CITY OF MOLALLA
PLANNING COMMISSION MEETING REGULAR MEETING
AGENDA

Civic Center | 315 Kennel Ave
Wednesday, October 15, 2025 | 6:30 PM

NOTICE: Planning Commission Meeting will hold this meeting in-person and through video Live-Streaming on the City's Facebook Page and YouTube Channel. Written comments may be delivered to City Hall or emailed to recorder@cityofmolalla.com. Submissions must be received by 12:00 p.m. the day of the meeting.

This institution is an equal opportunity employer.

1. CALL TO ORDER AND FLAG SALUTE

2. ROLL CALL

3. CONSENT AGENDA

A. Planning Commission Meeting minutes – September 03, 2025.

4. PUBLIC COMMENT

Citizens are allowed up to 3 minutes to present information relevant to the city but not listed as an item on the agenda. Prior to speaking, citizens shall complete a comment form and deliver it to the support staff. The Planning Commission does not generally engage in dialog with those making comments but may refer the issue to the Community Development Director. Complaints shall first be addressed at the department level prior to addressing the Planning Commission.

5. PUBLIC HEARINGS

A. SDR02-2025 and Variances -318 Leroy Avenue - Staff Report (Zinder)

6. GENERAL BUSINESS

7. STAFF COMMUNICATION

8. COUNCIL COMMUNICATION

9. ADJOURN

Agenda posted at City Hall, Library, and the City Website at http://www.cityofmolalla.com/meetings.This meeting location is wheelchair accessible. Disabled individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the Community Development Office at 503-759-0243.

City of Molalla
Planning Commission - Regular Meeting Minutes
September 03, 2025
Molalla Civic Center | 315 Kennel Ave. | Molalla, OR

CALL TO ORDER
The Molalla Planning Commission Meeting of September 03, 2025 was called to order by Chairman Doug Eaglebear at 6:31 pm.

COMMISSIONER ATTENDANCE
Present: Commission Chair Doug Eaglebear, Commissioner Connie Sharp, Commissioner Clint Ancell, Commissioner Martin Ornelas, Commissioner David Potts, Commissioner Brady Rickey.
Absent: Commissioner Kristy Hodgkinson.

STAFF IN ATTENDANCE
Present: Community Development Technician, Jessica Wirth, Planning Manager, Dan Zinder, and Assistant City Manager, Mac Corthell.
Absent: Engineering Section Manager, Sam Miller, Engineer Technician, Landon Sheckard.

CONSENT AGENDA
A. Planning Commission Meeting Minutes – July 2, 2025

ACTION:
Commissioner Ancell moved to approve the Consent Agenda for July 2, 2025 Meeting Minutes with corrections; Commissioner Potts seconded.
AYES: Sharp, Ancell, Ornelas, Potts, Eaglebear, Rickey. **Motion passed 6-0-0.**
NAYS: None.
ABSENTIONS: None.

PUBLIC HEARING
None.

PUBLIC COMMENT
None.

GENERAL BUSINESS
1. Senate Bill 1537 Update – Assistant City Manager, Mac Corthell
   Mr. Corthell provided an update regarding Senate Bill 1537 and its impacts on quasi-judicial land use hearings. He explained conflicts within the statute regarding Type III Site Design Review. Following updated advice from the City Attorney (August 5, 2025), staff will continue processing Type III hearings in accordance with the Molalla Development Code until a clarifying amendment is adopted. Commissioners discussed liability protections when following City Attorney advice.
2. Urban Growth Boundary (UGB) and Housing Production Strategy – Senior Planner, Dan Zinder
   Mr. Zinder reported on the Housing Production Strategy (HPS) remand by DLCD and the City's continued collaboration with 3J Consulting to address required revisions. DLCD requested additional public process, more robust strategies, and stronger analysis of burdens vs. benefits. The City is revising the HPS with funding support from DLCD.
   He further updated the Commission on the broader UGB Amendment process. Concerns were raised about southern expansion due to infrastructure costs, environmental impacts, and topography. The City submitted a grant request to DLCD to fund a more robust cost analysis of additional sub-areas and additional public engagement. A decision on this grant is expected in September 2025.
3. Middle School Application and Meeting Schedule – Mr. Zinder requested rescheduling the October Planning Commission meeting from October 1 to October 15, 2025, to allow time for updated traffic counts related to the Molalla River School District middle school application. Commissioners agreed to move the meeting date to October 15.

STAFF COMMUNICATION

- **Community Development Technician, Jessica Wirth**, nothing to add.
- **Senior Planner, Dan Zinder,** Introduction of new Associate Planner, Claressa Davis, who will begin September 10, 2025, and attend the October 15 meeting.
- **Assistant City Manager, Mac Corthell,** – Chief Yelkus Park nearing completion with landscaping and fixtures to be finalized by late September. A ribbon-cutting ceremony is anticipated.
    - Work underway to clear and restore "Cemetery Park" with support from the Pudding River Watershed Council.
    - Cameras being installed at Oddfellows Park in partnership with MCC.
    - Wastewater Treatment Plant construction is progressing; potential project scope may allow early removal of lagoon sludge.
    - Police Station remains on schedule for December punch list and January 2026 move-in.
    - Water Intake project pre-design adopted; City pursuing funding from Business Oregon and potential $2 million federal allocation.
    - Strawberry Park is temporarily closed for drainage retrofits and is expected to reopen in spring 2026.

COMMISSION COMMUNICATION

- **Commissioner Ancell,** nothing to report.
- **Commissioner Hodgkinson,** nothing to report.
- **Commissioner Ornelas,** nothing to report.
- **Commissioner Potts,** nothing to report.
- **Chair Eaglebear,** Chair Eaglebear noted parking and traffic challenges around the middle school construction site and urged community patience during the project.

Commissioners discussed park activity monitoring, emphasizing the importance of reporting suspicious behavior.

ADJOURNMENT

Chair Eaglebear adjourned the meeting at 7:32pm.

PLANNING COMMISSION MEETINGS CAN BE VIEWED IN ITS ENTIRETY ON YOUTUBE "MOLALLA PLANNING COMMISSION – SEPTEMBER 3, 2025"

_____ _____

Doug Eaglebear, Planning Commission Chair Date

Submitted by: _____ _____

Jessica Wirth, Community Development Technician Date

Attest: _____ _____

Mac Corthell, Assistant City Manager Date

Planning & Community Dev.
315 Kennel Ave
PO Box 248
Molalla, Oregon 97038
Phone: (503) 759-0205
communityplanner@cityofmolalla.com

CITY OF MOLALLA STAFF REPORT

Consolidated Review for SDR02-2025, VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025 – New Middle School Building

Date:	October 8, 2025 for the October 15, 2025 Planning Commission Meeting
File No.:	Consolidated Review for for SDR02-2025, VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025
Proposal:	Construction of a New Middle School with associated parking, landscaping, and recreation fields.
Address:	318 Leroy Ave
Tax Lot:	Taxlot 3000 of Clackamas County Taxmap 52E08B
Applicant:	Heather Austin/3J Consulting 9600 SW Nimbus Avenue, Suite 100 Beaverton, Oregon 97008
Property Owners:	Ron Stewart – Molalla River School District 412 S Swiegle Avenue Molalla, OR 97038
Applicable Standards:	**Applicable Standards: Molalla Municipal Code, Title 17, Development Code** **Division II, Zoning Regulations** *Section 17-2.2.030 Allowed Uses* *Section 17-2.2.040 Lot and Development Standards* **Division III, Community Design Standards** *Section 17-3.2.040 Non-Residential Buildings* *Section 17-3.2.050 Civic Space and Pedestrian Amenities* *Chapter 17-3.3 Access and Circulation* *Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting*

Chapter 17-3.5 Parking and Loading
Chapter 17-3.6 Public Facilities

Division IV, Application Review Procedures and Approval Standards

Section 17-4.1.040 Type III Procedure (Quasi-Judicial Review – Public Hearing)
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EXHIBIT C: Consolidated Application Package for SDR02-2025, VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025

EXHIBIT D: Molalla Public Works Comments

EXHIBIT E: Molalla Fire Department Comments

EXHIBIT F: Oregon Department of Transportation Comments

EXHIBIT G: DSL Wetland Delineation and Concurrence

I. EXECUTIVE SUMMARY

Proposal:

The applicant is seeking approval for a Site Design Review and four variances for a new 95,238 SF, two-story middle school with associated parking, landscaping, recreational fields, and site improvements at 318 Leroy Avenue. The applicant proposes employee parking access from Lynn LN, bus and visitor/field access from N Hezzie LN, and visitor/drop off access from Leroy Ave. New playing fields are proposed to the south and west of the proposed building. Additionally, the Applicant proposes frontage improvements along Leroy Ave, West LN, Lynn LN, and N Hezzie LN.

