum distance from street or frontage = 225 feet = 50% allowable increase = 337.5

29. The fire protection equipment shall be located within an interior room having an approved exterior access door or in an exterior enclosure attached to the building, specifically, for the purpose of housing such equipment.

30. Prior to building permit issuance, provide a fire department circulation plan using the City's ladder truck and demonstrate clear turning movements into and out of the project. The final design of fire department access components shall be reviewed and approved by the Fire Marshal prior to installation. Please show how fire apparatus can position near the building on either side, with the ability to turn the apparatus around to leave the project site.

31. Fire Apparatus Access Roads shall be designed in accordance with provisions set forth in the California Fire Code Chapter 5 and Appendix D as amended by the City of American Canyon and the applicable Public Works Standard.

32. Fire apparatus access roads shall have an unobstructed minimum width of 20 feet (curb to curb) and a minimum unobstructed vertical clearance of 13' 6". They shall have an all-weather paved surface capable of supporting a GVW of 71,000 pounds.

33. Access roads shall be completed with all-weather surfaces prior to the stockpiling of combustible materials or beginning combustible construction. Fire apparatus access shall be provided to within 150 feet of the most remote portions of all building from an approved exterior route. If this cannot be achieved fire apparatus turn-arounds will be needed.

34. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. Vertical traffic calming in the form of speed pumps, humps or dips are prohibited along fire access roads without prior approval of the fire Code Official. The minimum width and clearances established in Section 503.2.1 shall be maintained at all times.

35. When required by the Fire Chief, fire apparatus access roads shall be designated as Fire Lanes and appropriate signs and/or markings installed in accordance with the California Vehicle Code and approved City standards.

36. Where applicable, improvement plan submittals for permit shall include locations of fire lane red curbing and fire lane signage. Please refer to and include City Public Works Standard FP-2A & 2B with plan submittals for permitting.

37. The City of American Canyon requires that a fire hydrant be in service within 250 feet of the furthest point of construction prior to the stockpiling of combustible materials for the beginning of construction.

38. Fire Department Connections (FDC) shall be located not more than 100 ft. from the nearest fire hydrant.

39. Improvement Plans submitted for permit shall include City of American Canyon "Underground" standards, detail drawings and the applicable City of American Canyon Public Works Standard detail (W-7A, B, C or D) for Fire Service double detector check installations. *Also, a separate set of plans shall be submitted detailing all related underground Fire utilities and appurtenances including but not limited to; All underground piping, type, sizes, depth of burial, fittings, thrust blocks, risers, pumps, hydrants, FDC's, etc.*

40. System Protection Area Limitations NFPA 13 – 8.2.1 Maximum floor area on any one floor to be protected by sprinklers supplied by any one sprinkler system riser or combined system riser shall be as follows:

    1. Light Hazard – 52,000 sf – per riser
    2. Ordinary Hazard - 52,000 sf – per riser
    3. *Extra Hazard – Hydraulically calculated - 40,000 sf – per riser
    4. Storage – High-piled storage (as defined in 3.9.1.16) and storage covered by other NFPA standards – 40,000 sf – per riser

Public Works

General Conditions of Approval

41. The Applicant shall be responsible for all City plan check and inspection costs. The Applicant shall establish a Developer Deposit Account with the City upon the initiation of plan check services. The amount of the initial deposit shall be determined by the City Engineer. Additional funds may be required based upon actual costs.

42. All improvements shall be designed in accordance with the American Canyon Municipal Code (ACMC), City of American Canyon Engineering Standard Plans and Specifications for Public Improvements (City Standards), except as specifically noted otherwise in these conditions.

43. All new utilities to serve the project, shall be placed underground. Exceptions may be allowed for surface-mounted transformers, pedestal mounted terminal boxes, and meter cabinets.

44. Unless otherwise explicitly permitted, all existing wells, septic tanks, and/or underground fuel storage tanks shall be abandoned under permit and inspection of Napa County Department of Environmental Services or other designated agency. If there are none, the project engineer shall provide a letter describing the scope of the search done to make this determination.

45. A detailed Soils Investigation/Geotechnical Report shall be prepared and submitted for review. The report shall address, at a minimum, potential for liquefaction, R-values, expansive soils, and seismic risk. The improvement plans shall incorporate all design and construction criteria recommended in the Geotechnical Report.

46. A drainage report prepared by a California Registered Civil Engineer shall be submitted for review with the initial submittal of the Improvement Plans. The report shall include detailed hydrologic and hydraulic calculations to support the design and sizing of all public and private drainage facilities including storm drains and detention facilities. The report shall address existing downstream storm drain facilities and hydraulic conditions which may impact the design of proposed facilities and improvements.

47. A final detailed post-construction Stormwater Control Plan (SWCP) that identifies and sizes all permanent post-construction stormwater treatment BMPs shall be prepared and submitted for review and approval. The SCWP shall be prepared in accordance with the latest edition of the *Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual* and the requirements of the State Water Resources Control Board Phase II Municipal Separate Storm Water System (MS4) General Permit (Order 2013-0001 DWQ). It is the City's discretion whether to accept alternative treatment facilities other than bioretention.

48. A Post Construction Stormwater Operations and Maintenance Plan that includes a plan sheet showing all storm drain and water quality infrastructure that is to be maintained, along with detailed instructions and schedules for the ongoing maintenance and operation of all post-construction stormwater BMPs shall be submitted for review and approval by the City Engineer. Once approved, the property owner(s) shall enter into an agreement with the City that provides the terms, conditions, and security associated with the ongoing requirements of the post-construction Stormwater Best Management Practices.

49. The Applicant shall secure all necessary rights-of-way and public and private easements for both onsite and offsite improvements. The applicant shall prepare all necessary legal descriptions and deeds.

50. To the extent any offsite public improvements require the acquisition of property not currently owned by the Applicant or the City, the Applicant shall first make a good-faith effort to acquire the necessary property rights, however if the Applicant makes such an effort and is unable to acquire such rights, then the Applicant may request the City acquire the necessary property rights through the exercise of eminent domain provided that the Applicant enters first into an agreement with the City to pay for all costs incurred by the City to acquire such rights and if the City does not acquire the rights necessary to allow the offsite public improvements to be completed by the Applicant within statutory timeline provided by law, then the Applicant shall be relieved of the obligation to construct those off-site improvements only to the extent they require property not currently owned by the Applicant or the City. The Applicant shall make a good-faith effort to identify and acquire the necessary property rights at the earliest opportunity.

51. The Applicant shall submit site Improvement Plans, prepared by a registered Civil Engineer, for review and approval of the City's Public Works Department. **Please be aware that this is separate submittal from the building permit application.** The final plan set shall include all civil, landscape and joint trench drawings under a single cover sheet. No final grading or other construction shall be performed until the Improvement Plans have been approved. The Applicant shall not begin clearing, grubbing, or rough grading at the site prior to approval of the Improvement Plans, unless explicitly approved by the City of American Canyon through the standard grading and utilities only permit process. An Encroachment Permit is required for any work within City right of way. Encroachment Permits will not be issued prior to the approval of the Improvement Plans.

52. All public water service laterals or services (domestic, recycled and fire water) shall include approved backflow prevention devices.

53. Cathodic protection shall be provided for all water valves, fittings, hydrants, meters, backflow devices and other metal appurtenances, regardless of the findings of any soils corrosivity analysis.

54. The Applicant shall keep adjoining public and private streets free and clean of project dirt, mud, materials, and debris during the construction period in accordance with SWPPP using appropriate BMPs and as is found necessary by the City Engineer.

55. If any hazardous material is encountered during the construction of this project, all work shall be immediately stopped and the Fire Department, Napa County Department of Environmental Services or other designated agency, and the City Inspector shall be notified immediately. Work shall not proceed until clearance has been issued by all of these agencies.

56. Prior to final preparation of the subgrade and placement of base materials, all underground utilities shall be installed, and service connections stubbed out behind the sidewalk. Public utilities, Cable TV, sanitary sewers, and water lines shall be installed in a manner that will not disturb the street pavement, curb, gutter and sidewalk, when future service connections or extensions are made.

57. Where soil or geologic conditions encountered in grading operations are different from that anticipated in the soil and/or geologic investigation report, or where such conditions warrant changes to the recommendations contained in the original soil investigation, a revised soil or geologic report shall be submitted for approval by the City Engineer. Additionally, if field conditions warrant installation of any subdrains, the location, size and construction details must be provided to the City for review and approval prior to construction.

58. All new fire hydrants shall be covered with burlap sacks until the hydrants have been tested and found to be in conformance with City flow requirements. No storage of combustible materials or construction of building shall be permitted until all hydrants meet City flow requirements.

59. Prior to placing the final lift of asphalt, all public storm drains and sanitary sewer lines shall be video inspected at the Applicant's expense. All video media (CD, DVD, or portable hard drive) shall be submitted to the City. If any inadequacies are found, they shall be repaired prior to the placement of the final lift of asphalt.

60. All streets, curbs, gutters, sidewalks or other public facilities damaged in the course of construction associated with this Project shall be the responsibility of the Applicant and shall be repaired to the satisfaction of the City at the Applicant's expense.

61. After all of the new underground utilities within existing public streets have been installed, the entire affected areas shall be milled and repaved to present a neat finished pavement area. Multiple trench patches are not acceptable.

62. All construction stormwater pollution prevention best management practices (BMP's) shall be installed as the first order of work and in accordance with the State Water Resources Control Board's General Construction Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended), the Applicant's Storm Water Pollution Prevention Plan (SWPPP), and the City's Erosion and Sediment control Plan in accordance with the City's MS4 Permit. All stormwater BMP's shall be maintained to the satisfaction of the Qualified SWPPP Developer (QSD), Qualified SWPPP Practitioner (QSP), and the City Engineer.

63. With the exception of water used for loading and testing of potable water lines, all construction water used for the project shall be obtained from a source other than American Canyon potable water sources. The Applicant shall provide verification that an outside source of construction water, e.g., recycled water, has been established and will be available for the duration of the project construction.

64. The development shall comply with the City's Zero Water Footprint policy.

65. All landscaping shall be designed to use recycled water for irrigation. Recycled water landscaping shall be designed to comply with California Code of Regulations Title 22 and shall include design details to prevent runoff of recycled water. The irrigation system shall include an ET/SMART controller.

66. All buildings shall be dual plumbed to use recycled water for non-potable uses.

Public Works Special Conditions of Approval

67. The Applicant shall submit Improvement Plans prepared by a registered Civil Engineer (Engineer of Record) in substantial conformance with the preliminary civil plans titled "Giovannoni Logistics Center East Tentative Parcel Map" prepared by CBG Civil Engineers dated September 17, 2021, except as modified by these conditions.

68. Improvement Plans and Final Map shall be tied to the State of California coordinate system.

69. The Applicant shall construct all of the on-site private streets, water, recycled water, sewer, storm drainage and storm quality **"Private Improvements"** generally shown on the Preliminary Plans and more specifically described below. All private street, water, recycled water sewer, storm drainage and stormwater quality improvements shall be designed in accordance with the City of American Canyon Engineering Standard Plans and Specifications for Public Improvements (City Standards), except as specifically noted otherwise in these conditions.

    a. Storm Drain Facilities:
    Construct private on-site drainage facilities, detention facilities, and other appurtenances to collect and convey all surface drainage to an approved private storm drain facility or outfall. Onsite drainage facilities shall provide for the positive drainage of all adjacent upstream or upgrade properties to prevent ponding. Existing run-on from adjacent properties shall not be obstructed and shall be conveyed onsite. Off-site peak storm water discharge shall not exceed 90% of the undeveloped peak flow from the 24-hour, 100-year event. The storm drains and detention facilities shall be substantially consistent with the Preliminary Plans. However, the sizing of all storm drains and detention facilities shall be determined by the approved final drainage report.

    b. Stormwater Quality Facilities:
    Permanent on-site private post-construction stormwater treatment BMPs shall be designed and constructed in accordance with the approved final SWCP.

    c. Recycled Water Services:
    Separate recycled water services shall be provided for domestic non-potable uses and irrigation uses.

70. Per the Subdivision Improvement and Reimbursement Agreement between the City of American Canyon and DWF IV NLP II, LLC, Napa County Official Record 2018-0024204, the Applicant shall reimburse the City its fair share cost for the improvement of South Kelly Road from its intersection with Devlin Road up to intersection with Highway 29. The fair share cost is based on the project's proportional share of net new trips.

71. Per the Subdivision Improvement and Reimbursement Agreement between the City of American Canyon and DWF IV NLP II, LLC, Napa County Official Record 2018-0024204, the Applicant shall reimburse the City its fair share cost for the construction of the Permanent Sewer Solution, which

consists of new offsite public gravity sewer, pump station and force main which replaced the existing Green Island Pump Station. The fair share cost is based on the project's sewer flow.

72. Prior to SUBMITTAL OF THE IMPROVEMENT PLANS, the Applicant shall:

    a. Submit the City's "Improvement Plan Checklist".
    b. Pay an initial cash deposit for City plan check services in amount to be determined by the City prior to the time of submittal. The Project engineer shall contact City staff to discuss submittal details to determine initial deposit amount.
    c. Provide the following:
        (1) Public Street Repair Plan
        (2) Utility Plan and Joint Trench Plan
        (3) Construction Storm Water Pollution Prevention Plan (SWPPP) and a City Erosion and Sediment Control Plan
        (4) Drainage Report
        (5) Post-Construction Stormwater Control Plan (SWCP)
        (6) Geotechnical Report
        (7) Construction Traffic Control Plan.
        (8) Traffic Impact Study
        (9) Application for Water and Sewer Service

73. Pothole and physically determine (by way of a survey performed by the Engineer of record) the actual horizontal location and vertical depth of all existing underground utilities throughout the proposed area of work and provide the design of all new utility installations required to serve the project including a schedule for implementation of such work as to prevent disrupting of utility service to adjacent properties.