The applicant is requesting four Variance approvals due to the unique safety needs associated with a Middle School:

- *Variance to Section 17-3.2.040.D.6:*
  The glazing area provided in the storefront area on the elevation facing Lynn Lane is 38 percent, or 63.4 percent the 60 percent glazing standard.

- *Variance to Section 17-3.2.040.D.9:*
  The total glazing area provided on the south elevation is 10 percent. The total glazing area on the west elevation is 21 percent.

- *Variance to Section 17-3.2.040.E.H:*
  These criteria requires that all elevations that orient to a street or civic space have a break in wall plane for not less than one break every 30 feet of building length. The elevation facing Leroy Ave has a break in wall plane of at least 24 inches with a maximum distance between breaks of 139 feet and a minimum distance of 10 feet. The average length of the wall plane is 56 feet.

- *Variance to Section 17-3.4.050,C.1:*
  This section requires that all light poles not exceed a height of 20 feet. The District is proposing 25-foot-high light poles within the parking areas.

Site Description:

The subject site is located on a 17.90 acre parcel and is the site of the existing Molalla Middle School, to be demolished prior to construction. The property is abutted by Lynn LN to the north, Leroy Ave to the east, West LN to the south, and N Hezzie LN to the west. Zoning for the properties is Public/Semi-Public (PSP). The property has a slight downward slope from east to west.

Surrounding Zoning and Land Uses:

The subject parcel is surrounded by residential uses zoned as R-1 (low-density residential) to the north, east, and southwest. Land directly south is zoned commercially (C-2, generally commercial) and has a mix of commercial and residential uses. To the

northwest is the Molalla River Elementary School, zoned public/semi-public (PSP).

Public Agency Responses:

Staff circulated notice of the project to the City's Public Works Division, Fire Marshal, the Oregon Department of State Lands, and the Oregon Department of Transportation for comment on August 15, 2025. The City has included responses from these agencies as Exhibits D-G. Agency comments have been integrated into the proposed findings and conditions of this decision, as applicable.

Public Notice and Comments:

Per MMC 17-4.1.040, notice of the public hearing was sent to all property owners within 300 feet of the subject properties and to a group of interested parties on September 16, 2025. Notice was published in the Molalla Pioneer on September 24, 2025 and posted on Molalla's website on September 22, 2025. Signage containing public notice information was posted on the property on September 29, 2025. As of October 8, 2025 Staff had received no written public comment on the application.

II. Recommendation for SDR02-2025 and VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025

Based on the application materials and findings demonstrating present or conditioned compliance with the applicable standards, staff recommends **approval** of Site Design Review SDR02-2025 and its associated Variances subject to the conditions of approval that follow this recommendation. This approval is based on the Applicant's written narrative, site plans, and supplemental application materials. Any modifications to the approved plans other than those required by the conditions of this decision will require a new land use application and approval.

III. Conditions of Approval for SDR02-2025 and VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025

1. Building Permits, Engineering Plan Approvals, and Certificate of Occupancy Required:

a. Per Molalla Municipal Code (hereinafter MMC) 17-4.2.070 and the State of Oregon Structural Specialty Code, upon approval of this Site Design Review, the applicant must submit for building permit authorization from Molalla Planning Staff and Engineering Plan Review from Molalla Public Works. Per MMC 17-4.2.070, this site design review has an approval period of 1-year from the date of approval. As a condition of approval, the Applicant/owner shall submit for both Building Permit Authorization for all proposed improvements through the City of Molalla Planning Division and Civil Plan Review through the City of Molalla Public Works Division within the 1-year approval period. Extension requests for the 1-year period are subject to the Code provisions of MMC 17-4.2.070, B.

b. Per MMC 17-4.9.020 and the State of Oregon Structural Specialty Code, upon approval of this Site Design Review (change of use), the applicant must obtain a Certificate of Occupancy from the Clackamas County Building Official. As a condition of approval, the Applicant/owner shall obtain a Certificate of Occupancy through the Clackamas County Building Official for all onsite occupants prior to operation of the new, proposed use/occupancy.

   Note: City approval is required for all Certificates of Occupancy.

2. Conditions Requiring Resolution Prior To Receiving Building Permit Authorization From The Molalla Planning Division:

a. The detail (drawing for Lynn LN) shows a 36-foot road width with parking allowed on both sides with a 20-foot driving surface down the middle. Lynn Ln is a dead-end access road in excess of 500 feet. If Lynn Ln is not being punched through before the end of the project, then a turn-a-round that meets the intent of Oregon Fire Code D103. will be required. Also see D103.4 This turn-a-round shall be posted as no parking.

b. Due to the travel lanes being less than 12 feet, the turning radius for fire apparatus will be 44/56. Please make note of this on your plans and adjust accordingly.

c. Applicant shall clearly mark pedestrian crossing areas where the public or private walkway meet the drive aisle with a crosswalk or contrasting paving materials in accordance with MMC 17-3.3.040 B 4.

d. Applicant shall clearly mark carpool/vanpool spaces and place them closest of non-ADA spaces to the building entrance, as proposed.

e. Separate engineering drawings reflecting the installation of public utilities will be required. Civil plans must be accepted prior to building permit authorization by the City. No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of this Code and the Public Works Design Standards. If applicant chooses improvement bonding applicant shall submit a performance bond, irrevocable stand-by letter of credit, or a cash deposit that meets the requirements in MSSPW section 1.15.9 for public improvements, in a form and substance satisfactory to the City.

   No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, bonding, right-of-way and easements have been obtained and approved by staff. Performance Bond shall be in place prior to issuance of permit and before any public construction begins. The sum of the Performance Bond will be based on Engineering Cost Estimates provided at the time of application submittal. All public improvements shall be completed and accepted by the Public Works Division prior to issuance of any occupancy (MMC 17-3.6.080).

   For commercial and industrial development projects, no building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provision of the Code and the Public Works Design Standards in accordance with MMC 17-3.6 Public Facilities. All public facilities shall be completed and accepted by the Public Works Division prior to issuance of final occupancy. Staff reserves the right to require

revisions/modifications to the public improvement construction plans and completed street improvements if additional modifications or expansion of the sight distance onto adjacent streets is required (MMC 17-3.6.080).

I. Plans submitted for review shall meet the requirements described in Section 1 of the Molalla Standard Specifications for Public Works Construction (MMC 17-3.6.080).

II. All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director (MMC 17-3.6.080).

III. All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Work's Standards (MMC 17-3.6.080).

IV. Applicant to provide turning radius drawings with civil plans to show that the proposed access accommodates movements from the largest vehicle entering the site.

V. The applicant shall conduct and submit to the City an offsite and onsite signage and traffic controls analysis to ensure that signs and control devices are adequate and appropriate to safely and efficiently manage vehicle, pedestrian, and bicycle traffic. The analysis must be stamped by an Engineer, certified in the State of Oregon, and proficient in traffic impact analyses.

Upon acceptance of the referenced analysis by the City, the applicant shall provide a signage and traffic control devices plan responsive to the analysis, and including all appropriate signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features as appropriate, for city review and approval. Upon acceptance by the City, the applicant shall install all signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features in the referenced plan. All installation and materials shall comply with the Molalla Municipal Code, Molalla Public Works Standards, MUTCD standards, and state law, as applicable.

VI. Leroy Ave: To bring Leroy Ave into compliance with the City of Molalla TSP, the applicant will be required to meet the cross section for major collectors that includes a turn lane,

but no parking lanes, which includes construction of a 12-foot center/turn lane, two 11-foot travel lanes, two 6-foot bike lanes, 0.5-foot curbs, gutters and 6-foot sidewalks on both sides of the street, and an additional 0.5-foot buffer behind each sidewalk. In relation to street improvements, the applicant shall fill in the sidewalk gaps per the TSP project P14 and enhance the crossing at Toliver Road and Leroy Avenue intersection per the TSP project P36.

Intersection improvement at Leroy Ave and Toliver RD: Applicant will be required to construct the turn lane improvements at Leroy Ave/Toliver Road intersection and enhance crossing per the TSP project P36.

Intersection improvement at Leroy Ave and OR-211: The applicant submitted full 9 warrant signal analysis at OR-211 and Leroy Ave during normal school hours as a supplemental report in this application, found in Exhibit C. If the analysis does not meet the threshold for signal construction at the Leroy Ave/OR-211 intersection, the applicant shall pay a proportionate share of costs based on the following equation, or an alternative equation agreed to by the City and the applicant's traffic consultant at the time of construction:

Trip Generation of the Development at drop-off + pickup times / Total Trips through intersection at drop-off + pickup times * cost estimate for signal.

N Hezzie Lane from West LN to the terminus at North Valley DR: To bring this portion of N Hezzie LN into compliance with the City of Molalla TSP, the applicant will be required to construct half street improvements along their frontage including 11-foot travel lane, 7-foot parking lane, 0.5-foot curb, gutter, a 6-foot sidewalk, and a 0.5-foot buffer behind the sidewalk.

Hezzie Lane from North Valley Drive to Lynn Lane: The applicant is currently engaged in a land swap with the City with terms to abandon this section of ROW to the applicant. If this land swap does not close, the applicant will be required to construct a full street improvement as a Neighborhood Street in accordance with the City's TSP. The city will work with the applicant to adjust the course of the street to avoid conflict with the existing football field if construction is required.

West LN: West Lane is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which exceeds the City of Molalla TSP standard for local streets. The street is currently developed with travel lanes only. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curbs and gutters on both side of the street, and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk.

Lynn Lane from Leroy Ave to the west side of the proposed Lynn Lane access: Lynn LN is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which exceeds the City of Molalla TSP standard for local streets. The street is currently developed as a gravel street that provides local access to the residents along Lynn Lane. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curb and gutter on both sides of the street, and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk.

VII. Applicant shall install roadway lighting in accordance with Public Work Design Standards. Location and number shall be determined during civil plan review.

VIII. Applicant to decommission existing 4-inch ewer service lateral located near the northeast corner of the property that served a demolished storage shed.

IX. All connections to Molalla sewerage system to be designed and constructed in conformance with Molalla Public Works Design Standards.

X. Applicant proposes installing a new 4-inch services connection from the 12-inch water main located within Leroy Ave, north of the existing service lateral, and will serve the new development. This standard shall be met subject to a condition of approval that all existing utilities remain operational to support the current school. Additionally, they must be properly abandoned according to Oregon State Plumbing laws and City Public Works standards at the time of the demolition of the existing buildings.

XI. Applicant shall submit a Public Works Permit and assurances in accordance with Section 1 of the Molalla Standard Specifications for Public Works Construction prior to any construction of public facilities.

XII. There is an existing 1-inch service located at the northeast portion of the property that served the existing storage building that was demolished during the grading phase of the project, and will need to be abandoned to the main line at the time of street improvements.

XIII. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, then applicants engineer shall coordinate with Public Works for the extension of public waterline. Public waterlines shall be 8 inches in diameter, meeting City of Molalla Public Works Standards, and all

public water lines and hydrants shall be within a public utility easement approved by the Public Works Department. Looping of the water line may impact the existing 6-inch water main within Lynn Lane at which time the development shall upsize the waterline to a 8-inch line to meet fire flow or as advised by the City.

XIV. Applicant shall confirm that the turning radius for the new parking area can accommodate fire apparatus in their engineering plan submittals. Applicant may widen proposed approaches as required by the Molalla Fire Department. Applicant shall provide a Knox override key or a fire department code for the security gate to the Molalla Fire Department prior to occupancy. If a code is to be used, the code must keep the gate open until fire department staff leave the area.

XV. General Public ROW Stormwater Condition: The applicant shall design and construct stormwater facilities, in conjunction with required and voluntary improvements, that comply with the City's stormwater master plan and public works design standards as well as any other applicable state or federal law or rule. The stormwater facilities will not be connected to upstream storm infrastructure, so no upstream analysis is required. The stormwater facilities shall be sized and/or controlled in accordance with a downstream capacity analysis, accepted by the City, and performed and stamped by an engineer certified in the State of Oregon to conduct stormwater design and analysis. The analysis shall extend from the point of intake downstream to a point in the drainage system where the additional flow from the proposed development site constitutes 10% or less of the total tributary drainage flow.

1. Lynn Lane is an undeveloped street that currently has an inadequate stormwater system. The existing system consists of an open ditch on the south side of the street. As part of the requirements for this development's frontage improvements, the applicant will be required to extend the public stormwater system along Lynn Lane from Leroy Avenue to Hezzie Lane.

2. West Lane, Hezzie Lane, and Leroy Ave are all served by existing stormwater infrastructure. The applicant shall ensure appropriate capacity of the existing system, where capacity is insufficient applicant shall propose upsizing the existing system and/or provide for sufficient flow control to ensure appropriate handling of runoff, all subject to City approval. Applicant will also be required to tie in all catch basins to the existing or upsized system as applicable.

3. The applicant has submitted a wetland delineation report prepared by AKS Engineering & Forestry, LLC to the Department of State Lands. The applicant shall comply with the regulatory requirements outlined by the Oregon Department of State Lands as stated in the approval letter referenced as WD#2025-0090. Additionally, the applicant must adhere to the requirements set by the Oregon

Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the National Marine Fisheries Service, and any other relevant state and federal agencies if any watercourses, drainages, or channels are identified within the development area.

Onsite Stormwater Condition: Applicant will be required to submit design and construction requirements for stormwater and surface water management at the time of Public Works Permit for the onsite private storm system for detention and water quality prior to discharge into a public facility. Design shall be in accordance with Section 3 of the Molalla Standard Specifications for Public Works Construction and Stormwater Master Plan. On-site private storm system shall comply with state plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit. in Accordance with MMC 13.13 Surface Water Management.

XVI. All utilities to the project shall be served underground services. No overhead crossings of public right of way shall be approved by the city (MMC 17-3.6.060).

XVII. Work in a public right-of-way shall not begin until all applicable agency permits have been approved and issued.

XVIII. All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated, or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff (MMC 17-3.6.080).

XIX. The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards and supply the City with a copy of the final document (MMC 17-3.6.080).

XX. General Erosion Control – The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance (MMC 17-3.6.080).

3. Conditions To Be Met Prior To Construction

a. The Applicant shall obtain an approach permit from the City prior to construction. Approach permitting is tied to the right-of-way permit application.

b. Temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.

c. All conditions of EXG02-2025 to be completed

d. Applicant shall submit a Public Works Permit and assurances in accordance with Section 1 of the Molalla Standard Specifications for Public Works Construction prior to any construction of public facilities.

e. If work is discontinued for more than six months, it shall not be resumed until the Public Works Director is notified in writing and grants approval of an extension.

f. Improvements shall be constructed under the inspection of the City Engineer. The City Engineer may approve minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest, except that substantive changes to the approved design shall be subject to review under Chapter 17-4.5 Modifications to Approved Plans and Conditions of Approval. Any survey monuments that are disturbed before all improvements are completed by the developer or subdivider shall be replaced at the developer or subdivider's expense prior to final acceptance of the improvements.

4. Conditions To Be Met Prior To Occupancy:

g. All landscaping, parking, lighting, and other improvements shall be installed and approved by the Planning Official prior to occupancy (MMC 17-3.5.020 B).

h. Engineer's Certification and As-Built Plans. In accordance with the current version of the Public Works Design Standards, a registered civil engineer shall provide written certification in a form required by the City that all improvements, workmanship, and materials meet current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to City's acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide two sets of "as-built" plans, one paper set and one electronic set for permanent filing with the City. If required by the City, the developer or subdivider shall provide a warranty bond pursuant to Section 17-3.6.100. (Ord. 2017-08 §1

i. Applicant will be required to dedicate a 10-foot-wide public utility easement (PUE) fronting the public right-of-way if one does not exist and provide a copy of the recorded dedication prior to occupancy. No structures are allowed to encroach into the easement. Applicant shall be required to submit a legal description and exhibit map for review and sign City easements. Once completed, applicant will be required to record easements with the County Recorder's Office and return the original document to the City prior to final occupancy. If an existing PUE exists, applicant shall provide proof of the existing dedication.

j. Warranty Bond shall be in place prior to final completion and acceptance of the project and meeting the requirements in subsection 1.15.9 of the Molalla Standards and subject to all easements and legal documents have been recorded with the County.