74. Prior to APPROVAL OF THE IMPROVEMENT PLANS, the Applicant shall:

    a. Merge the two existing parcels (APNs 057-130-034 and 057-130-036) into a single parcel through the recordation of a lot merger or lot line adjustment.

    b. Provide written acknowledgment by the Geotechnical Engineer of Record that the Plans incorporate all design and construction criteria specified in the Geotechnical Report.

    c. Furnish proof of the acquisition of all rights of entry and/or temporary and permanent easements necessary to construct the project and the location of all such rights on the Plans.

    d. Furnish proof that all permits that may be required by the California Department of Fish & Wildlife, State and Regional Water Quality Control Board, US Army Corps of Engineers and any other regulatory agencies with jurisdiction over the proposed construction have been obtained.

    e. Fill out and submit the City's Erosion and Sediment Control Plan (ESCP) Template. Applicant may refer to a SWPPP, as appropriate, by referencing page number within the SWPPP that addresses the requirements of the ESCP.

    f. Submit a copy of the Notice of Intent and Wastewater Discharge Identification Number (WDID#) for coverage under the State Water Resources Control Board's General Construction Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ).

75. Prior to COMMENCEMENT OF CONSTRUCTION ACTIVITIES, the Applicant shall:

a. Pay off all current account balances with the City of American Canyon.

b. Pay an inspection fee in amount to be determined at the time of commencement for the City's inspection of the Public Improvements.

c. Conduct a pre-construction meeting with representatives of the City whereby the Applicant, the Legally Responsible Party (LRP), Qualified SWPPP Practitioner (QSP), Qualified SWPPP Developer (QSD), and/or the Contractor provides the following:

(1) Six (6) full-size bond copies of the approved Improvement Plans for the City's use.
(2) One (1) job-site copy of the latest edition of the City Standards for the Contractor use.
(3) One (1) job-site copy of the SWPPP for use by the LRP, QSP, QSD, and Contractor.
(4) Electronic copies of Improvement Plans and SWPPP.

76. Prior to APPROVAL OF A BUILDING PERMIT, the Applicant shall:

Pay all account balances and current City and American Canyon Fire District fees (Mitigation & Capacity) based on the rates in effect at the time of permit issuance. These fees include but may not be limited to the following: Traffic Mitigation, General Plan Update, Civic Facilities, Fire District, Water Capacity, Wastewater Capacity, Zero Water Footprint Mitigation, and Affordable Housing Nexus.

77. A. Prior to issuance of the first building permit, the Applicant shall enter into a Recorded a Transportation Demand Management (TDM) Program Agreement ("TDM Agreement") that ensures the cumulative Project trip generation does not exceed the Giovannoni Logistics Center Final EIR (SCH# 2021010104) Trip Generation assumptions. The TDM Agreement shall encompass the entire Giovannoni Logistics Center Project.

B. The TDM Agreement shall include a financial guarantee satisfactory to the City. The City shall deem the TDM program to be effective if the monitoring results indicate that AM peak-hour volumes are no more than 240 vehicles and PM peak-hour volumes are no more than 264 vehicles.

C. The TDM program shall be implemented at the applicant's cost, with no cost to the City, regardless of the eventual mix of uses and shall at a minimum include a permanent vehicle counting station at the single public access point. Examples of measures that may be considered as part of an effective TDM program include but are not limited to the following:

- Starting and ending workday shifts during off-peak hours (i.e., not between 7:00 a.m. to 9:00 a.m. or 3:00 p.m. to 6:00 p.m.).
- Implement shuttle service to key employment centers or park-and-ride lots in the area for those employees whose workday shift start during peak hours.
- Car-share program
- Shuttles to regional transit
- Transit subsidies
- Carpool/vanpool subsidies
- Employer-owned/sponsored vanpools
- Flex-time and telecommute programs
- Use of rail to transport employees and/or the delivery of goods

D. The Applicant shall retain a transportation planning/ engineering consultant to analyze the effectiveness of the TDM program in a written report. The TDM Report will include data collected from the permanent vehicle counting station and a determination of employee commute methods, which shall be informed by surveying all employees working at the site. The TDM Report shall be

submitted to the City on a periodic on-going basis and it shall form the basis of on-going determinations by the City as to the effectiveness of the TDM program. So long as the City deems the TDM program effective (i.e. when monitoring results indicate that AM peak-hour volumes are no more than 240 vehicles and PM peak-hour volumes are no more than 264 vehicles). At any time the City determines the Project exceeds the Giovannoni Logistics Center Final EIR (SCH# 2021010104) Trip Generation assumptions, the additional traffic impact shall be mitigated by Paragraph B.

E. If at any point the City determines the TDM program established as part of Paragraph A through D is not effective to reduce peak-hour traffic to within the TDM thresholds (240 vehicles during the AM peak hour and 264 vehicles during the PM peak hour), the Applicant shall pay an additional amount for each and every peak-hour trip that is recorded by the counting device that exceeds the TDM threshold, equal to the latest adopted Traffic Impact Fee ("TIF") program in effect at the time. The "on-going TIF" paid pursuant to this condition of approval is in addition to the "one-time TIF" paid at the time of issuance of the first building permit.

78. Prior to OCCUPANCY OF THE BUILDING, the Applicant shall:

    a. Restore all adjacent off-site road surfaces to pre-project conditions.

    b. Submit a certification by the Geotechnical Engineer of Record that all the work has been completed in substantial conformance with the recommendations in Soils Investigation/Geotechnical Report.

    c. Provide a mylar and digital copy of the Improvement Plans that include all as-built or field changes, in digital (.pdf) and AutoCAD (.dwg) format, compatible with the City's current version, and tied to the City's coordinate system.

    d. Provide a letter stating that all of the Developer's Conditions of Approval have been met.

    e. Provide a letter from the Civil Engineer of Record certifying that all the site improvements were constructed and inspected in substantial conformance with the approved plans and City Standards.

    f. Enter and record a post-construction Stormwater Operations and Maintenance Agreement with the City.

Mitigation Measures

79. MM AES-3: Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.

80. MM AIR-2a: The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction:

    - All active construction areas shall be watered at least two times per day.
    - All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces.

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.
- All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

81. MM AIR-2b: Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product.

82. MM AIR-2c: Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.

83. MM AIR-2d: Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy- duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement.

    To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.

84. MM AIR-2e: Prior to the issuance of the certificate of occupancy for each building with dock doors, signage shall be posted identifying idling restrictions and contact information to report violations to the building manager.

85. MM AIR-2f: Prior to the issuance of the certificate of occupancy for each building with a separate end user, the City shall confirm that the end user has prepared a Transportation Demand Management Plan (TDM Plan). The TDM Plan shall be prepared by a qualified transportation consultant and identify strategies to reduce single-occupant vehicle trips. Examples of TDM strategies may include but are not limited to:

    - Ridesharing/Ride Matching
    - Vanpools
    - Transit subsidies
    - Preferential parking for rideshare or vanpool vehicles
    - Employee lockers
    - Secure bicycle parking
    - Employee locker rooms
    - Provide TDM information in employee breakroom

86. MM AIR-2g: Prior to the issuance of the certificate of occupancy, as a part of future lease agreements, the project proponent shall provide all future tenants at the project site information on available California Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) incentive programs, such as the Carl Moyer Program and the Voucher Incentive Program, that support upgrading truck fleets to clean air technology equipment.

87. MM BIO-1a: Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities and each year following initiation of construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with CDFW's "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (CDFW 2000) to maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.

    If no nesting Swainson's hawk are found during the first second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

    If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

88. Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

89. MM BIO-1b: No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Preconstruction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. If active golden eagle nests are identified within any trees within the survey areas a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

90. MM BIO-1c: Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and minimum 500-foot radius from the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc., the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be modified increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Raptor Biologist.

91. MM BIO-1d: Prior to any ground disturbance, pre- construction surveys for burrowing owl shall be conducted within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. The pre- construction surveys shall be conducted within 2 weeks prior to the

onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

a. If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no- disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.

b. If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.

c. If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.

92. MM BIO-2: Prior to issuance of grading permits. To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.

93. MM BIO-3a: Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no- net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

94. MM BIO-3c: Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board

(San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part of Phase 2.

The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

95. MM BIO-3d: Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J– Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board Implementation Guidance dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332).

96. The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum:

    a. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve.

    b. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio.

    c. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur.

    d. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards.

    e. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc.

f. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface therefore a 5- year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.

g. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan.

h. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.

97. MM BIO-4: If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 7 days prior to the onset of construction activity. Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters and 1,000 feet from the construction limits for nesting raptors. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if construction activities are delayed by more than 7 days, an additional nesting bird survey shall be performed.

    If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on site conditions and species involved. At a minimum a 1,000-foot buffer shall be established for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

98. MM CUL-2a: No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.

99. MM CUL-2b: An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or

shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic- period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, and site documentation, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.

100. MM CUL-3: In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:

a. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98.

b. Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance:

- The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission.
- The descendant identified fails to make a recommendation.
- The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

(1) When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may each develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.

101. MM CUL-4: A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities.

a. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol.

b. Inadvertent Discovery of Native American Human Remains: Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the area is culturally affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents.

   Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.

c. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains"

encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.

d. Non-Disclosure of Location of Reburials: Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.

e. Treatment of Cultural Resources: Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.

f. Inadvertent Discoveries: If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.

102. MM GEO-1b: Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.

103. MM GEO-5: If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil.

The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.

104. MM GHG-1a: Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs):

a. At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric.

b. At least 10 percent of building materials used for project construction shall be sourced from local suppliers.

c. At least 65 percent of construction and demolition waste materials shall be recycled or reused.

d. At least one contractor that has a business location in American Canyon shall be contracted for project construction.

e. All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) using during construction be electrically powered.

f. Architectural coatings used for project construction shall be "Low-VOC," containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product.

g. Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs.

h. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.

i. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

j. The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be identified and visible to ensure compliance with applicable regulations.

105. MM GHG-1b: Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing.

106. MM GHG-1c: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency

requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.

107. MM GHG-1d: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2.

108. MM GHG-1d: Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that each loading dock is outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while trucks are loading and unloading goods.

109. MM GHG-1e: Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045. As City representative, the Planning Commission recommends the City Council require this mitigation measure be accomplished with on-site solar panel electricity.

110. MM HYD-1a: Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

111. MM HYD-1b: Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design

concepts, as well as concepts that accomplish a "first flush" objective that remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.

112. MM LU-3: Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.

113. MM NOI-1: Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts:

a. The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment.

b. The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.

c. The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.

d. At all times during project grading and construction, the construction contractor shall ensure that stationary noise- generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.

e. The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.

114. MM NOI-1: The construction contractor shall ensure that all on-site construction activities, including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.

PASSED, APPROVED and **ADOPTED** at a specially scheduled meeting of Planning Commission of the City of American Canyon held on the November 17, 2022 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

Crystal Mallare, Chair

ATTEST:

Nicolle Jones, Administrative Technician

APPROVED AS TO FORM:

William D. Ross, City Attorney

EXHIBITS:

A. Giovannoni Logistics Center Tentative Parcel Map Plans
B. Confirmation of Conditions of Approval
C. ACFPD Agreement 2022-29

EXHIBIT B
Applicant Confirmation of Conditions of Approval
Giovannoni Logistics Center Design Permit
(FILE NO. PL20-0042)

As shown by my signature below, I confirm that I understand and agree to abide by the conditions of approval included in the City Council Resolution dated ___ , 2022.

Applicant's signature	Date
Applicant's name	
1st Property Owner's signature	Date
1st Property Owner's name	
2nd Property Owner's signature	Date
2nd Property Owner's name	

This approval shall not be effective until the applicant and property owner execute and return the "Applicant Confirmation of Conditions of Approval" form to the Community Development Department.

Please return signed confirmation to the City of American Canyon Community Development Department, 4381 Broadway, Suite 201, American Canyon, CA 94503

RESOLUTION NO. 2022-XX

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF AMERICAN CANYON, CALIFORNIA, RECOMMENDING THE CITY COUNCIL OF THE CITY OF AMERICAN CANYON APPROVE THE GIOVANNONI LOGISTICS CENTER TENTATIVE PARCEL MAP TO CREATE A TWO-LOT SUBDIVISION FOR UP TO 1,069,904 SQUARE FEET OF HIGH CUBE WAREHOUSE USES ON 70.2 ACRES; LOCATED NORTH OF GREEN ISLAND ROAD AND EAST OF DEVLIN ROAD, APN 057-090-008, 057-130-034, 057-130-036, (FILE NO. PL 20-0043)

WHEREAS, pursuant to Section 65300 of the State Planning and Zoning Law, the City of American Canyon (City) adopted a General Plan to provide comprehensive long-range planning and a blueprint of the City's future form, including land use and circulation maps that specify the roadway network and the distribution of types and intensities of land; and

WHEREAS, Buzz Oates LLC, ("applicant"), submitted a Giovannoni Logistics Center Tentative Parcel Map application to create a two-lot parcel map north of Green Island Road, and east of Devlin Road for up to 1,069,904 square feet of high-cube warehouse buildings (the proposed project); and

WHEREAS, Lot 1 located at 300 Green Island Road comprises 38.36 acres, and Lot 2 located at 1200 Devlin Road comprises 31.44 acres; and

WHEREAS, on November 17, 2022 the Planning Commission recommended the City Council certify that the Final Environmental Impact Report (EIR) (SCH# 2021010104) has been completed in compliance with the California Environmental Quality Act (CEQA) and as adequately reflects the City's independent judgement and analysis regarding the potential environmental impacts associated with the Giovannoni Logistics Center Project, and adopt CEQA Findings of Fact, a Statement of Overriding Considerations, for the Project, and adopt a the Mitigation Monitoring and Reporting Program for the Project; and

WHEREAS, the Giovannoni Logistics Center Final EIR specifically evaluated the Tentative Parcel Map at a Project level and the Planning Commission reviewed and considered the information contained in the Final EIR prior to making recommendations concerning the approval of the proposed project; and

WHEREAS, on November 17, 2022, the Planning Commission conducted a duly-noticed public hearing to evaluate the Giovannoni Logistics Center Tentative Parcel Map and heard all public speakers and considered written materials including the staff report and oral testimony given at the meeting.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission recommends the City Council make all the required findings to approve the Giovannoni Logistics Center Tentative Parcel Map, as follows:

SECTION 1: Tentative Parcel Map Findings

Approval of the Tentative Parcel Map requires **that none of** the following findings be made, pursuant to American Canyon Municipal Code Section 18.20.055:

A. That the proposed tentative parcel map is not consistent with the City's General Plan or its elements, or other applicable plans.