5. Ongoing Conditions:

a. All contractors and subcontractors performing work on this property shall obtain and maintain a valid, current business license with the City of Molalla.

b. All primary building entrances shall open to the public or private sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable (MMC 17-3.2.040 D). All approaches and driveways shall meet ADA accessibility requirements where they coincide with an accessible route (MMC 17-3.3.030 D 15). Parking shall be provided consistent with ADA requirements (MMC 17-3.5.030 H).

c. No visual obstructions shall be placed in vision clearance areas (MMC 17-3.3.030 G).

d. No proposed fencing shall be made of prohibited materials, as detailed in MMC 17-3.4

e. All landscaping shall be maintained in good condition, or otherwise replaced by the property owner (MMC 17-3.4.030 G).

f. Fences and walls shall be maintained in good condition, or otherwise replaced by the property owner (MMC 17-3.4.040 F).

g. As an ongoing condition of approval, all outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner (MMC 17-3.4.050 C).

Exhibit A:

City Staff's Findings of Fact for SDR02-2025

Per MMC 17-4.2.050, an application for Site Design Review shall be approved if the proposal meets all of the following criteria. The Planning Official, in approving the application, may impose reasonable conditions of approval, consistent with the applicable criteria;

A. The application is complete, in accordance with Section 17-4.2.040;

Findings: The City received the Applicant's proposal on May 30, 2025 and deemed it complete in accordance with Section 17-4.2.040 on July 31, 2025.

17-2.2.030 Allowed Uses

Findings: The Applicant proposes to construct a 115,360 SF replacement middle school on the subject site. The project includes an entry plaza, athletic fields, outdoor play area, and parking. The proposed use falls into the "School, Secondary" use category under Public and Institutional Uses from *MMC Table 17-2.2.030 Uses Allowed by Zoning District*. Secondary schools are permitted in the PSP zone. This standard is met.

17-2.2.040 Lot and Development Standards

Findings:

Minimum Lot Area – There is no minimum lot size in the PSP zone. The proposed lots are of adequate size to accommodate the proposed development. This standard is met.

Minimum Lot Width and Depth – There is no minimum lot width or depth the PSP zone. The proposed lots are of adequate size to accommodate the proposed development. This standard is met.

Building and Structure Height – Maximum building height in the PSP zone is 55ft. The maximum height of the proposed structure is 37ft. This standard is met.

Maximum Lot Coverage – There is no maximum lot coverage standard in the PSP zone. This standard does not apply.

Minimum Landscape Area % (includes required parking lot, landscaping, and required screening) Minimum landscaped area in the PSP zone is 10%. The Applicant proposes 33,458 SF of planting area, 41,906 SF of meadow, 21,938 SF of lawn area. This accounts for 12.4% of the site and the

standard is met with these assumptions. Including areas of stormwater swales and proposed athletic fields, 426,605 SF of the total site, or 58%, has permeable surface cover. This standard is met.

Minimum Setbacks -

Front Setback Requirement: 0ft – This standard is met.
Garage Setback Requirement: 20ft – No garages are proposed. This standard does not apply.
Alley: 3ft - This property does not abut an alley. This standard does not apply.
Adjacent to R Districts: 10ft – This proposal is adjacent to residential districts on its north and east sides. The proposed building is set back more than 10' from any property lines. This standard is met.

Build to Line: Build to Line does not apply in PSP zone. Building is connected to public walkway and parking areas by pedestrian oriented civic space and walkways.

B. The proposal includes required upgrades, if any, to existing development that does not comply with the applicable zoning district standards, pursuant to Chapter 17-1.4 Nonconforming Situations;

The existing middle school structure on the subject site is proposed for demolition. As such, the pre-existing, nonconforming status of the existing site does not apply. The proposal will bring all onsite improvements to City Standards except as specified through the proposed variances. Offsite improvements will bring frontages along the subject site to City standards.

C. The proposal complies with all the Development and Design Standards of Division III, as applicable:

Findings: Applicable Standards under Division III. Community Design Standards for this project include:

Section 17-3.2.040 Non-Residential Buildings
Chapter 17-3.3 Access and Circulation
Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting
Chapter 17-3.5 Parking and Loading
Chapter 17-3.6 Public Facilities

17-3.2.040 Non-Residential Buildings

A. **Purpose and Applicability.** The following requirements apply to non-residential development, including individual buildings and developments with multiple buildings such as shopping centers, office complexes, mixed-use developments, and institutional campuses. The standards are intended to create and maintain a built environment that is conducive to pedestrian accessibility, reducing dependency on the automobile for short trips, while providing civic space for employees and customers, supporting natural surveillance of public spaces, and creating human-scale design. The standards require buildings placed close to streets, with storefront windows (where applicable), with large building walls divided into smaller planes, and with architectural detailing.

Findings: This section applies to the proposed middle school as it is an institutional campus.

B. **Building Orientation.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. Buildings subject to this section shall conform to the applicable build-to line standard in Table 17-2.2.040.E, as generally illustrated in Figure 17-3.2-6. The standard is met when at least 50 percent of the abutting street frontage has a building placed no farther from at least one street property line than the build-to line in Table 17-2.2.040.E; except in the Central Commercial C-1 zone, at least 80 percent of the abutting street frontage shall have a building placed no farther from at least one street property line than the required build-to-line. The Planning Official, through Site Design Review, may waive the build to line standard where it finds that one or more of the conditions in subdivisions a through g occurs.

[..]

Findings: Build to Line does not apply in PSP zone. Building is connected to public walkway and parking areas by pedestrian oriented civic space and walkways. This standard does not apply.

2. Except as provided in subsections C.5 and 6, all buildings shall have at least one primary entrance (i.e., tenant entrance, lobby entrance, breezeway entrance, or courtyard entrance) facing an abutting street (i.e., within 45 degrees of the street property line); or if the building entrance must be turned more than 45 degrees from the street (i.e., front door is on a side or rear elevation) due to the configuration of the site or similar constraints, a pedestrian walkway must connect the primary entrance to the sidewalk in conformance with Section 17-3.3.040.

Findings: The proposed building has a primary entrance on the eastern side that is connected to the public sidewalk along Leroy Avenue and Lynn Lane via a private walkway. This standard is met.

3. Off-street parking, trash storage facilities, and ground-level utilities (e.g., utility vaults), and similar obstructions shall not be placed between building entrances and the street(s) to which they are oriented. To the extent practicable, such facilities shall be oriented internally to the block and accessed by alleys or driveways.

Findings: The Applicant's submitted site plans show a proposed trash enclosure to the east of the gym entrance on the south side of the building. It is accessed by the driveway extending from N Hezzie LN and is not visible from the right-of-way nor will pedestrians need to pass by it on their way to the gym entrance from the adjacent roadways and lots. This standard is met.

4. Off-street parking shall be oriented internally to the site to the extent practicable, and shall meet the Access and Circulation requirements of Chapter 17-3.3, the Landscape and Screening requirements of Chapter 17-3.4, and the Parking and Loading requirements of Chapter 17-3.5.

Findings: All proposed parking is provided internally to the site. The new campus has been designed with on-site parking dispersed within three lots on the site. The lot to the north of the school between the school building and Lynn Avenue will provide parking mainly for school staff. The parking lot south of the building will primarily be used for bus loading/unloading and event parking. The main entrance to the site will be located on Leroy Avenue and will connect to the main building entrance. This parking lot will act as a parent drop-off and pick-up lot, with parking and on-site queueing. The main entrance and main parking lot are located to provide safe and clear access to students and parents during drop-off and pick-up times. The location also provides a natural sight line from the administrative offices to the on-site visitor parking. This standard is met.

1. Where a development contains multiple buildings and there is insufficient street frontage to meet the above building orientation standards for all buildings on the subject site, a building's primary entrance may orient to plaza, courtyard, or similar pedestrian space containing pedestrian amenities and meeting the requirements under Section 17-3.2.050, subject to Site Design Review approval. When oriented this way, the primary entrance(s), plaza, or courtyard shall be connected to the street by a pedestrian walkway conforming to Section 17-3.3.040.

Findings: The proposal is for a single building. This standard does not apply.

C. **Large-Format Developments.** Plans for new developments, or any phase thereof, with a total floor plate area (ground floor area of all buildings) greater than 35,000 square feet, shall meet all of the following standards in subsections C.1 through 9, as generally illustrated in Figure 17-3.2-7. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

Findings: The proposed building is 95,238 SF. These standards apply and are addressed below.

1. The site plan or preliminary subdivision plan, as applicable, shall comply with the street connectivity standards of Section 17-3.6.020. The plan approval shall bind on all future phases of the development, if any, to the approved block layout.

Findings: The subject property is a single lot abutted by right of way on all sides. Improvements shall be made to the existing right-of-way on the adjacent frontages that increase ROW connectivity but no onsite connectivity is required. This standard is met.

2. Except as provided by subsections C.6 through 9, the site shall be configured into blocks with building pads that have frontage onto improved streets meeting City standards, and shall contain interior parking courts and with interconnected pedestrian walkways.

Findings: The subject property is a single lot that abuts streets to the north, east, south, and west. Improvements shall be made to the existing right-of-way on the adjacent frontages that increase ROW connectivity but no onsite connectivity is required.. All parking is interior to the site and pedestrian walkways connect all entrances and public sidewalks. As addressed in C8, interior drive aisles serve as “shopping streets” to provide appropriate access to each entry. This standard is met.

3. The build-to line standards in Table 17-2.2.040.E shall be met across not less than 75 percent of the site's street frontage, consistent with subsection 17-3.2.040.B, except the build-to standard does not apply where a railroad, expressway, water body, topographic constraint, or similar physical constraint makes it impractical to orient buildings to a particular street or highway.

Findings: The build-to line standards do not apply to the PSP zone. This standard is met.

4. Walkways shall connect the street right-of-way to all primary building entrances, and shall connect all primary building entrances to one another, including required pedestrian crossings through interior parking areas, if any, in accordance with Section 17-3.3.040. The Planning Official may condition development to provide facilities exceeding those required by Section 17-

3.3.040, including a requirement for lighting, stairways, ramps, and midblock pedestrian access ways (e.g., to break up an otherwise long block) to ensure reasonably safe, direct, and convenient pedestrian circulation. Development in the right-of-way shall be approved by the City Engineer.

Findings: The submitted site plan shows walkways that connect the building entrances to street right-of way, as well as to parking areas. This standard is met.

5. Buildings placed at a block corner shall have a primary entrance oriented to the block corner. That entrance shall be located no more than 20 feet from the corner, as measured from the street curb and shall have a direct and convenient pedestrian walkway connecting to the corner side-walk.

Findings: The proposed building does not orient to the corner but to a “shopping street” provided from Leroy Ave. Shopping street driveways and interior parking provide vehicular access to the building and pedestrian amenities are provided in relation to those private drives . A robust walkway system connects the proposed building entrances to the public sidewalk.

6. All buildings shall orient to a street, pursuant to subsection B. Where it is not practical to orient all buildings to streets due to existing parcel configuration or a similar site constraints, buildings may orient to a "shopping street" providing, at a minimum, on-street parking (parallel or angled parking), 10-foot sidewalks (which shall include a four-foot zone for street trees and furnishings such as benches and other street furniture), and pedestrian-scale lighting. Shopping street dimensions do not apply to the public right-of-way.

Findings: The main building entrance is oriented towards a “shopping street” appropriate for public facilities buildings that extents from Leroy Avenue and a bus access is oriented towards a second “shopping street” from N Hezzie LN. This standard is met.

7. Each building that is proposed as orienting to a shopping street shall comply with the orientation standards of subsection B in reference to the shopping street, and shall have at least one primary entrance oriented to the shopping street.

Findings: Both the main entrance and bus access entrance are oriented towards “shopping streets.” This standard is met.

8. Where a building fronts both a shopping street and a public street, that building shall contain at least one primary entrance oriented to each street; except that an entrance is not required where the public street is not improved with a sidewalk and the City determines that sidewalk

improvements to the public street cannot be required as a condition of approval.

Findings: The two main entrances of the building are oriented towards shopping streets from Leroy Ave and N Hezzie LN. This standard is met.

9. All other provisions of this Code apply to large-format developments.

Findings: This section is informational.

D. **Primary Entrances and Windows.** The following standards, as generally illustrated in Figures 17-3.2-8 and 17.3.2-9, apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **All Elevations of Building.** Architectural designs shall address all elevations of a building. Building forms, detailing, materials, textures, and color shall contribute to a unified design with architectural integrity. Materials used on the front façade must turn the building corners and include at least a portion of the side elevations, consistent with the overall composition and design integrity of the building.

Findings: All elevations of the building have been designed to contribute to a unified design with architectural integrity. The building form, detailing, materials, textures, and colors are complimentary to each other on all building elevations. The building elevations will feature a mix of brick, fiber cement paneling, and metal paneling. Other materials used throughout the building will include concrete, wood, curtainwall window systems, and gluelam wood structural elements. The materials used are consistent across all elevations and are appropriate for an institutional school building. This standard is met.

2. **Pedestrian Entrances.** Ground level entrances oriented to a street shall be at least partly transparent for natural surveillance and to encourage an inviting and successful business environment. This standard may be met by providing a door with a window or windows, a transom window above the door, or sidelights beside the door. Where ATMs or other kiosks are proposed on any street-facing elevation, they shall be visible from the street for security and have a canopy, awning, or other weather protection shelter.

Findings: The primary entrance has been located facing Leroy Avenue and will be constructed of a metal and glazing curtain wall system with a gluelam roof structure that provides transparency for natural surveillance while providing weather protection. No ATMs or kiosks are proposed. This standard is met.

3. Corner Entrances. Buildings on corner lots are encouraged to have corner entrances. Where a corner entrance is not provided, the building plan shall provide an architectural element or detailing (e.g., tower, beveled corner, art, special trim, etc.) that accentuates the corner location.

Findings: The proposed building is located on a corner lot; however, a corner entrance is not proposed. The building is placed on site to most efficiently use and be integrated with the surrounding site. A monument sign and landscaping are proposed to be located at the corner to accentuate the corner location. This standard is not binding, and the proposed deviation better serves the needs of the applicant.

4. Street Level Entrances. All primary building entrances shall open to the sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable. Primary entrances above or below grade may be allowed where ADA accessibility is provided.

Findings: This standard is met subject to a condition of approval. The applicant's narrative states that all primary building entrances will open to the on-site pedestrian network, which conforms to ADA requirements. As a condition of approval all primary building entrances shall open to the either the public or private sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable.

5. Windows—General. Except as approved for parking structures or accessory structures, the front/street-facing elevations of buildings shall provide display windows, windowed doors, and where applicable, transom windows to express a storefront character.

Findings: The proposed school is not a commercial building, and storefront windows are not appropriate for the design of the school across the entire elevation. The school building will have windows and window doors along all elevations that provide visual interest and relief on the facades and transparency within internal building spaces. The proposed windows and doors at the building entry express a storefront character to the extent practicable for a school use. This standard is met.

6. Storefront Windows. Storefront windows shall consist of framed picture or bay windows, which may be recessed. Framing shall consist of trim detailing such as piers or pilasters (sides), lintels or hoods (tops), and kick plates or bulkheads (base)—or similar detailing—consistent with a storefront character. The ground floor, street-facing elevation(s) of all buildings shall comprise at least 60 percent transparent windows, measured as a section extending the width of the street-facing elevation between the building base (or 30 inches above the sidewalk grade, whichever is less) and a plane 72 inches above the sidewalk grade.

Findings: The proposed building is not a commercial building, and storefront windows are not appropriate for the design of the school. The design of the school building will utilize the strategic placement of glazing and window elements to provide beneficial daylight within the school building, connection of interior spaces to the site and to emphasize transparency within the building. The school building has two street facing elevations, one on Leroy Avenue and one on Lynn Lane. The total glazing area between 30 inches and 72 inches facing Lynn Lane is 38 percent. The total glazing area between 30 inches and 72 inches facing Leroy Avenue is 36 percent. This does not meet the 60% glazing standard. The applicant has proposed an variance to this standard which will be evaluated in Exhibit B. Standard is met subject to variance approval.