This Finding cannot be made. The project site is designated for high cube warehouse buildings consistent with allowable uses in the General Plan Industrial land use district. The General Industrial zoning district requires a minimum of 40,000 square feet for parcels. Both proposed Tentative Parcel Map lots are at least

31 acres. Both parcels have safe and adequate access to a public right-of-way and have been designed to accommodate needed utilities and stormwater drainage.

B. That the design and improvement of the proposed tentative parcel map is not consistent with the City's General Plan or its elements, or other applicable plans.

This Finding cannot be made. As required by the City's General Plan, the Tentative Map shows proposed roadways and infrastructure sufficient to accommodate up to 1,069,904 square feet of high-cube warehouse buildings.

C. That the site is not physically suitable for the type of development proposed.

This Finding cannot be made. The project site, with the conditions for offsite transportation and utility improvements, will be suitable for up to 1,069,904 square feet of high-cube warehouse buildings anticipated as part of the Giovannoni Logistics Center Project. The Geotechnical and Geologic Fault Investigation prepared by Cornerstone Earth Group (November 2, 2017 – Project No. 582-4-1) demonstrates that there is no geological fault within the proposed Tentative Parcel Map. The preliminary grading and drainage plan, stormwater plan, preliminary utility plan, and fire access plan prepared by CBG Engineers demonstrates that the proposed type of development proposed can be accommodated within the parcel map.

D. That the site is not physically suitable for the density of development proposed.

This Finding cannot be made. Please refer to the discussion under Findings No. A, B and C above.

E. That the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

This Finding cannot be made. The impacts of the proposed Project, including the Tentative Parcel Map remain within the impacts previously analyzed and the findings in the Giovannoni Logistics Center Final Environmental Impact Report (SCH# 2021010104). The draft Final Environmental Impact Report and statement of overriding considerations specifically contemplated the proposed Tentative Parcel Map. The Project has the potential to significantly impact the following resources: Aesthetics, Biological Resources, Cultural Resources, Geology, Soils and Seismicity, Greenhouse Gas Emissions and Energy, Hydrology and Water Quality, Land Use, and Noise. However, each of these potential impacts would be reduced to a less than significant level through the implementation of the mitigation measures contained in the Mitigation Monitoring and Reporting Program for the Project. The Project has significant and unavoidable impacts for Air Quality, and Greenhouse Gas Emissions and Energy. However, the draft Statement of Overriding Considerations concludes that economic, social, and environmental benefits of the Project outweigh the significant and unavoidable adverse impacts.

F. That the design of the subdivision or the type of improvements is likely to cause serious public health problems.

This Finding cannot be made. The proposed Giovannoni Logistics Center Tentative Parcel Map Project uses are consistent with the other adjacent industrial uses and the conditions of approval, particularly those related to mitigation measures identified in the Final EIR, required off-site roadway and utility improvements, will ensure that the proposed development will not create any nuisance or be materially detrimental to public health, or property in the area. The closest residence is 1,250 feet southwest of the project and is too far from the site for the project to cause serious public health problems to the residences.

G. That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision.

<u>This Finding cannot be made</u>. There is no documentation that public easements for access through or use of the property have been established, other than the recorded easements identified on the parcel map, which will be maintained or replaced by equivalent easements to accommodate public utilities.

H. That the discharge of wastewater, including sewage and stormwater runoff, from the proposed subdivision would result in a violation of existing water quality requirements prescribed by the Regional Water Quality Control Board (RWQCB).

<u>This Finding cannot be made</u>. The proposed map has been reviewed by City staff and staff has determined that it complies with all applicable water quality requirements of the Regional Water Quality Control board and city standards.

SECTION 2: Conditions of Approval

General

1. The Tentative Parcel Map approval is granted for a subdivision that will create two industrial lots for up to 1,069,904 square feet on a 70.2-acre site east of Devlin Road and north of Green Island Road. Lot 1 located at 300 Green Island Road comprises 38.36 acres, and Lot 2 located at 1200 Devlin Road comprises 31.44 acres as shown on Exhibit A. Exhibit A includes the following:

    a. Civil Plans prepared by CBG Engineers, dated 09-17-21 consisting of 6 sheets, Tentative Map, Existing Site Conditions, Preliminary Grading and Drainage Plan, Preliminary Utility Plan, Preliminary Stormwater Control Plan, and Preliminary Fire Access Plan.

2. The applicant shall defend, indemnify, and hold harmless the City of American Canyon ("City"), its elected officials, officers, employees, attorneys, representatives, boards, commissions, consultants, volunteers and agents from and against all claims, actions, including actions to arbitrate or mediate, damages, losses, judgments, liabilities, expenses and other costs, or proceedings against the City, its elected officials, officers, employees, attorneys, representatives, boards, commissions, volunteers, or agents to attack, modify, set aside, void, or annul an approval, conditional approval, permit, entitlement, environmental document, environmental clearance, mitigation plan, or any other document or any of the proceedings, acts, or determinations taken, done, or made prior to granting of such approval, conditional approval, permit, entitlement, environmental clearance, environmental document, mitigation plan, or other documents, by the City, including, without limitation, an action against an advisory agency, appeal board, or legislative body within the applicable limitation period.

    The obligation to defend, indemnify and hold the City harmless shall include the payment of all legal costs and attorney's fees (including a third party award of attorney's fees), arising out of, resulting from, or in connection with the City's act or acts leading up to and including approval of any environmental document or mitigation plan granting approvals to the applicant, incurred on behalf of, or by, the City, its elected officials, officers, employees, representatives, attorneys, boards, commissions, volunteers and agents in connection with the defense of any claim, action, or proceeding challenging the entire or a portion of an approval, conditional approval, permit, entitlement or any other document of any related claim.

    The obligation to defend, indemnify, and hold the City harmless shall include, but not be limited to, the cost of preparation of any administrative record by the City, staff time, copying costs, court costs, or attorney's fees arising out of a suit or challenge contesting the adequacy of a permit, approval, conditional approval, entitlement, environmental document, mitigation plan, environmental clearance, or any other document or approval related to the applicant's project.

    The City will promptly notify the applicant of any claim, action, or proceeding and will cooperate fully in the defense. If the City fails to promptly notify the applicant of any claim, action, or proceeding, or

the City fails to cooperate fully in the defense, the applicant shall not be responsible to defend, indemnify, or hold harmless the City.

In the event a legal challenge to a City permit, approval, conditional approval, environmental document, environmental clearance, mitigation plan, entitlement or any other document, proceeding, determination, or action related to the applicant's project is successful, and an award of attorneys' fees is granted against the City, the applicant shall be responsible to timely pay the full amount of such an award.

3. The applicant is responsible for paying all charges related to the processing of this discretionary case application within 30 days of the issuance of the final invoice or prior to the issuance of building permits for this project, whichever occurs first. Failure to pay all charges shall result in delays in the issuance of required permits or the revocation of the approval of this application.

4. The date upon which the approval is final shall be considered the day of the imposition of the fees, dedications, reservations and exactions required by these conditions approval for the purposes of protesting the imposition pursuant to California Government Code Section 66020.

5. The application shall not be deemed final until the applicant and property owner(s) execute and return the "Confirmation of Conditions of Approval" form as shown as Exhibit B to this Resolution.

6. Expiration of this Approval. In accordance with American Canyon Municipal Code (ACMC) Section 18.20.060 the approval shall become null and void and of no effect if a final map has not been submitted for processing within twenty-four months from the date of final action by the city council to approve or conditionally approve a tentative parcel map.

   Where the City Engineer determines that a subdivider is required to expend one hundred twenty-five thousand dollars or more to construct or improve public facilities outside the boundaries of the tentative parcel map that are reasonably related to the proposed development on said site, a final parcel map shall be submitted for processing within thirty-six months from the date of final action by the city council to approve or conditionally approve a tentative parcel map.

   The City Council may extend the expiration date of a tentative parcel map for not more than twelve months at any one time. All actions of the city council to extend a tentative map shall be at a duly noticed public hearing in accordance with the provisions of this title.

Planning

7. All plans submitted for review and approval and all development shall be in substantial conformance with the approved exhibits, except where modified by a condition of approval. The Community Development Director or designee may approve minor changes to the project as approved by the City Council on the plans submitted for the construction permits with a determination that the changes are in substantial compliance with the representation of the project as reviewed by the Planning Commission and City Council, that the proposed change will be in compliance with the required development standards, and the change will not materially affect adjacent private or public property.

Building and Safety

8. Construction and grading activities on the site shall be limited to between 7:00 a.m. and 6:00 p.m. Monday through Friday. Work between the hours of 6:00 pm and 7:00 am and work on weekends and holidays requires prior written approval from the Building Official. If weekends and holiday work is approved construction and grading activities on the site shall be limited to between 8:00 a.m. to 6:00 p.m. on Saturdays, and between 10:00 a.m. and 6:00 p.m. on Sundays and State and Federal holidays.

9. All construction plans and buildings onsite shall conform to the California Code of Regulations, Title 24. All building plans shall include all necessary recommendations from the Geotechnical Report for the site, to be superseded only by the California Code if any conflicts arise.

10. According to CBC 11B-228.3.2.1, provide the applicable amount of electrical vehicle charging stations (EVCS) and van accessible EVCS spaces for the employee parking lot.

11. Prior to the final inspection, the applicant shall submit a letter of certification to the Building Official from the project architect, civil engineer, and landscape architect certifying that all improvements have been constructed in accordance with the approved building plans. A Certified Access Specialist (CASP) shall also submit a letter certifying that all improvements have been constructed in compliance with applicable state and federal accessibility standards. Determination of consistency shall be subject to the review and approval of the Building Official.

12. Construction and Demolition Debris Recycling: Prior to issuance of a building permit the applicant shall submit a Construction Waste Management (CWM) plan for the diversion of at least 70 percent of the debris from the building demolition and construction. The plan shall include the qualified recycler that will be used, the methods of managing diversion of construction materials on site, and the proposed documentation that will be submitted to confirm that the diversion goal has been met.

Fire Protection

The following Fire Protection conditions shall be satisfactorily addressed on the building permit submittal:

13. Prior to recordation of the Parcel Map, or City issuance of a building permit, whichever occurs first, the Applicant shall form a Mello-Roos Community Facilities District or similar public financing mechanism (CFD) on full legal parcels that are a part of the Project in accordance with ACFPD Agreement 2022-29. A copy of Agreement 2022-29 is included with this Resolution as Exhibit C.

14. In accordance with the standard mitigation measures and conditions of approval set forth by the City of American Canyon, the developer shall pay the Fire Impact Fees (see current Standard Fees and Charges adopted by resolution), prior to the issuance of any building permits.

15. New buildings and additions to existing buildings shall conform to requirements set forth in the currently adopted editions of the California Building Code, California Fire Code, City of American Canyon standards and Nationally Recognized Standards.

16. There shall be no deferred submittals for fire protection equipment and related utilities. Fire protection plans shall not be attached to or bound with the building plan submittal package. This includes but is not limited to Automatic Fire Sprinkler, Fire Alarm, Fixed Fire Protection and Civil plans.

17. All Fire related underground piping and fire appurtenances shall be shown on the Civil plan submittal. In addition to the Civil plan submittal, at least (1) plan set under separate cover shall be submitted to American Canyon Building Division for routing to the American Canyon Fire Protection District detailing all underground piping and related fire appurtenances including but not limited to underground piping, underground sweep detail, underground trench details showing depth of burial, type of backfill, manufacturer's specifications of piping, valves joints, fittings and calculated size and locations of thrust blocks, hydrants locations (designate public or private), gate shut-off valves, PIV's, FDC's, fire pumps, fire pump and/or riser rooms. The applicant will need to submit all related Fire information on a separate plan for Fire review. The Fire related portions of the civil plan shall not be bound with the building plan.

18. Underground utility contractor, architect and fire sprinkler contractor shall coordinate the location of risers and control valves prior to the issuance of a building permit.

19. An approved water supply capable of supplying the required fire flow for fire protection systems shall be provided to all premises upon which facilities or buildings are hereby constructed or moved into or within the City. Required fire flow and hydrant distribution shall be in accordance with Appendix B and C of the California Fire Code. Applicant shall demonstrate on plan submittal; square footage of each building on plan and provide the required fire flow information. Applicant shall demonstrate that the number and spacing of onsite fire hydrants meets with requirements of the California Fire Code. ***See sample below regarding fire flow and hydrant detail information needed.***

    BUILDING FIRE FLOW REQUIREMENTS – CFC TABLES B105.2 & B105.1(2)

    INFORMATION BELOW IS A SAMPLE AND FOR REFERENCE ONLY

    Table B105.1(2) – Building size = 129, 600 square feet

    Construction type = Type IIA

    FF = 5,250 gpm at 20 psi

    Duration = 4 hours

    Table B105.2 – Fire sprinkler allowance = - 50%

    5,250 – 2,625 = 2,625 gpm

    FF = 2,625 gpm @ 20 psi

    Duration = 2 hours

    Table CC105.1 – Approximate number of hydrants = 3

    Average spacing = 400 feet + 25% allowable increase = 500

    Maximum distance from street or frontage = 225 feet = 50% allowable

    increase = 337.5

20. The fire protection equipment shall be located within an interior room having an approved exterior access door or in an exterior enclosure attached to the building, specifically, for the purpose of housing such equipment.

21. Prior to building permit issuance, provide a fire department circulation plan using the City's ladder truck and demonstrate clear turning movements into and out of the project. The final design of fire department access components shall be reviewed and approved by the Fire Marshal prior to installation. Please show how fire apparatus can position near the building on either side, with the ability to turn the apparatus around to leave the project site.