7. Defined Upper Story(ies). Building elevations shall contain detailing that visually defines street level building spaces (storefronts) from upper stories. The distinction between street level and upper floors shall be established, for example, through the use of awnings, canopies, belt course, or similar detailing, materials, or fenestration. Upper floors may have less window area than ground floors, but shall follow the vertical lines of the lower level piers and the horizontal definition of spandrels and any cornices. Upper floor window orientation shall primarily be vertical, or have a width that is no greater than height. Paired or grouped windows that, together, are wider than they are tall, shall be visually divided to express the vertical orientation of individual windows.

Findings: The north end of the school building has been designed with two stories. The two-story section of the building features defined upper stories. The lower and upper story are visually divided by a belt course that continues across the two-story sections of the building, consisting of either brick or metal paneling. The upper floors follow the vertical lines of the lower levels. Upper-level windows have been oriented vertically within window groupings. Window mullions are laid out to reinforce the vertical nature of the punched window openings. This standard is met.

8. Buildings Not Adjacent to a Street. Buildings that are not adjacent to a street or a shopping street, such as those that are setback behind another building and those that are oriented to a civic space (e.g., internal plaza or court), shall meet the 60 percent transparency standard on all elevations abutting civic space(s) and on elevations containing a primary entrance.

Findings: The proposed building is adjacent to a shopping street extending from Leroy Ave and Lynn LN. This standard does not apply.

9. Side and Rear Elevation Windows. All side and rear elevations, except for zero lot line or common wall elevations, where windows are not required, shall provide not less than 30 percent transparency.

Findings: Applicant does not meet the 30 percent transparency requirement on the side and rear elevations. The south facing elevation has a total glazing area of 10 percent. The west facing elevation has a total glazing area of 21 percent. The Applicant has proposed a variance to this standard which will be evaluated in in Exhibit B. This standard is met subject to variance approval.

10. **Window Trim.** At a minimum, windows shall contain trim, reveals, recesses, or similar detailing of not less than four inches in width or depth as applicable. The use of decorative detailing and ornamentation around windows (e.g., corbels, medallions, pediments, or similar features) is encouraged.

Findings: The Applicant's submitted narrative states that the windows have been designed with recesses of four inches. This standard is met

11. **Projecting Windows, Display Cases.** Windows and display cases shall not break the front plane of the building (e.g., projecting display boxes are discouraged). For durability and aesthetic reasons, display cases, when provided, shall be flush with the building façade (not affixed to the exterior) and integrated into the building design with trim or other detailing. Window flower boxes are allowed, provided they do not encroach into the pedestrian through-zone.

Findings: The Applicant has not proposed any projecting windows or display cases. This standard does not apply.

12. **Window Exceptions.** The Planning Official may approve an exception to the above standards where existing topography makes compliance impractical. Where it is not practicable to use glass, windows for parking garages or similar structures, the building design must incorporate openings or other detailing that resembles window patterns (rhythm and scale).

Findings: The applicant is not requesting any window exceptions. This standard does not apply.

E. **Articulation and Detailing.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Articulation.** All building elevations that orient to a street or civic space shall have breaks in the wall plane (articulation) of not less than one break for every 30 feet of building length or width, as applicable, pursuant to the following standards, which are generally illustrated in Figures 17-3.2-10, 17-3.2-11, and 17-3.2-12.

a. A “break” for the purposes of this subsection is a change in wall plane of not less than 24 inches in depth. Breaks may include, but are not limited to, an offset, recess, window reveal, pilaster, frieze, pediment, cornice, parapet, gable, dormer, eave, coursing, canopy, awning, column, building base, balcony, permanent awning or canopy, marquee, or similar architectural feature.
b. The Planning Official through Site Design Review may approve detailing that does not meet the 24-inch break-in-wall-plane standard where it finds that proposed detailing is more consistent with the architecture of historically significant or historic-contributing buildings existing in the vicinity.
c. Changes in paint color and features that are not designed as permanent architectural elements, such as display cabinets, window boxes, retractable and similar mounted awnings or canopies, and other similar features, do not meet the 24-inch break-in-wall-plane standard.
d. Building elevations that do not orient to a street or civic space need not comply with the 24-inch break-in-wall-plane standard but should complement the overall building design.

Findings: The articulation and detailing requirements of this section are applicable to the elevations facing Leroy Avenue and Lynn Lane. Articulation has been provided on the elevations facing Lynn Lane and Leroy Avenue, however the requirement to provide a 24 inch break every 30 feet is not met for the entirety of either elevation. The Applicant has proposed a variance to these standards which will be evaluated in response to the variance proposal in Exhibit B. This standard is met subject to variance approval.

2. Change in Materials. Elevations should incorporate changes in material that define a building’s base, middle, and top, as applicable, and create visual interest and relief. Side and rear elevations that do not face a street, public parking area, pedestrian access way, or plaza may utilize changes in texture and/or color of materials, provided that the design is consistent with the overall composition of the building.

Findings: The Applicant’s submitted elevations show that the building has been designed with a mix of brick fiber cement paneling and metal paneling. The materials have been selected in order to emphasize the buildings base, middle and top as applicable and create visual interest and relief. A continuous brick course is maintained around the base of the building in order to emphasize the building’s base. The use of both metal paneling and windows provides definition of the middle of the building. A roof line provides definition of the top of the building. This standard is met.

3. Horizontal Lines. New buildings and exterior remodels shall generally follow the prominent horizontal lines existing on adjacent buildings at similar levels along the street frontage. Examples of such horizontal lines include, but are not limited to: the base below a series of storefront windows, an awning or canopy line, a belt course between building stories, a cornice, or a parapet line. Where existing adjacent

buildings do not meet the City's current building design standards, a new building may establish new horizontal lines.

Findings: There are not adjacent buildings to the school building which establish prominent horizontal lines. The school building has been designed with new horizontal lines, including a base below the windows and a belt course that is maintained between the first and second floors. This standard is met.

4. **Ground Floor and Upper Floor Division.** A clear visual division shall be maintained between the ground level floor and upper floors, for example, through the use of a belt course, transom, awning, canopy, or similar division.

Findings: A belt course has been maintained between the first and second floor. This standard is met.

5. **Vertical Rhythms.** New construction or front elevation remodels shall reflect a vertical orientation, either through breaks in volume or the use of surface details

Findings: The Applicant's submitted narrative states that vertical rhythms are provided on the elevations of the building through the use of windows with brick and paneling materials to provide breaks in the volume and surface details. This standard is met.

F. **Pedestrian Shelters.** The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Minimum Pedestrian Shelter Coverage.** Permanent awnings, canopies, recesses, or similar pedestrian shelters shall be provided along at least 75 percent of the ground floor elevation(s) of a building where the building abuts a sidewalk, civic space, or pedestrian access way. Pedestrian shelters used to meet the above standard shall extend at least five feet over the pedestrian area; except that the Planning Official, through Site Design Review, may reduce the above standards where it finds that existing right-of-way dimensions, easements, or building code requirements preclude standard shelters. In addition, the above standards do not apply where a building has a ground floor dwelling, as in a mixed-use development or live-work building, and the dwelling has a covered entrance. The Planning Official shall waive the above standards if the pedestrian shelter would extend into the right-of-way and the roadway authority does not allow encroachments in the right-of-way.

Findings: The school campus has several walkways and outdoor pedestrian areas which do not abut the building therefore are exempt from the pedestrian shelter requirement. The main entrance and southern entrance are covered to provide pedestrian shelter coverage in

accordance with the requirements of this section. Courtyard shelters are also provided in accordance with these requirements. This standard is met.

2. **Pedestrian Shelter Design.** Pedestrian shelters shall comply with applicable building codes, and shall be designed to be visually compatible with the architecture of a building. If mezzanine or transom windows exist, the shelter shall be below such windows where practical. Where applicable, pedestrian shelters shall be designed to accommodate pedestrian signage (e.g., blade signs), while maintaining required vertical clearance.

Findings: Staff finds that the Applicant's proposed pedestrian shelters are designed in visual concert with the design of the building. This standard is met.

G. Mechanical Equipment.

1. **Building Walls.** Where mechanical equipment, such as utility vaults, air compressors, generators, antennae, satellite dishes, or similar equipment, is permitted on a building wall that abuts a public right-of-way or civic space, it shall be screened pursuant to Chapter 17-3.4. Standpipes, meters, vaults, and similar equipment need not be screened but shall not be placed on a front elevation when other practical alternatives exist; such equipment shall be placed on a side or rear elevation where practical.

Findings: Mechanical equipment is not provided on the building walls. This standard does not apply.

2. **Rooftops.** Except as provided below, rooftop mechanical units shall be set back or screened behind a parapet wall so that they are not visible from any public right-of-way or civic space. Where such placement and screening is not practicable, the Planning Official may approve painting of mechanical units in lieu of screening; such painting may consist of colors that make the equipment visually subordinate to the building and adjacent buildings, if any.

Findings: The mechanical equipment provided on the rooftop has been setback and screened so that it is not visible from any public right-of-way or civic space. This standard is met.

3. **Ground-Mounted Mechanical Equipment.** Ground-mounted equipment, such as generators, air compressors, trash compactors, and similar equipment, shall be limited to side or rear yards and screened with fences or walls constructed of materials similar to those on adjacent buildings. Hedges, trellises, and similar plantings may also be used as screens where there is adequate air circulation and sunlight, and irrigation is provided. The City may require additional setbacks and noise attenuating equipment for compatibility with adjacent uses.

Findings: The school's generator and trash compactor are located within a building recess and screened from view with an eight foot tall solid wall and gate. This standard is met.

H. **Civic Space.** Commercial development projects shall provide civic space pursuant to Section 17-3.2.050.

Findings: Civic space is not required within the PSP zone. These standards do not apply to this application.

I. **Drive-Up and Drive-Through Facilities.** Drive-up and drive-through facilities shall comply with the requirements of Section 17-3.2.060. (Ord. 2017-08 §1)

Findings: This application does not include any drive-up and drive-through facilities. These standards do not apply.

17-3.3.030 Vehicular Access and Circulation

A. **Purpose and Intent.** Section 17-3.3.030 implements the street access policies of the City of Molalla Transportation System Plan. It is intended to promote safe vehicle access and egress to properties, while maintaining traffic operations in conformance with adopted standards. "Safety," for the purposes of this chapter, extends to all modes of transportation.

B. **Permit Required.** Vehicular access to a public street (e.g., a new or modified driveway connection to a street or highway) requires an approach permit approved by the applicable roadway authority.

Findings: This condition is met subject to a condition of approval. The applicant proposes that the site be accessed from three access points; an employee parking access from Lynn LN, bus and visitor/field access from N Hezzie LN, and a visitor/drop off access from Leroy Ave. As a condition of approval, the Applicant shall obtain an approach permit from the City prior to construction. Approach permitting is tied to the right-of-way permit application.

C. **Traffic Study Requirements.** The City, in reviewing a development proposal or other action requiring an approach permit, may require a traffic impact analysis, pursuant to Section 17-3.6.020, to determine compliance with this Code.

Findings: The Applicant submitted a Traffic Impact Study (TIS) prepared by Lancaster Mobley, a Registered Engineer, and addressing the appropriate standards as part of their submitted application package.

D. **Approach and Driveway Development Standards.** Approaches and driveways shall conform to all of the following development standards:

1. The number of approaches on higher classification streets (e.g., collector and arterial streets) shall be minimized; where practicable, access shall be taken first from a lower classification street.

Findings: The applicant proposes access from three access points.

1. An employee parking access from Lynn LN; a public road classified as a Local Street by the Molalla Transportation Systems Plan
2. Bus and visitor/field access from N Hezzie LN; a public road classified as a Neighborhood Collector by the Molalla Transportation Systems Plan
3. Pick up and Drop off and visitor access from Leroy Ave; a public road classified as a Major Collector by the Molalla Transportation Systems Plan

The proposed arrangement substantially reduces the reliance on Leroy Ave from the existing middle school facility, which relies on three access points from Leroy Avenue and an open access spanning Leroy Ave and West LN for all of the above functions. The new proposal shifts employee, recreation, and bus impacts to lower classification streets. Internal queuing for pickup and drop-off additionally reduces the strain on Leroy Avenue from the existing arrangement.

The submitted Transportation Impact Study further analyzes impacts showing that the proposed arrangement reduces strain on Leroy Ave and does not overburden the side streets.

2. Approaches shall conform to the spacing standards of subsections E and F, below, and shall conform to minimum sight distance and channelization standards of the roadway authority.

Findings:
Lynn LN is classified as a local street in the Molalla Transportation Systems Plan (TSP). Access spacing for private drives on local streets is 50 feet. The proposed access is spaced approximately 475 feet from Leroy Ave is and approximately 350 feet from N Hezzie LN. Minimum sight distance is met and channelization is not recommended by the roadway authority for this access.

N Hezzie LN is classified as a neighborhood collector in the Molalla TSP. Access spacing for private drives on neighborhood collectors is 100 feet. The proposed access is spaced approximately 490 feet from West LN. Minimum site distance is met and channelization is not recommended by the roadway authority for this access.

Leroy AVE is classified as a Major Collector in the Molalla TSP. Access spacing for private drives on major collectors is 150 feet. The proposed access is spaced approximately 340 feet from Lynn LN is and approximately 750 feet from West LN. Minimum sight distance is met and channelization is not recommended by the roadway authority for this access.

This standard is met.

3. Driveways shall be paved and meet applicable construction standards. Where permeable paving surfaces are allowed or required, such surfaces shall conform to applicable Public Works Design Standards.

Findings: The Applicant has proposed a paved driveway and shall be designed to meet all Molalla Public Works Design Standards. This standard is met.

4. The City Engineer may limit the number or location of connections to a street, or limit directional travel at an approach to one-way, right-turn only, or other restrictions,

where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.

Findings: In pre-application discussions with the applicant, the City expressed that it would limit access from Leroy AVE to pickup and drop-off traffic and visitor parking. The applicant's submitted application met this requirement, with other functions taking access from lower classification streets. Internal circulation for pickup and drop-off and for bus drop-off additionally alleviate traffic conflicts. No movement restrictions are required. This standard is met.

5. Where the spacing standards of the roadway authority limit the number or location of connections to a street or highway, the City Engineer may require a driveway extend to one or more edges of a parcel and be designed to allow for future extension and inter-parcel circulation as adjacent properties develop. The City Engineer may also require the owner(s) of the subject site to record an access easement for future joint use of the approach and driveway as the adjacent property(ies) develop(s).

Findings: The subject parcel is the only parcel within the boundaries of Lynn LN, Leroy Ave, West LN, and N Hezzie LN. There are no adjacent parcels to extend driveways. This standard does not apply.

6. Where applicable codes require emergency vehicle access, approaches and driveways shall be designed and constructed to accommodate emergency vehicle apparatus and shall conform to applicable fire protection requirements. The City Engineer may restrict parking, require signage, or require other public safety improvements pursuant to the recommendations of an emergency service provider.

Findings: This standard is met subject to conditions of approval to ensure emergency access. The site has been designed with fire access lanes along all four sides of the new school building. Fire apparatus access has been provided along the southern end of the building. Per recommendations from the Fire Marshal:

The detail (drawing for Lynn LN) shows a 36-foot road width with parking allowed on both sides with a 20-foot driving surface down the middle. Lynn Ln is a dead-end access road in excess of 500 feet. If Lynn Ln is not being punched through before the end of the project, then a turn-a-round that meets the intent of Oregon Fire Code D103. will be required. Also see D103.4 This turn-a-round shall be posted as no parking.

Due to the travel lanes being less than 12 feet, the turning radius for fire apparatus will be 44/56. Please make note of this on your plans and adjust accordingly.

7. As applicable, approaches and driveways shall be designed and constructed to accommodate truck/trailer-turning movements.

Findings: The proposed parking and vehicle maneuvering areas are not intended for truck and trailer movements. Driveway entrance from Hezzie LN has been designed to accommodate school buses, fire trucks, and garbage service vehicles. Applicant to provide turning radius drawings with civil plans to show that the proposed access accommodates movements from the largest vehicle entering the site.

8. Except where the City Engineer and roadway authority, as applicable, permit an open access with perpendicular or angled parking, driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.

Findings: All proposed parking lots are internal to the site. Applicant's submitted TIS application anticipates maximum queuing from the private access drive at 150 ft. The queuing lane is substantially longer than that. While specific counts for this facility are not provided, even a dramatic expansion of queuing from the existing site could be accommodated by the proposed pickup and drop-off lane. This standard is met.

9. Driveways shall be designed so that vehicle areas, including, but not limited to, drive-up and drive-through facilities and vehicle storage and service areas, do not obstruct any public right-of-way.

Findings: All proposed vehicle parking and maneuvering areas are onsite and do not obstruct the public right-of-way. These standards are met.