22. Fire Apparatus Access Roads shall be designed in accordance with provisions set forth in the California Fire Code Chapter 5 and Appendix D as amended by the City of American Canyon and the applicable Public Works Standard.

23. Fire apparatus access roads shall have an unobstructed minimum width of 20 feet (curb to curb) and a minimum unobstructed vertical clearance of 13' 6". They shall have an all-weather paved surface capable of supporting a GVW of 71,000 pounds.

24. Access roads shall be completed with all-weather surfaces prior to the stockpiling of combustible materials or beginning combustible construction. Fire apparatus access shall be provided to within 150 feet of the most remote portions of all building from an approved exterior route. If this cannot be achieved fire apparatus turn-arounds will be needed.

25. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. Vertical traffic calming in the form of speed pumps, humps or dips are prohibited along fire access roads without prior approval of the fire Code Official. The minimum width and clearances established in Section 503.2.1 shall be maintained at all times.

26. When required by the Fire Chief, fire apparatus access roads shall be designated as Fire Lanes and appropriate signs and/or markings installed in accordance with the California Vehicle Code and approved City standards.

27. Where applicable, improvement plan submittals for permit shall include locations of fire lane red curbing and fire lane signage. Please refer to and include City Public Works Standard FP-2A & 2B with plan submittals for permitting.

28. The City of American Canyon requires that a fire hydrant be in service within 250 feet of the furthest point of construction prior to the stockpiling of combustible materials for the beginning of construction.

29. Fire Department Connections (FDC) shall be located not more than 100 ft. from the nearest fire hydrant.

30. Improvement Plans submitted for permit shall include City of American Canyon "Underground" standards, detail drawings and the applicable City of American Canyon Public Works Standard detail (W-7A, B, C or D) for Fire Service double detector check installations. *Also, a separate set of plans shall be submitted detailing all related underground Fire utilities and appurtenances including but not limited to; All underground piping, type, sizes, depth of burial, fittings, thrust blocks, risers, pumps, hydrants, FDC's, etc.*

31. System Protection Area Limitations NFPA 13 – 8.2.1 Maximum floor area on any one floor to be protected by sprinklers supplied by any one sprinkler system riser or combined system riser shall be as follows:

    1. Light Hazard – 52,000 sf – per riser
    2. Ordinary Hazard - 52,000 sf – per riser
    3. *Extra Hazard – Hydraulically calculated - 40,000 sf – per riser
    4. Storage – High-piled storage (as defined in 3.9.1.16) and storage covered by other NFPA standards – 40,000 sf – per riser

Public Works

<u>General Conditions of Approval</u>

32. The Applicant shall be responsible for all City plan check and inspection costs. The Applicant shall establish a Developer Deposit Account with the City upon the initiation of plan check services. The amount of the initial deposit shall be determined by the City Engineer. Additional funds may be required based upon actual costs.

33. All improvements shall be designed in accordance with the American Canyon Municipal Code (ACMC), City of American Canyon Engineering Standard Plans and Specifications for Public Improvements (City Standards), except as specifically noted otherwise in these conditions.

34. All new utilities to serve the project, shall be placed underground. Exceptions may be allowed for surface mounted transformers, pedestal mounted terminal boxes and meter cabinets.

35. Unless otherwise explicitly permitted, all existing wells, septic tanks and/or underground fuel storage tanks shall be abandoned under permit and inspection of Napa County Department of Environmental Services or other designated agency. If there are none, the project engineer shall provide a letter describing the scope of the search done to make this determination.

36. A detailed Soils Investigation/Geotechnical Report shall be prepared and submitted for review. The report shall address, at a minimum, potential for liquefaction, R-values, expansive soils and seismic risk. The improvement plans shall incorporate all design and construction criteria recommended in the Geotechnical Report.

37. A drainage report prepared by a California Registered Civil Engineer shall be submitted for review with the initial submittal of the Improvement Plans. The report shall include detailed hydrologic and hydraulic calculations to support the design and sizing of all public and private drainage facilities including storm drains and detention facilities. The report shall address existing downstream storm drain facilities and hydraulic conditions which may impact the design of proposed facilities and improvements.

38. A final detailed post-construction Stormwater Control Plan (SWCP) that identifies and sizes all permanent post-construction stormwater treatment BMPs shall be prepared and submitted for review and approval. The SCWP shall be prepared in accordance with the latest edition of the *Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual* and the requirements of the State Water Resources Control Board Phase II Municipal Separate Storm Water System (MS4) General Permit (Order 2013-0001 DWQ). It is the City's discretion whether to accept alternative treatment facilities other than bioretention.

39. A Post Construction Stormwater Operations and Maintenance Plan that includes a plan sheet showing all storm drain and water quality infrastructure that is to be maintained, along with detailed instructions and schedules for the ongoing maintenance and operation of all post-construction stormwater BMPs shall be submitted for review and approval by the City Engineer. Once approved, the property owner(s) shall enter into an agreement with the City that provides the terms, conditions, and security associated with the ongoing requirements of the post-construction Stormwater Best Management Practices.

40. A Final Map, as defined in the Subdivision Map Act, shall be prepared by a licensed surveyor or civil engineer. The Final Map shall show all parcels, rights-of-way, and easement(s), and shall be submitted to the City Engineer for review. The Final Map shall be in substantial conformance with the approved Tentative Map and all applicable conditions of approval. The Final Map is not valid until it has been approved by the City and recorded. Closure calculations shall be provided at the time of initial Final Map submittal. All calculated points within the map shall be based upon one common set of coordinates. All information shown on the Final Map shall be directly verifiable by information shown on the closure calculation printout. The point(s) of beginning shall be clearly defined. All lot acreages shall be shown on the Final Map and shall be verifiable from information

shown on the closure calculation printout. A current title report (within past 30 days) shall be submitted at the time of initial Final Map submittal.

41. The Applicant shall secure all necessary rights-of-way and public and private easements for both onsite and offsite improvements. The applicant shall prepare all necessary legal descriptions and deeds.

42. To the extent any offsite public improvements require the acquisition of property not currently owned by the Applicant or the City, the Applicant shall first make a good-faith effort to acquire the necessary property rights, however if the Applicant makes such an effort and is unable to acquire such rights, then the Applicant may request the City acquire the necessary property rights through the exercise of eminent domain provided that the Applicant enters first into an agreement with the City to pay for all costs incurred by the City to acquire such rights and if the City does not acquire the rights necessary to allow the offsite public improvements to be completed by the Applicant within statutory timeline provided by law, then the Applicant shall be relieved of the obligation to construct those off-site improvements only to the extent they require property not currently owned by the Applicant or the City. The Applicant shall make a good-faith effort to identify and acquire the necessary property rights at the earliest opportunity.

43. The Applicant shall submit site Improvement Plans, prepared by a registered Civil Engineer, for review and approval of the City's Public Works Department. **Please be aware that this is separate submittal from the building permit application.** The final plan set shall include all civil, landscape and joint trench drawings under a single cover sheet. No final grading or other construction shall be performed until the Improvement Plans have been approved. The Applicant shall not begin clearing, grubbing, or rough grading at the site prior to approval of the Improvement Plans, unless explicitly approved by the City of American Canyon through the standard grading and utilities only permit process. An Encroachment Permit is required for any work within City right of way. Encroachment Permits will not be issued prior to the approval of the Improvement Plans.

44. All public water service laterals or services (domestic, recycled and fire water) shall include approved backflow prevention devices.

45. Cathodic protection shall be provided for all water valves, fittings, hydrants, meters, backflow devices and other metal appurtenances, regardless of the findings of any soils corrosivity analysis.

46. The Applicant shall keep adjoining public and private streets free and clean of project dirt, mud, materials, and debris during the construction period in accordance with SWPPP using appropriate BMPs and as is found necessary by the City Engineer.

47. If any hazardous material is encountered during the construction of this project, all work shall be immediately stopped and the Fire Department, Napa County Department of Environmental Services or other designated agency, and the City Inspector shall be notified immediately. Work shall not proceed until clearance has been issued by all of these agencies.

48. Prior to final preparation of the subgrade and placement of base materials, all underground utilities shall be installed, and service connections stubbed out behind the sidewalk. Public utilities, Cable TV, sanitary sewers, and water lines shall be installed in a manner that will not disturb the street pavement, curb, gutter and sidewalk, when future service connections or extensions are made.

49. Where soil or geologic conditions encountered in grading operations are different from that anticipated in the soil and/or geologic investigation report, or where such conditions warrant changes to the recommendations contained in the original soil investigation, a revised soil or geologic report shall be submitted for approval by the City Engineer. Additionally, if field conditions warrant installation of any subdrains, the location, size and construction details must be provided to the City for review and approval prior to construction.

50. All new fire hydrants shall be covered with burlap sacks until the hydrants have been tested and found to be in conformance with City flow requirements. No storage of combustible materials or construction of building shall be permitted until all hydrants meet City flow requirements.

51. Prior to placing the final lift of asphalt, all public storm drains and sanitary sewer lines shall be video inspected at the Applicant's expense. All video media (CD, DVD, or portable hard drive) shall be submitted to the City. If any inadequacies are found, they shall be repaired prior to the placement of the final lift of asphalt.

52. All streets, curbs, gutters, sidewalks or other public facilities damaged in the course of construction associated with this Project shall be the responsibility of the Applicant and shall be repaired to the satisfaction of the City at the Applicant's expense.

53. After all of the new underground utilities within existing public streets have been installed, the entire affected areas shall be milled and repaved to present a neat finished pavement area. Multiple trench patches are not acceptable.

54. All construction stormwater pollution prevention best management practices (BMP's) shall be installed as the first order of work and in accordance with the State Water Resources Control Board's General Construction Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended), the Applicant's Storm Water Pollution Prevention Plan (SWPPP), and the City's Erosion and Sediment control Plan in accordance with the City's MS4 Permit. All stormwater BMP's shall be maintained to the satisfaction of the Qualified SWPPP Developer (QSD), Qualified SWPPP Practitioner (QSP), and the City Engineer.

55. With the exception of water used for loading and testing of potable water lines, all construction water used for the project shall be obtained from a source other than American Canyon potable water sources. The Applicant shall provide verification that an outside source of construction water, e.g., recycled water, has been established and will be available for the duration of the project construction.

56. The development shall comply with the City's Zero Water Footprint policy.

57. All landscaping shall be designed to use recycled water for irrigation. Recycled water landscaping shall be designed to comply with California Code of Regulations Title 22 and shall include design details to prevent runoff of recycled water. The irrigation system shall include an ET/SMART controller.

58. All buildings shall be dual plumbed to use recycled water for non-potable uses.

<u>Public Works Special Conditions of Approval</u>

59. The Applicant shall submit Improvement Plans prepared by a registered Civil Engineer (Engineer of Record) in substantial conformance with the preliminary civil plans titled "Giovannoni Logistics Center East Tentative Parcel Map" prepared by CBG Civil Engineers dated September 17, 2021, except as modified by these conditions.

60. Improvement Plans and Final Map shall be tied to the State of California coordinate system.

61. The Applicant shall construct all of the on-site private streets, water, recycled water, sewer, storm drainage and storm quality **"Private Improvements"** generally shown on the Preliminary Plans and more specifically described below. All private street, water, recycled water sewer, storm drainage and stormwater quality improvements shall be designed in accordance with the City of American Canyon Engineering Standard Plans and Specifications for Public Improvements (City Standards), except as specifically noted otherwise in these conditions.

    a. Storm Drain Facilities:
    Construct private on-site drainage facilities, detention facilities, and other appurtenances to collect and convey all surface drainage to an approved private storm drain facility or outfall. Onsite drainage facilities shall provide for the positive drainage of all adjacent upstream or upgrade properties to prevent ponding. Existing run-on from adjacent properties shall not be obstructed and shall be conveyed onsite. Off-site peak storm water discharge shall not exceed 90% of the undeveloped peak flow from the 24-hour, 100-year event. The storm drains and detention facilities shall be substantially consistent with the Preliminary Plans. However, the sizing of all storm drains and detention facilities shall be determined by the approved final drainage report.

    b. Stormwater Quality Facilities:
    Permanent on-site private post-construction stormwater treatment BMPs shall be designed and constructed in accordance with the approved final SWCP.

    c. Recycled Water Services:
    Separate recycled water services shall be provided for domestic non-potable uses and irrigation uses.

62. Per the Subdivision Improvement and Reimbursement Agreement between the City of American Canyon and DWF IV NLP II, LLC, Napa County Official Record 2018-0024204, the Applicant shall reimburse the City its fair share cost for the improvement of South Kelly Road from its intersection with Devlin Road up to intersection with Highway 29. The fair share cost is based on the project's proportional share of net new trips.

63. Per the Subdivision Improvement and Reimbursement Agreement between the City of American Canyon and DWF IV NLP II, LLC, Napa County Official Record 2018-0024204, the Applicant shall reimburse the City its fair share cost for the construction of the Permanent Sewer Solution, which consists of new offsite public gravity sewer, pump station and force main which replaced the existing Green Island Pump Station. The fair share cost, based on the project's sewer flow, is 12% fair share cost. The current fair share cost is $144,774.

64. Prior to SUBMITTAL OF THE IMPROVEMENT PLANS, the Applicant shall:

    a. Submit the City's "Improvement Plan Checklist".
    b. Pay an initial cash deposit for City plan check services in amount to be determined by the City prior to the time of submittal. The Project engineer shall contact City staff to discuss submittal details to determine initial deposit amount.
    c. Provide the following:
        (1) Public Street Repair Plan
        (2) Utility Plan and Joint Trench Plan
        (3) Construction Storm Water Pollution Prevention Plan (SWPPP) and a City Erosion and Sediment Control Plan

(4) Drainage Report
(5) Post-Construction Stormwater Control Plan (SWCP)
(6) Geotechnical Report
(7) Construction Traffic Control Plan.
(8) Traffic Impact Study
(9) Application for Water and Sewer Service

65. Pothole and physically determine (by way of a survey performed by the Engineer of record) the actual horizontal location and vertical depth of all existing underground utilities throughout the proposed area of work and provide the design of all new utility installations required to serve the project including a schedule for implementation of such work as to prevent disrupting of utility service to adjacent properties.

66. Prior to APPROVAL OF THE IMPROVEMENT PLANS, the Applicant shall:

    a. Merge the two existing parcels (APNs 057-130-034 and 057-130-036) into a single parcel through the recordation of a lot merger or lot line adjustment.

    b. Provide written acknowledgment by the Geotechnical Engineer of Record that the Plans incorporate all design and construction criteria specified in the Geotechnical Report.

    c. Furnish proof of the acquisition of all rights of entry and/or temporary and permanent easements necessary to construct the project and the location of all such rights on the Plans.

    d. Furnish proof that all permits that may be required by the California Department of Fish & Wildlife, State and Regional Water Quality Control Board, US Army Corps of Engineers and any other regulatory agencies with jurisdiction over the proposed construction have been obtained.

    e. Fill out and submit the City's Erosion and Sediment Control Plan (ESCP) Template. Applicant may refer to a SWPPP, as appropriate, by referencing page number within the SWPPP that addresses the requirements of the ESCP.

    f. Submit a copy of the Notice of Intent and Wastewater Discharge Identification Number (WDID#) for coverage under the State Water Resources Control Board's General Construction Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ).

67. Prior to RECORDATION OF THE FINAL MAP, the Applicant shall:

    a. Construct all of the Private Improvements to the satisfaction of the City. Alternatively, the Applicant may enter into a Subdivision Improvement Agreement with the City agreeing to complete all of the Private Improvements prior to Occupancy of the first unit. Such an Agreement will require the Applicant to provide bonds, proof of workers compensation insurance, and general liability insurance in the forms and amounts as deemed satisfactory to the City.

    b. Establish a Shared Maintenance Agreement between the owners of each parcel for the long term and ongoing maintenance and operation of all shared private improvements. Specifically, the parcel owners shall be responsible for the ongoing maintenance and operation of all onsite stormwater quality facilities and shared storm drains. The Shared Maintenance Agreement shall be prepared to run with the land of each parcel. The Shared Maintenance Agreement shall be submitted to the City for review and approval prior to recordation.

c. Generally, in substantial conformance with that which is shown on the approved Tentative Map, convey all easements and dedications, public and private, for the construction, use and/or maintenance of roads or other access, drainage facilities, utilities and post-construction storm water management facilities on the Final Map. All dedications to the City shall be Irrevocable Offers of Dedication. Specific conveyances include:

    i. Private reciprocal easements in favor of all parcels for all shared stormwater treatment facilities, shared storm drains, and for lot-to-lot surface stormwater runoff.

d. Furnish proof of the payment of the mapping service fee as required by Napa County Board of Supervisors Resolution No. 92-119.

68. Prior to COMMENCEMENT OF CONSTRUCTION ACTIVITIES, the Applicant shall:

    a. Pay off all current account balances with the City of American Canyon.

    b. Pay an inspection fee in amount to be determined at the time of commencement for the City's inspection of the Public Improvements.

    c. Conduct a pre-construction meeting with representatives of the City whereby the Applicant, the Legally Responsible Party (LRP), Qualified SWPPP Practitioner (QSP), Qualified SWPPP Developer (QSD), and/or the Contractor provides the following:

        i. Six (6) full-size bond copies of the approved Improvement Plans for the City's use.
        ii. One (1) job-site copy of the latest edition of the City Standards for the Contractor use.
        iii. One (1) job-site copy of the SWPPP for use by the LRP, QSP, QSD, and Contractor.
        iv. Electronic copies of Improvement Plans and SWPPP.

69. Prior to APPROVAL OF A BUILDING PERMIT, the Applicant shall:

    Pay all account balances and current City and American Canyon Fire District fees (Mitigation & Capacity) based on the rates in effect at the time of permit issuance. These fees include but may not be limited to the following: Traffic Mitigation, General Plan Update, Civic Facilities, Fire District, Water Capacity, Wastewater Capacity, Zero Water Footprint Mitigation and Affordable Housing Nexus.

70. A. Prior to issuance of the first building permit, the Applicant shall enter into a Recorded a Transportation Demand Management (TDM) Program Agreement ("TDM Agreement") that ensures the cumulative Project trip generation does not exceed the Giovannoni Logistics Center Final EIR (SCH# 2021010104) Trip Generation assumptions. The TDM Agreement shall encompass the entire Giovannoni Logistics Center Project.

    B. The TDM Agreement shall include a financial guarantee satisfactory to the City. The City shall deem the TDM program to be effective if the monitoring results indicate that AM peak-hour volumes are no more than 240 vehicles and PM peak-hour volumes are no more than 264 vehicles.

    C. The TDM program shall be implemented at the applicant's cost, with no cost to the City, regardless of the eventual mix of uses and shall at a minimum include a permanent vehicle counting station at

the single public access point. Examples of measures that may be considered as part of an effective TDM program include but are not limited to the following:

- Starting and ending workday shifts during off-peak hours (i.e., not between 7:00 a.m. to 9:00 a.m. or 3:00 p.m. to 6:00 p.m.).
- Implement shuttle service to key employment centers or park-and-ride lots in the area for those employees whose workday shift start during peak hours.
- Car-share program
- Shuttles to regional transit
- Transit subsidies
- Carpool/vanpool subsidies
- Employer-owned/sponsored vanpools
- Flex-time and telecommute programs
- Use of rail to transport employees and/or the delivery of goods

D. The Applicant shall retain a transportation planning/engineering consultant to analyze the effectiveness of the TDM program in a written report. The TDM Report will include data collected from the permanent vehicle counting station and a determination of employee commute methods, which shall be informed by surveying all employees working at the site. The TDM Report shall be submitted to the City on a periodic on-going basis and it shall form the basis of on-going determinations by the City as to the effectiveness of the TDM program. So long as the City deems the TDM program effective (i.e. when monitoring results indicate that AM peak-hour volumes are no more than 240 vehicles and PM peak-hour volumes are no more than 264 vehicles). At any time the City determines the Project exceeds the Giovannoni Logistics Center Final EIR (SCH# 2021010104) Trip Generation assumptions, the additional traffic impact shall be mitigated by Paragraph B.

E. If at any point the City determines the TDM program established as part of Paragraph A through D is not effective to reduce peak-hour traffic to within the TDM thresholds (240 vehicles during the AM peak hour and 264 vehicles during the PM peak hour), the Applicant shall pay an additional amount for each and every peak-hour trip that is recorded by the counting device that exceeds the TDM threshold, equal to the latest adopted Traffic Impact Fee ("TIF") program in effect at the time. The "on-going TIF" paid pursuant to this condition of approval is in addition to the "one-time TIF" paid at the time of issuance of the first building permit.

71. Prior to OCCUPANCY OF THE BUILDING, the Applicant shall:

    a. Restore all adjacent off-site road surfaces to pre-project conditions.

    b. Submit a certification by the Geotechnical Engineer of Record that all the work has been completed in substantial conformance with the recommendations in Soils Investigation/Geotechnical Report.

    c. Provide a mylar and digital copy of the Improvement Plans that include all as-built or field changes, in digital (.pdf) and AutoCAD (.dwg) format, compatible with the City's current version, and tied to the City's coordinate system.

    d. Provide a letter stating that all of the Developer's Conditions of Approval have been met.

    e. Provide a letter from the Civil Engineer of Record certifying that all the site improvements were constructed and inspected in substantial conformance with the approved plans and City Standards.

    f. Enter and record a post-construction Stormwater Operations and Maintenance Agreement with the City.

Mitigation Measures

72. MM AES-3: Prior to issuance of building permits for the proposed project, the project applicant shall prepare and submit a photometric plan to the City of American Canyon for review and approval which demonstrates that all exterior light fixtures would be directed downward or employ full cut-off fixtures to minimize light spillage and avoid interference with aviation operations at the Napa County Airport. The approved plan shall be incorporated into the proposed project.

73. MM AIR-2a: The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of the project and implemented during construction:

    - All active construction areas shall be watered at least two times per day.
    - All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces.
    - All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.
    - All visible mud or dirt tracked out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
    - All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
    - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
    - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
    - The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

74. MM AIR-2b: Prior to the issuance of grading or building permits, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings during the proposed project's construction. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product.

75. MM AIR-2c: Prior to issuing any certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of "Low-VOC" architectural coatings and electric landscaping equipment during the operation of the proposed project. "Low-VOC" architectural coatings used during project construction shall not exceed 50 grams of reactive organic gases (ROG) or volatile organic compounds (VOC) per liter of product. Landscaping equipment referred to in this requirement shall include lawnmowers, leaf blowers, and chainsaws.

76. MM AIR-2d: Prior to issuing the certificate of occupancy for the proposed project, the project applicant shall provide the City with documentation demonstrating the use of a truck fleet that meets or exceeds model year 2014 for all heavy- duty trucks during operation of the proposed project. If the project applicant does not own the truck fleet that would be used during operation of the proposed project, the project applicant shall provide the City with documentation from the truck fleet owner or operator demonstrating that trucks utilized for operation of the proposed project will meet or exceed model year 2014. If any change occurs where a new truck fleet is utilized during operation of the proposed project, the project applicant shall provide the City with documentation demonstrating that the new truck fleet meets or exceeds this requirement.

    To monitor and ensure that trucks that meet a model year of 2014 or newer are used for the proposed project, the fleet operator shall maintain records of all trucks and equipment associated with the proposed project's operation and make these records available to the City upon request. Alternatively, the City may require periodic reporting and provision of written records by operators and conduct regular inspections of the records to the maximum extent feasible and practicable.

77. MM AIR-2e: Prior to the issuance of the certificate of occupancy for each building with dock doors, signage shall be posted identifying idling restrictions and contact information to report violations to the building manager.

78. MM AIR-2f: Prior to the issuance of the certificate of occupancy for each building with a separate end user, the City shall confirm that the end user has prepared a Transportation Demand Management Plan (TDM Plan). The TDM Plan shall be prepared by a qualified transportation consultant and identify strategies to reduce single-occupant vehicle trips. Examples of TDM strategies may include but are not limited to:

    - Ridesharing/Ride Matching
    - Vanpools
    - Transit subsidies
    - Preferential parking for rideshare or vanpool vehicles
    - Employee lockers
    - Secure bicycle parking
    - Employee locker rooms
    - Provide TDM information in employee breakroom

79. MM AIR-2g: Prior to the issuance of the certificate of occupancy, as a part of future lease agreements, the project proponent shall provide all future tenants at the project site information on available California Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) incentive programs, such as the Carl Moyer Program and the Voucher Incentive Program, that support upgrading truck fleets to clean air technology equipment.

80. MM BIO-1a: Pre-construction surveys for Swainson's hawk shall be conducted in the project site vicinity prior to initiation of project construction activities and each year following initiation of construction if project activities are delayed or discontinued for 7 or more days prior to the second survey period (March 20 to April 5), and are scheduled to recommence construction activities during the second survey period but before August 1. These pre-construction surveys shall include investigation of all potential nesting trees within a half-mile radius around all project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. Surveys shall be conducted in accordance with CDFW's "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" (CDFW 2000) to

maximize the potential for locating nesting Swainson's hawk and reduce the potential for nest failures due to project activities and/or disturbances.

If no nesting Swainson's hawk are found during the first second survey period starting March 20, then project construction may commence. If during the third surveys (April 5–April 20) Swainson's hawk are found to be nesting in the project vicinity and construction has commenced, it shall be assumed the Swainson's hawk commenced nesting and thus the Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site.

If Swainson's hawk are found to be nesting within 1,000 feet of the project site, a non-disturbance buffer shall be established to keep all construction activities a minimum of 1,000 feet from the nest site. The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified Raptor Biologist. At that time the necessity for acquiring a Fish and Game Section 2081 Incidental Take Permit (ITP) authorization would be determined. An ITP authorization shall be required if there were a valid concern the project activities would result in the "take" of an adult Swainson's hawk, eggs, or nestlings.

81. Surveys shall be conducted by a qualified Raptor Biologist with at least 2 years of experience surveying for and detecting Swainson's hawk pursuant to "Recommended timing and methodology for Swainson's Hawk Nesting Surveys in California's Central Valley" survey protocol. No disturbance such as construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

82. MM BIO-1b: No more than 30 days prior to the first ground disturbance activity, pre-construction golden eagle nesting surveys shall be conducted in the project vicinity by a qualified Raptor Biologist. The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting golden eagles. Preconstruction surveys shall include investigation of all potential nesting trees within a survey area determined by the qualified Raptor Biologist, but no less than a 0.5-mile radius around all project activities. If active golden eagle nests are identified within any trees within the survey areas a 0.5-mile radius of the project site, a qualified Raptor Biologist shall establish a protection buffer at a minimum of 1,000 feet that is adequate to ensure noise or activity from the proposed project would not cause nest disturbance or young or adult bird mortality. Buffer zones may vary in size as some golden eagles are more acclimated to disturbance than others. Size of buffer zone may be increased by the qualified Raptor Biologist considering the type of construction activity that may occur and the behavioral factors and extent that golden eagle may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young golden eagles have fledged or that the nesting cycle is complete based on monitoring of the active nest by a qualified Biologist.

83. MM BIO-1c: Prior to ground disturbance, a pre-construction nesting survey shall be conducted for northern harrier and short-eared owl by a qualified Raptor Biologist if construction is scheduled during the nesting season (February 1 through September 1). The qualified Raptor Biologist shall have at least 2 years of experience surveying for and detecting nesting northern harrier and short-eared owl. To determine whether northern harrier or short-eared owl is nesting on-site, a qualified Raptor Biologist(s) shall conduct walking transects through the project site grassland habitat searching for nests and minimum 500-foot radius from the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc., the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars

or a spotting scope. An active northern harrier or short-eared owl nest must be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Size of buffer zone could be modified increased considering the type of construction activity that may occur, physical barriers between the construction site and active nest, and the behavioral factors and extent that northern harrier or short-eared owl may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified Raptor Biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified Raptor Biologist.

84. MM BIO-1d: Prior to any ground disturbance, pre- construction surveys for burrowing owl shall be conducted within a minimum of 150 meters of the project site. Where the survey area encroaches onto private property not accessible to the public (e.g., fenced in commercial property, residential backyard, etc.), the qualified Biologist shall either contact the property owner for permission to physically access the property or conduct a visual survey of adjacent areas by scanning with binoculars or a spotting scope. The pre- construction surveys shall be conducted within 2 weeks prior to the onset of any ground-disturbing activities. Surveys shall be conducted by a qualified Biologist following California Department of Fish and Wildlife (CDFW) 2012 staff report survey methods and Biologist qualifications to establish the status of burrowing owl on the project site.

    a. If burrowing owl are found to occupy the project site during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no- disturbance buffer zone a minimum of 100 feet around the burrow. Buffers may be adjusted to address site-specific conditions using the impact assessment approach described in the CDFW 2012 staff report. If a qualified Raptor Biologist determines the location of an occupied burrow/s may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the project site where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report.

    b. If burrowing owl are found to be present during the breeding season (February 1 to August 31), the proposed project ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer.

    c. If burrowing owls are ultimately found on the site and burrow eviction/ relocation of burrowing owls during the non-nesting season is a selected strategy to move forward with the project without direct impacts to burrowing owl individuals, the applicant shall coordinate this effort with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report on burrowing owl.

85. MM BIO-2: Prior to issuance of grading permits. To offset the loss of the 0.496 acre of seasonal wetland impacts from Phase 1, and 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools from Phase 2, and to ensure there is no-net loss of wetland area, the applicant shall establish/create 0.992 acre of palustrine emergent wetlands (2:1 ratio) for Phase 1 concurrent with project construction, and 2.57 acres of seasonal wetlands (1:1 ratio) and 1.13 acres of vernal pool wetlands (1:1 ratio) for Phase 2 at least 1 year prior to the start of Phase 2 construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland.

86. MM BIO-3a: Prior to issuance of the Phase 1 grading permit, the project applicant shall apply for and obtain a Nationwide Permit from the San Francisco District of the United States Army Corps of Engineers (USACE) for discharge within 0.004 acre of wetlands/waters of the United States under Clean Water Act Section 404 jurisdiction. For the USACE permit to be valid, the applicant shall apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB). The applicant shall apply for and obtain a separate Waiver of Waste Discharge Requirements from the San Francisco Bay RWQCB for impacts to 0.496 acre of wetlands/waters of the State. To offset the loss of 0.496 acre of permanent wetland impacts and to ensure there is no- net loss of wetland area, the applicant shall establish/create 0.992 acre of wetlands (2:1 ratio), prior to or concurrent with the start of construction, on the 45-acre Wetland Preserve. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

87. MM BIO-3c: Prior to issuance of the Phase 1 grading permit, a Wetland Mitigation and Monitoring Plan shall be prepared and submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall address the loss of 0.496 acre of wetlands impact due to Phase 1 of the proposed project as well as the potential loss of approximately 3.7 acres of wetlands that as part of Phase 2.

    The Wetland Mitigation and Monitoring Plan shall include in irrevocable instrument (e.g., deed restriction or conservation easements) that shall restrict use of both the 0.992 acre of created wetlands for Phase 1 as well as approximately 3.7 acres of additional wetlands created for Phase 2. The Wetland Mitigation and Monitoring Plan shall also include a long-term endowment that would be fully funded by the proposed project to manage approximately 45-acre open space preserve and created wetlands in perpetuity. If additional wetland mitigation lands are required to compensate for wetland impacts associated with Phase 2, wetlands shall be established/created at a minimum 1:1 ratio (1 acre established/created for every acre permanently impacted) on appropriate mitigation land, approved by the RWQCB and United States Army Corps of Engineers (USACE), within the Phase 2 project site's Hydraulic Unit Code (HUC) 10 watershed. The established/created wetlands shall be monitored for a minimum of 5 years to ensure the wetlands meet the USACE's and RWQCB's definition of a wetland. The applicant shall implement the terms of the approved permit(s).

88. MM BIO-3d: Prior to issuance of the Phase 1 and Phase 2 grading permit, a Wetland Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) for review as part of the process for obtaining a permit from the agency. The Wetland Mitigation and Monitoring Plan shall be prepared in accordance with the Subpart J– Compensatory Mitigation for Losses of Aquatic Resources outlined in the California State Water Resources Control Board (State Water Board) Procedures, and in accordance with the State Water Board Implementation Guidance dated April 2020, and in accordance with the United States Army Corps of Engineers (USACE) Compensatory Mitigation Rule (33 Code of Federal Regulations Part 332).

89. The basic objective of the Wetland Mitigation and Monitoring Plan is to ensure that project wetland impacts, and compensatory mitigation proposed to offset the wetland impacts, shall provide a no-net-loss of area of wetlands, and wetlands established/created shall be in-kind to the wetlands impacted. In summary, the Wetland Mitigation and Monitoring Plan shall at a minimum:

    a. Preserve 7.58 acres of existing seasonal wetlands and 0.13 acre of vernal pools within the 45-acre Wetland Preserve.

b. Establish within the Wetland Preserve approximately 0.992 acre of seasonal wetlands in advance of or concurrent with implementation of Phase 1 impacts to 0.496 acre of palustrine emergent wetlands at a 2:1 ratio.

c. Establish within the Wetland Preserve approximately 2.57 acres of seasonal wetlands and 1.13 acres of vernal pools in advance of implementation of future Phase 2, assuming Phase 2 is built out, to address the potential maximum losses of approximately 3.7 acres of wetlands that may occur.

d. Provide financial assurances to ensure a high level of confidence that the compensatory mitigation shall be successfully completed, in accordance with applicable performance standards.

e. Design ecological performance standards to assess whether the Wetland Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine whether it is developing into the desired resource type (vernal pool, seasonal wetland e.g.), and attaining any other applicable metrics such as acres, number of native plant species, water saturation and/or ponding depth etc.

f. Monitor the site for a duration necessary to determine whether the Wetland Mitigation and Monitoring Plan is meeting the performance standards. Established palustrine emergent wetlands and vernal pools typically develop quickly on soils with clay restrictive horizon. The 45-acre Wetland Preserve does have a clay restrictive layer approximately 8–18 inches below the surface therefore a 5- year monitoring period would be sufficient to determine whether performance standards are met. This monitoring period may be extended if performance standards are not met due to how the wetlands were constructed or natural events such as severe droughts.

g. Protect the approximately 45-acre Wetland Preserve in perpetuity using a conservation easement, and provide an endowment sufficient to fund the Long-Term Management Plan.

h. An overall assessment of the condition of the wetlands that shall be permanently impacted by the proposed project shall be conducted using the California Rapid Assessment Method (CRAM) for depressional wetlands, or a hybrid approach based on CRAM. Each similar wetland type that may be impacted shall be assessed to describe the floristic community and record the native and non-native dominant plants within the vernal pool and palustrine emergent wetlands. Physical structure such as topographic complexity and physical features that may provide habitat for aquatic species (e.g., boulders, woody debris etc.) shall be recorded and used to design the created/established wetlands. The purpose of this assessment is to ensure the design of the wetlands shall provide habitat that is similar to the wetlands being impacted to ensure the impacted wetlands are mitigated in-kind.

90. MM BIO-4: If construction occurs during the breeding season of migratory and resident birds (February 1 to August 31), a qualified Biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 7 days prior to the onset of construction activity. Surveys shall be conducted within the project footprint and 50 feet from the construction limits for nesting passerines, 250 feet from the construction limits for nesting accipiters and 1,000 feet from the construction limits for nesting raptors. If the survey area is found to be absent of nesting birds, no further mitigation would be required. However, if construction activities are delayed by more than 7 days, an additional nesting bird survey shall be performed.

    If bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Size of buffer zones shall be determined per recommendations of the qualified Biologist based on site conditions and species involved. At a minimum a 1,000-foot buffer shall be established

for nesting Swainson's hawk and golden eagle; 500-foot buffer for nesting tricolored blackbirds, northern harriers and other non-listed raptors; 250-foot buffer for nesting accipiters; and minimum 50-foot buffers shall be established for nesting passerines and all other non-raptor or passerine nesting birds. If an active nest is located outside of the project site, the buffer shall be extended onto the project site and demarcated where it intersects the project site. Buffer zones shall be maintained until it can be documented that either the nest has failed, or the young have fledged.

91. MM CUL-2a: No ground disturbance shall take place within 100 feet of informal archaeological resource 483A-001. The resource shall be preserved in place.

92. MM CUL-2b: An Archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be present on-site during all earth disturbing activities. If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet of the find shall halt and the City of American Canyon shall be notified. Prehistoric archaeological materials may include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, hand stones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic- period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

    The Archaeologist shall inspect the findings within 24 hours of discovery. If it is determined the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified Archaeologist shall prepare and implement a detailed treatment plan in consultation with the City of American Canyon. Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, and site documentation, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the proposed project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and State repositories, libraries, and interested professionals.

93. MM CUL-3: In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:

    a. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine whether the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of

treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in Public Resource Code Section 5097.98.

b. Where the following conditions occur, the landowner or authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the MLD or on the project site in a location not subject to further subsurface disturbance:

- The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission.
- The descendant identified fails to make a recommendation.
- The landowner or authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

i. When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code Section 5097.98. The applicant may each develop a plan with respect to their respective individual development proposals for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American Burials with the appropriate Native Americans as identified by the NAHC.

94. MM CUL-4: A Tribal Monitor representing the Yocha Dehe Wintun Nation shall be present during all project-related ground disturbance. Additionally, the Yocha Dehe Wintun Nation's Treatment Protocol (Protocol) shall be followed with respect to Tribal Cultural Resources (TCRs). The purpose of the protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, if any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground-disturbing activity. This Protocol also formalizes procedures for Tribal Monitoring during archaeological studies, grading, and ground-disturbing activities.

a. Cultural Affiliation: The Yocha Dehe Wintun Nation (Tribe) traditionally occupied lands in Yolo, Solano, Lake, Colusa, and Napa Counties. The Tribe has designated its Cultural Resources Committee (Committee) to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with projects on lands culturally affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol.

b. Inadvertent Discovery of Native American Human Remains: Whenever Native American human remains are found during the course of a project, the determination of Most Likely Descendant (MLD) under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission (NAHC) upon notification to the NAHC of the discovery of said remains at a project site. If the location of the site and the history and prehistory of the area is culturally affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents.

Should the NAHC determine that a member of an Indian tribe other than Yocha Dehe Wintun Nation is the MLD, and the Tribe agrees with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.

c. Treatment of Native American Remains: In the event that Native American human remains are found during development of a project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground-disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within 48 hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.

d. Non-Disclosure of Location of Reburials: Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, California Government Code Section 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System (CHRIS) on a form acceptable to the CHRIS center. The Tribe may also suggest the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.

e. Treatment of Cultural Resources: Treatment of all cultural items, including ceremonial items and archaeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archaeological items, which may be found at a project site shall be turned over to the Tribe for appropriate treatment, unless ordered by a court or agency of competent jurisdiction. The project proponent shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archaeological items, which may be found on a project site in favor of the Tribe. If any intermediary, (for example, an Archaeologist retained by the project proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.

f. Inadvertent Discoveries: If additional significant sites or sites not identified as significant in a project environmental review process, but later determined to be significant, are located within a project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the project proponent, the Lead Agency, and the Tribe to determine whether additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.

95. MM GEO-1b: Prior to the issuance of building permits for each Phase 1 and 2 structure, the project applicant shall submit a design-level Geotechnical Investigation to the City of American Canyon for review and approval. The investigation shall be prepared by a qualified engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code (CBC) geologic, soils, and seismic requirements, including abatement of expansive soil conditions. The report shall also determine the final design parameters for walls, foundations, foundation slabs, and surrounding related improvements (e.g., utilities roadways, parking lots, and sidewalks). The measures identified in the approved report shall be incorporated into the project plans and all applicable construction-related permits.

96. MM GEO-5: If potential fossils are discovered during project implementation, all earthwork or other types of ground disturbance within 100 feet of the find shall stop immediately until a qualified professional Paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the Paleontologist shall either record the find and recommend that the City of American Canyon allow work to continue or recommend salvage and recovery of the fossil. The Paleontologist shall, if required, propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with Society of Vertebrate Paleontology guidelines and currently accepted scientific practice. If required, treatment for fossil remains shall include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and, if required, shall also include preparation of a report for publication describing the finds.

97. MM GHG-1a: Prior to the issuance of any grading permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating project construction will include the following construction Best Management Practices (BMPs):

    a. At least 15 percent of the construction fleet for each project phase shall be alternatively fueled or electric.

    b. At least 10 percent of building materials used for project construction shall be sourced from local suppliers.

    c. At least 65 percent of construction and demolition waste materials shall be recycled or reused.

    d. At least one contractor that has a business location in American Canyon shall be contracted for project construction.

    e. All construction contracts shall include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) using during construction be electrically powered.

    f. Architectural coatings used for project construction shall be “Low-VOC,” containing no greater than 50 grams of volatile organic compounds (VOC) per liter of product.

    g. Project construction shall prohibit the use of generators and shall establish grid power connection to electrical equipment needs.

    h. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure [ATCM] Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.

    i. All construction equipment shall be maintained and properly tuned in accordance with

manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

j. The prime construction contractor shall post a publicly visible sign with their telephone number and contractor to contact. The construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be identified and visible to ensure compliance with applicable regulations.

98. MM GHG-1b: Prior to the issuance of any building permits, the project applicant shall provide the City of American Canyon with documentation (e.g., site plans) demonstrating the proposed project is designed without the use of any natural gas -fueled appliances or natural gas plumbing.

99. MM GHG-1c: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed buildings are designed and will be built to, at a minimum, the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.

100. MM GHG-1d: Prior to issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that the proposed parking areas for passenger automobiles and trucks are designed and will be built to accommodate electric vehicle (EV) charging stations. At a minimum, the parking shall be designed to accommodate a number of EV charging stations equal to the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2.

101. MM GHG-1d: Prior to the issuance of any building permits, the project applicant shall demonstrate to the satisfaction of the City of American Canyon (e.g., shown on-site plans), that each loading dock is outfitted with at least one 240-volt outlet to accommodate truck and Transport Refrigeration Unit (TRU) charging and/or electrical power connection while trucks are loading and unloading goods.

102. MM GHG-1e: Prior to the issuance of any building permit for the proposed project, the project applicant shall provide the City with documentation (e.g., site plans) demonstrating to the City's satisfaction that the electricity demand will be supplied with 100 percent carbon-free electricity sources through the year 2045. As City representative, the Planning Commission recommends the City Council require this mitigation measure be accomplished with on-site solar panel electricity.

103. MM HYD-1a: Prior to issuance of grading permits for the proposed project, the applicant shall submit to the City of American Canyon for review and approval a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the statewide Construction General Permit. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources (e.g., runoff), including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity, are controlled; (2) where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated; (3) site Best Management Practices (BMPs) (e.g., silt fencing, street sweeping, routine inspection, etc.) are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity; and (4) stabilization BMPs are installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a qualified SWPPP developer. The SWPPP shall include the minimum BMPs required for the identified Risk Level. BMP implementation shall be consistent with the BMP requirements in the most recent

version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook–Construction or the California Department of Transportation (Caltrans) Stormwater Quality Handbook Construction Site BMPs Manual. The SWPPP shall be implemented during construction.

104. MM HYD-1b: Prior to the issuance of building permits, the project applicant shall submit a Stormwater Control Plan to the City of American Canyon for review and approval. The plan shall be developed using the California Stormwater Quality Association (CASQA) "New Development and Redevelopment Handbook" and include applicable provisions of Section C.3 of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (Order No. R2-2015-0049, NPDES Permit No. CAS612008 (or more recent permit). The Stormwater Control Plan shall identify pollution prevention measures and Best Management Practices (BMPs) to control stormwater pollution from operational activities and facilities and provide maintenance in perpetuity. The Stormwater Control Plan shall include Low Impact Development (LID) design concepts, as well as concepts that accomplish a "first flush" objective that remove contaminants from the first 2 inches of stormwater before it enters area waterways. The project applicant shall also prepare and submit an Operations and Maintenance Agreement to the City, identifying procedures to ensure stormwater quality control measures work properly during operations.

105. MM LU-3: Prior to issuance of grading permits, the applicant shall retain a qualified Biologist to assess potential wildlife hazards to aviation. The assessment shall evaluate the characteristics of the emergent wetlands, drainages, other potential wildlife attractant features (i.e., ponded water) located within the open space area and identify management practices (e.g., storm drainage, vegetation, etc.) to prevent the creation of attractants for large flocks or birds or other wildlife species that may present safety hazards to aviation activities. As part of the assessment, the applicant shall consult with Napa County Airport and Napa County Airport Land Use Commission (ALUC) representatives, as appropriate, regarding findings and recommendations. The applicant shall submit a report to the City of American Canyon prepared by a qualified Biologist that confirms the wildlife hazard assessment's findings and recommendations are incorporated into the design of the open space preserve.

106. MM NOI-1: Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts:

a. The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers that are in good condition and appropriate for the equipment.

b. The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.

c. The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.

d. At all times during project grading and construction, the construction contractor shall ensure that stationary noise- generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.

e. The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.

107. MM NOI-1: The construction contractor shall ensure that all on-site construction activities,

including the operation of any tools or equipment used in construction, drilling, repair, alteration, grading, or demolition work, are limited to between the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. No construction shall be permitted on Sundays and federal holidays.

PASSED, APPROVED and **ADOPTED** at a specially scheduled meeting of Planning Commission of the City of American Canyon held on the November 17, 2022 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

_____

Crystal Mallare, Chair

ATTEST:

_____

Nicolle Jones, Administrative Technician

APPROVED AS TO FORM:

_____

William D. Ross, City Attorney

EXHIBITS:

A. Giovannoni Logistics Center Tentative Parcel Map Plans
B. Confirmation of Conditions of Approval
C. ACFPD Agreement 2022-29

EXHIBIT B
Applicant Confirmation of Conditions of Approval
Giovannoni Logistics Center Tentative Parcel Map
(FILE NO. PL20-0043)

As shown by my signature below, I confirm that I understand and agree to abide by the conditions of approval included in the City Council Resolution dated ___ , 2022.

Applicant's signature	Date
Applicant's name	
1st Property Owner's signature	Date
1st Property Owner's name	
2nd Property Owner's signature	Date
2nd Property Owner's name	

This approval shall not be effective until the applicant and property owner execute and return the "Applicant Confirmation of Conditions of Approval" form to the Community Development Department.

Please return signed confirmation to the City of American Canyon Community Development Department, 4381 Broadway, Suite 201, American Canyon, CA 94503

ATTACHMENT 0.5

Important EIR Milestones

Milestone	Purpose	Term	Date(s)
Notice of Preparation	Solicit Agency guidance on the EIR scope	30 Days	1/12/2021 – 2/11/2021
Notice of Availability	Public Review of the Draft EIR	45 Days	5/20/2022 – 7/5/2022
Extended Notice of Availability	Public Review of the Draft EIR	15 Days	7/5/2022 – 7/20/2022
Prepare Draft Final EIR	Address responses and make corrections to Draft EIR	N/A	11/4/2022
Response to EIR Comments	Written response to EIR comments	10 Days before EIR Certification	11/4/2022 – City Council meeting
Planning Commission Hearing	Obtain public input and receive Planning Commission recommendation to City Council	N/A	11/17/2022
City Council Hearing	Obtain public input, consider Planning Commission recommendation, decide EIR approval, Design Permit and Tentative Parcel Map	N/A	12/6/2022* (Anticipated)
Notice of Determination	Documents City Council's CEQA decision to certify the EIR	30 Days	12/7/2022- 1/6/2023* (Anticipated)

Building A and B
Development Standards Table

Development Standard	Required	Provided (Building A)	Provided (Building B)
Minimum Lot Size	40,000 sqft	38.36 acres	31.44 acres
Max Floor Area Ratio	50%	40%	38%
Max Building Height	36 feet	36 feet (clear height) 56'-4" (parapet height)	36 feet (clear height) 56'-4" (parapet height)
Required Setbacks Front Streetside (Landscape) Front (Building) Side (Interior) Rear	 20 feet 20 feet 10 feet 10 feet	 20 feet 160 feet 195 feet min 160 feet min	 20 feet 140 feet 180 feet min 180 feet
Parking: Warehouses require 1 space per 1,000 SF of gross floor area for the first 20,000, plus 1 space per 2,000 SF of gross floor area thereafter	311 Bldg A 245 Bldg B	423	374
Bicycle Parking	10 stalls	10 stalls	10 stalls

ATTACHMENT 0.9

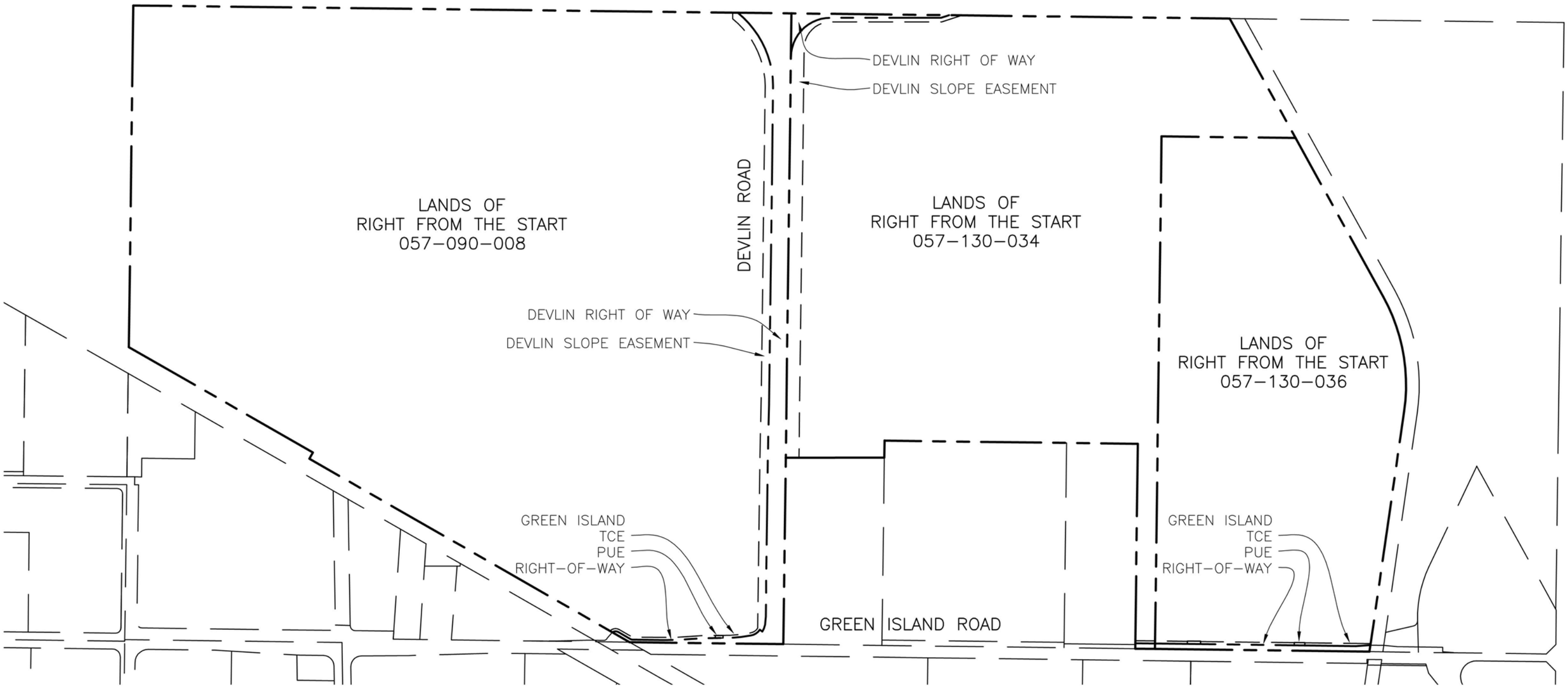


EXHIBIT A
PROPERTY ACQUISITION KEY MAP: LANDS OF "RIGHT FROM THE START"
(APNs: 057–090–008, 057–130–034, & 057–130–036)

City of American Canyon
Active Community Development Projects
November 2022

Project Applications Under Review						
No.	**Project Name**	**Applicant**	**Description**	**Location/Area**	**Application Status**	**Planner**
1.	Conditional Fence Permit (PL22-0029)	Balderas	Relocate 6-foot fence along sideyard facing Heartford Way to the edge of the sidewalk.	76 Crawford Way	10/21/22 Application submitted 10/25/22 Application withdrawn	William He
2.	Evergreen Devco Preapplication (PL22-0028)	Evergreen Devco	Preapplication for two drive thru restaurants.	3330 Broadway 2.2 acres	10/21/22 Application submitted 11/9/22 Project Review Committee meeting with Applicant	William He
3.	Hampton Inn Hotel Use Permit Extension (PL22-0027)	AMS Associates, Inc.	Extend the approved Hampton Inn Hotel Conditional Use Permit (PL20-0029) for one additional year from December 7, 2022 to December 7, 2023.	3443 Broadway 2.52 acres	10/7/22 Application submitted 10/12/22 Application approved	William He
4.	Watson Ranch Lot Line Adjustment (PL22-0026)	McGrath Properties American Canyon, LLC	Create a detention basin lot by increasing Lot 7 from 7.98 acres to 12.86 acres, reduce Lot 9 from 9.04 acres to 4.16 acres and rename Lot 9 to Adjusted Parcel A for the detention basin	North of Lemos Pointe apartments	10/5/22 Application submitted 10/21/22 Comments to applicant 10/26/22 Resubmittal submitted 10/31/22 Comments to applicant	William He
5.	Watson Ranch Lot 8 Subdivision (PL22-0024)	American Canyon I, LLC	Development of 25 single-family residential lots in a 2.17-acre site in Watson Ranch	North of Watson Ranch Lot 10 (Harvest) Subdivision	9/16/22 Application submitted 9/23/22 Comments to applicant	William He
6.	Watson Ranch Specific Plan Amendment (PL22-0023)	American Canyon I, LLC	Refinement to the Watson Ranch Specific Plan	North of Vintage Ranch	8/26/22 Application submitted	Brent Cooper

Project Applications Under Review						
No.	**Project Name**	**Applicant**	**Description**	**Location/Area**	**Application Status**	**Planner**
7.	Napa Junction Solar Farm and RV Parking (PL22-0022)	RH Hess Development	A preapplication to evaluate access issues to a minor utility solar farm with RV parking.	5381 Broadway 2.4 acres	8/25/22 Application submitted 9/14/22 Project Review Committee discussion with applicant	William He
8.	Chicken Guy Restaurant (PL22-0021)	Chandi Hospitality	A Design Permit for a 2,818 sqft quick serve drive-thru restaurant	200 American Canyon Road 1.03 acres	8/22/22 Application submitted 9/21/22 Comments to applicant 10/19/22 Project Review Meeting discussion with applicant	William He
9.	5555 Broadway building Preapplication (PL22-0020)	Intersection	A Preapplication to evaluate building improvements and outdoor uses at the rear of the site.	5555 Broadway 7.04 acres	8/12/22 Application submitted 8/31/22 Project Review Committee discussion with applicant 9/7/22 Comments to applicant	William He
10.	Napa Airport Commerce Center Development Agreement (PL22-0019)	Panattoni	Annual review of the Napa Airport Commerce Center Development Agreement	Southeast corner Devlin Road/S. Kelly Road	8/1/22 Application submitted 9/6/22 City Council approved	Brent Cooper
11.	Giovannoni Logistics Center Development Agreement (PL22-0018)	Buzz Oates Construction	Proposed Development Agreement to extend the term of proposed entitlements	East and West of Devlin Road, north of Green Island Road 200 acres	8/1/22 Application submitted 9/1/22 Application on hold pending entitlement approvals	Brent Cooper
12.	Watson Ranch Lot Line Adjustment (PL22-0017)	American Canyon I, LLC	Reconfiguration between Lots 19 and Adjusted Lot C.	Marcus Road 13.6 acres	6/30/22 Application submitted 7/20/22 Comments to applicant 8/11/22 Application approved	William He
13.	PG&E Regional Center Traffic Impact Fee Revision (PL22-0025)	Corporate Real Estate Strategy & Services	A proposed reduction in traffic impact fees based on a change to the project operations.	500 Boone Drive	7/15/22 Application submitted 9/15/22 Comments to applicant 10/18/22 Application resubmittal	William He
14.	Sunstone Tattoo Shop (PL22-0014)	Daniel Velasco	Revise allowable services to include body piercing	3433 Broadway, Suite B	6/1/22 Application submitted 6/28/22 Application placed on hold	William He
15.	Hotel @ The Ruins Design Permit (PL22-0012)	McGrath Properties American Canyon, LLC	A proposed hotel at the Watson Ranch Ruins & Gardens with up to 200 hotel	Southeast corner Rolling Hills/Rio Del Mar	5/16/22 Application submitted 6/13/22 Comments to applicant	William He

Project Applications Under Review						
No.	**Project Name**	**Applicant**	**Description**	**Location/Area**	**Application Status**	**Planner**
			rooms, conference facilities and event venues.	19.8 acres		
16.	Residences at Napa Junction (PL22-0011)	American Canyon Ventures LLC	453 multi-family rental dwellings with associated parking and amenities.	1000 Reliant Way 15 acres	5/2/22 Application submitted 6/1/22 Comments to applicant 7/22/22 Application resubmitted 8/19/22 Comments to applicant	William He
17.	Carwash Preapplication (PL22-0010)	Blackpoint Properties	Preapplication to answer due diligence questions for a potential drive-thru fast food restaurant or carwash	3885 Broadway 1.01 acres	4/18/22 Application submitted 5/5/22 Comments to applicant 7/19/22 Applicant preparing studies and design for a carwash CUP 9/22/22 PC Workshop on carwash use in BDSP 10/25/22 Applicant withdrew project	William He
18.	Home2Suites Major Modification (PL22-0007)	Napa Valley Hospitality, LLC	Proposal to modify underground overhead utility condition of approval	3701 Main Street 2 acres	3/29/22 Application submitted 5/11/22 Comments to applicant 6/23/22 PC Continued Item to 7/28/22 7/20/22 Applicant reviewing potential substitute undergrounding conditions. 9/22/22 PC Review approved	William He
19.	Sunsquare Mixed Use Building (PL21-0020)	John Howland Architect	3-story mixed-use building with 20 apt units over a 9,820 SF office	425 Napa Junction Road	8/3/21 Application submitted 8/20/21 Comments to applicant 12/1/21 Applicant on 6-month hold 10/15/22 Application resubmitted 11/10/22 Comments to applicant	William He
20.	Giovannoni Logistics Center (PL20-0042, PL20-0043)	Buzz Oates Construction	Design Permit, Tentative Map and EIR for approximately 2.4 million sqft logistics center and Design Permit for two warehouses. Building A is 627,976 square feet; and	300 Green Island Road (Bldg A) 1200 Devlin Road (Bldg B) 70 acres	11/13/20 Application submitted 12/12/20 Comments to applicant 01/05/21 Application resubmitted 01/12/21 Notice of Preparation (NOP) published 2/3/21 NOP scoping meeting	Brent Cooper

Project Applications Under Review						
No.	**Project Name**	**Applicant**	**Description**	**Location/Area**	**Application Status**	**Planner**
			Building B is 469,512 square feet		5/20/22 Draft EIR Public review period starts 7/20/22 EIR Public review period ended. Preparing responses to comments 11/17/22 PC Meeting Scheduled	
21.	Element 7 Cannabis Business Permit (PL19-0008)	Element 7	Construct a 7,000 square foot building for Cannabis manufacturing, distribution and non-storefront retail (Delivery) business.	1300 Green Island Road	4/10/19 Application submitted 9/29/20 Application on Hold 9/20/21 Applicant confirmed Hold status	Brent Cooper
22.	Reesan Live, Inc. Cannabis Business Permit (PL19-0024)	Reesan Live, Inc.	Construct an 82,328 sqft 2-story warehouse for cannabis cultivation, manufacturing, distribution and nonstorefront retail delivery.	834 Green Island Road	8/16/19 Application submitted. 4/1/20 Project on Hold 9/20/21 Applicant confirmed Hold status	Brent Cooper

Major Building/Grading Permits					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff Liaison**
1. SDG 217 Warehouse Building Permit (BP22-0436)	Building Permit for a 217,294 sqft warehouse	1075 Commerce Ct	10.38 acres	8/18/22 Application submitted 9/15/22 First Plan check 10/12/22 Application submitted 10/21/22 Second Plan check	Tom Trimberger
2. Napa Cove Improvement Plans and Grading (DV22-0001)	Grading and Improvement plans for the Napa Cove Apartment project.	3787 Broadway	3.48 acres	1/18/22 Application submitted 2/4/22 First Plan check 3/21/22 Grading permit approved	Edison Bisnar
3. Napa Cove Building Permits (BP22-0017, 0018, 0019)	Building Permits for the Napa Cove Apartment Project	3787 Broadway	3.48 acres	1/19/22 Application submitted 2/1/22 First Plan check 3/21/22 Permits issued	Tom Trimberger
4. PG&E Regional Center Improvement Plans (DV21-0018)	Improvement plans for the PG&E Regional Center	500 Boone Drive	24.5 acres	10/19/21 Application submitted 12/01/21 First Plan Check 01/13/22 Second Plan Check 02/14/22 Third Plan Check 02/22/22 Improvement Plans Approved	Edison Bisnar
5. Watson Ranch Lot 10 Rough grading and Subdivision Improvement Plans (DV21-0014, 0015)	Rough grading and site improvements for WRSP Lot 10	Northeast corner Marcus Road/Rio Del Mar East	27.17 acres	11/08/21 Application submitted 12/08/21 First Plan Check 01/03/22 Second Submittal 01/13/22 Second Plan Check 01/21/22 Third Submittal 1/24/22 Rough Grading Permit approved	Edison Bisnar
6. Watson Ranch Lot 10 Model Home Building Permits (BP21-0522, 0523)	Model Homes for Watson Ranch Lot 10	Northeast corner Marcus Road/Rio Del Mar East	27.17 acres	12/02/21 Application submitted 12/20/21 First Plan Check 02/10/22 Second Submittal 2/18/22 Second Plan Check 4/5/22 Applicant Submittal 4/7/22 Permit approved 9/2/22 Deferred Submittal 9/7/22 Permit approved	Tom Trimberger

7. Lemos Pointe Building Permit (BP21-0291 – BP21-0298	186 modular affordable apartment units	Northwest corner Marcus Road/Rio Del Mar East	6.7 acres	6/28/21 Application submitted 11/23/21 Building Permits issued	Tom Trimberger
8. Lemos Pointe Grading Permit (DV21-0007)	Rough grading for the Lemos Point Apartment Project	Northwest corner Loop Road/Rio Del Mar	6.7 acres	6/9/21 Application submitted 8/9/21 Application approved.	Edison Bisnar

Major Building/Grading Permits					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff Liaison**
9. Watson Ranch Lot 14/15 (Artisan) Grading and Improvement Plans (DV21-0012, 0013)	Rough grading and site improvements for WRSP Lot 14/15.	Northern terminus of Summerwood	11.97 acres	08/25/21 Application submitted 10/08/21 First Plan Check 10/29/21 Second Submittal 11/15/21 Rough Grading Permit approved 5/13/22 Improvement Plan approved	Edison Bisnar
10. Watson Ranch Lot 14/15 (Artisan) Model Home Building Permits (BP21-0513, 0514, 0515)	Model Homes for Watson Ranch Lot 14/15.	Northern terminus of Summerwood	11.97 acres	11/30/21 Application submitted 5/4/22 Permits approved 9/1/22 Remaining fee payment requested	Tom Trimberger
11. Napa Junction III Building 6B North Bay Urgent Care (BP19-0495)	Construct a 6,000 sqft single story medical office building.	416 Napa Junction Road	1.06 acres	11/26/19 Application submitted 2/13/20 Awaiting completion of improvement plans 9/30/20 Permit approved 5/25/21 Permit issued 6/27/22 Final construction documents submitted	Tom Trimberger
12. Fume Commercial Cannabis Will Serve (DV20-0014)	Extend reclaimed water line to supply irrigation demand of the project.	180 Klamath Court	1.37 acres	12/16/20 Will serve and wastewater study received 1/28/21 PC approved the CUP	Edison Bisnar

				3/26/21 Will Serve comments to the applicant.	

Major Building/Grading Permits					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff Liaison**
13. Canyon Estates (DV18-0023)	Improvement plans, grading plans, potable water pump station plans and Final Map.	Northeast corner Silver Oak/ Newell Drive	35 acres	10/31/18 Applicant submitted 4/17/19 3rd submittal received 5/22/19 Pump station submittal received 6/13/19 Grading and Improvement Plan Comments to applicant 7/14/20 Preconstruction meeting 3/19/21 Preconstruction meeting 3/22/21 Begin Construction 11/10/22 Civil Improvements are 95% complete	PW Engineering
14. Copart (DV20-0008)	Grading permit for an auto storage lot and office building Conditional Use Permit PL18-0019.	1587 and 1660 Green Island Road	20 acres	4/23/20 On-site private wastewater treatment system application submitted to the County 8/13/20 1st Submittal received 10/1/20 1st Plan Check returned 12/3/20 2nd Submittal received 2/11/21 2nd Plan Check returned 5/12/22 Grading Permit approved 11/10/22 Civil Improvements are 75% complete	Edison Bisnar
15. Home2Suites Will Serve and Improvement Plan (DV19-0015)	Will serve application and improvement plans for a 102-room hotel.	3701 Main Street	2.0 acres	9/5/19 Will Serve Application submitted 5/25/20 Improvement Plan Application submitted 4/5/22 Council approved fee reimbursement request 8/10/22 2nd Change Plan Approved	Edison Bisnar

Major Building/Grading Permits					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff Liaison**
16. Home2Suites Building Permit (BP19-0499)	Building permit for 102 room hotel.	3701 Main Street	2.0 acres	12/3/19 Application submitted 8/9/22 BP Issued	Interwest
17. Circle K and Fuel station Improvement Plans (DV20-0003)	STEM, LLC	Improvement plans for a new Circle K fuel station and convenience store.	112 Lombard 2.25 acres	4/13/20 Application submitted 10/4/21 Grading permit approved	Edison Bisnar
18. Circle K Fuel Station Building Permit (BP20-0457, BP20-0458)	STEM, LLC	New Circle K fuel station and convenience store.	112 Lombard 2.25 acres	10/14/20 Application submitted 10/25/21 Convenience store building permit issued 10/26/21 Gas Station canopy building permit issued	Interwest
19. PG&E Regional Center Improvement Plans (DV21-0018)	Turner Construction	Improvement plans for the PG&E Regional Center	500 Boone 11.96 acres	10/19/21 Application submitted 2/23/22 Improvement Plans approved	Edison Bisnar
20. Single Family Home Improvement Plans (DV21-0019)	Hoi Wong	Improvement plan for a new single-family home.	219 Rio Del Mar	11/17/21 Application submitted 5/12/22 Second Plan Check comments 9/23/22 Applicant explained project is on Hold for the winter	Edison Bisnar

Major City-Initiated Projects					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff**
1. Comprehensive General Plan Update	Review and update to bring the General Plan into conformance with current State standards and community values	Citywide	N/A	7/1/19 Drafting a Request for Proposal (RFP) 1/13/22 Modified "fast-track" technical update scope approved 6/7/22 City Council NOP approved 9/1/22 Administrative draft elements reviewed by staff	Brent Cooper
2. 6th Cycle Housing Element Update	Consistent with State Law, update the City's Housing Policies for an 8-year period 2023 - 2031	Citywide	N/A	9/1/20 Reviewing administrative draft documents 10/18/22 Joint CC/PC workshop scheduled	Brent Cooper
3. Paoli/Watson Lane Annexation (PL19-0003)	General Plan Amendment, rezoning, and annexation of the Paoli/Watson Lane Property.	Southeast of Paoli Loop/SR-29	80 acres	9/5/17 City Council authorization to proceed 5/28/20 City received a Property Owner notice of intent to circulate a petition to annex the Paoli Loop/Watson Lane Property. 5/16/22 Annexation efforts returned to City initiated. Consultant preparing CEQA scope documents. 9/7/22 NOP Comment period begins 9/21/22 NOP Workshop scheduled	City Manager

Major Regional Projects					
Project Name	**Description**	**Location**	**Area**	**Status**	**Staff Liaison**
1. Napa Valley Transportation Authority 2045 Countywide Transportation Plan	Update the 2015 NVTA Countywide Plan with new mobility priorities for the next 25 years.	Napa County	N/A	8/19 Project Kick-off 9/19 – 01/20 Public Input 01/21 Drafting the Plan	Alberto Esqueda (NVTA)
2. Regional Working Group on Climate Change	Countywide Working Group to evaluate efforts to adopt policies that will combat climate change.	Countywide	N/A	Most recent meeting: 2/26/21 Regular ongoing meetings continue.	Brent Cooper
3. Napa Valley Transportation Authority Highway 29 PID Study	Project Initiation Document (PID) for Highway 29 through American Canyon	American Canyon	N/A	10/4/21 NVTA and American Canyon workshop 2/16/22 NVTA Board of Directors voted to remove the six-lane option from future study.	Kate Miller