10. Approaches and driveways shall not be wider than necessary to safely accommodate projected peak hour trips and turning movements, and shall be designed to minimize crossing distances for pedestrians.

Findings: The Applicant's submitted application shows:

The access from N Hezzie LN is 30 ft wide.
The Access from Lynn LN is 30 ft wide.
The Access from Leroy Ave is 36 ft wide.

These widths are within the City's 30-40 ft standard for commercial driveway width. The wider Leroy approach is designed to include a left turn lane to mitigate queuing backup onsite. This standard is satisfied.

11. As it deems necessary for pedestrian safety, the City Engineer, in consultation with the roadway authority, as applicable, may require that traffic-calming features, textured driveway surfaces (e.g., pavers or similar devices), curb extensions, signage

or traffic control devices, or other features, be installed on or in the vicinity of a site as a condition of development approval.

Findings: This standard is met subject to a condition of approval. In addition to the proposed onsite raised crosswalks, the applicant shall conduct and submit to the City an offsite and onsite signage and traffic controls analysis to ensure that signs and control devices are adequate and appropriate to safely and efficiently manage vehicle, pedestrian, and bicycle traffic. The analysis must be stamped by an Engineer, certified in the State of Oregon, and proficient in traffic impact analyses.

Upon acceptance of the referenced analysis by the City, the applicant shall provide a signage and traffic control devices plan responsive to the analysis, and including all appropriate signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features as appropriate, for city review and approval. Upon acceptance by the City, the applicant shall install all signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features in the referenced plan. All installation and materials shall comply with the Molalla Municipal Code, Molalla Public Works Standards, MUTCD standards, and state law, as applicable.

12. Construction of approaches along acceleration or deceleration lanes, and along tapered (reduced width) portions of a roadway, shall be avoided; except where no reasonable alternative exists and the approach does not create safety or traffic operations concern.

Findings: The applicant's proposal does not include construction of approaches along acceleration or deceleration lanes or along tapered portions of the roadway. This standard does not apply.

13. Approaches and driveways shall be located and designed to allow for safe maneuvering in and around loading areas, while avoiding conflicts with pedestrians, parking, landscaping, and buildings.

Findings: The submitted site plans show a waste disposal loading area on the south side of the building, accessed by the bus pickup/drop-off access from N Hezzie LN. The proposed location is offset from the entry so as not to interfere with the main pedestrian flow from buses to the school and from visitor parking. This standard is met.

14. Where sidewalks or walkways occur adjacent to a roadway, driveway aprons constructed of concrete shall be installed between the driveway and roadway edge. The roadway authority may require the driveway apron be installed outside the required sidewalk or walkway surface, consistent with Americans with Disabilities Act (ADA) requirements, and to manage surface water runoff and protect the roadway surface.

Findings: The Applicant's proposal includes new sidewalk on all right-of-ways adjacent to the project. The applicant's submitted narrative states that driveway aprons will be constructed of concrete and meet ADA requirements. This standard is met.

15. Where an accessible route is required pursuant to ADA, approaches and driveways shall meet accessibility requirements where they coincide with an accessible route.

Findings: This standard is met subject to a condition of approval. As a condition of approval, all approaches and driveways shall meet ADA accessibility requirements where they coincide with an accessible route.

16. The City Engineer may require changes to the proposed configuration and design of an approach, including the number of drive aisles or lanes, surfacing, traffic-calming features, allowable turning movements, and other changes or mitigation, to ensure traffic safety and operations.

Findings: Aside from aforementioned signage, no approach modifications are recommended. This standard is met.

17. Where a new approach onto a state highway or a change of use adjacent to a state highway requires ODOT approval, the applicant is responsible for obtaining ODOT approval. The City Engineer may approve a development conditionally, requiring the applicant first obtain required ODOT permit(s) before commencing development, in which case the City will work cooperatively with the applicant and ODOT to avoid unnecessary delays.

Findings: This proposal is not adjacent to an ODOT facility. This standard does not apply.

18. Where an approach or driveway crosses a drainage ditch, canal, railroad, or other feature that is under the jurisdiction of another agency, the applicant is responsible for obtaining all required approvals and permits from that agency prior to commencing development.

Findings: The Applicants proposed approach does not cross a feature under the jurisdiction of another agency, including a drainage culvert or ditch. These criteria do not apply.

19. Where a proposed driveway crosses a culvert or drainage ditch, the City Engineer may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant to applicable Public Works Design Standards.

Findings: The Applicants proposed approach does not cross a drainage culvert or ditch. These criteria do not apply.

20. Except as otherwise required by the applicable roadway authority or waived by the City Engineer temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.

Findings: These standards are met subject to a condition of approval. As a condition of approval, temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.

21. Development that increases impervious surface area shall conform to the storm drainage and surface water management requirements of Section 17-3.6.050.

Findings: These standards are met subject to conditions of approval. Applicant submitted a stormwater drainage plan with their application package. Onsite private storm system shall comply with plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Molalla Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit, in accordance with MMC 13.13 Surface Water Management. Additional stormwater analysis is provided in Staff responses to Section 17-3.6.050.

E. **Approach Separation from Street Intersections.** Except as provided by subsection H, minimum distances shall be maintained between approaches and street intersections consistent with the current version of the Public Works Design Standards and Transportation System Plan.

Findings: The subject site takes access from Lynn LN, N Hezzie LN, and Leroy AVE.

Lynn LN is classified as a local street in the Molalla Transportation Systems Plan (TSP). Access spacing for private drives on local streets is 50 feet. The proposed access is spaced approximately 475 feet from Leroy Ave is and approximately 350 feet from N Hezzie LN. Minimum sight distance is met and channelization is not recommended by the roadway authority for this access.

N Hezzie LN is classified as a neighborhood collector in the Molalla TSP. Access spacing for private drives on neighborhood collectors is 100 feet. The proposed access is spaced approximately 490 feet from West LN. Minimum site distance is met and channelization is not recommended by the roadway authority for this access.

Leroy AVE is classified as a Major Collector in the Molalla TSP. Access spacing for private drives on major collectors is 150 feet. The proposed access is spaced approximately 340 feet from Lynn LN is and approximately 750 feet from West LN. Minimum sight distance is met and channelization is not recommended by the roadway authority for this access.

This standard is met.

F. **Approach Spacing.** Except as provided by subsection H or as required to maintain street operations and safety, the following minimum distances shall be maintained between approaches consistent with the current version of the Public Works Design Standards and Transportation System Plan.

Findings: The applicants submitted site plan shows only one approach per frontage on Leroy Ave, N Hezzie LN, and Lynn LN. There are no adjacent parcels that have approaches. This standard is met.

G. **Vision Clearance.** No visual obstruction (e.g., sign, structure, solid fence, or shrub vegetation) greater than 2.5 feet in height shall be placed in "vision clearance areas" at street intersections.. The minimum vision clearance area may be modified by the Planning Official through a Type I procedure, upon finding that more or less sight distance is required (i.e., due to traffic speeds, roadway alignment, etc.). Placement of light poles, utility poles, and tree trunks should be avoided within vision clearance areas.

Findings: The applicant's submitted site plan does not show any visual obstructions within vision clearance areas. This standard is met subject to conditions of approval. As an ongoing condition of approval, no visual obstructions shall be placed in vision clearance areas.

H. **Exceptions and Adjustments.** The City Engineer may approve adjustments to the spacing standards of subsections E and F, above, where an existing connection to a City street does not meet the standards of the roadway authority and the proposed development moves in the direction of code compliance. The Planning Official through a Type II procedure may also approve a deviation to the spacing standards on City streets where it finds that mitigation measures (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right-in/ right-out only), or other mitigation alleviate all traffic operations and safety concerns.

Findings: The Applicant has not submitted any requests for exceptions and adjustment to access and spacing standards and none are recommended by City Staff. This standard is met.

I. **Joint Use Access Easement and Maintenance Agreement.** Where the City approves a joint use driveway, the property owners shall record an easement with the deed allowing joint use of and cross access between adjacent properties. The owners of the properties

agreeing to joint use of the driveway shall record a joint maintenance agreement with the deed, defining maintenance responsibilities of property owners. The applicant shall provide a fully executed copy of the agreement to the City for its records, but the City is not responsible for maintaining the driveway or resolving any dispute between property owners.

Findings: The Applicant has not proposed any joint use driveways nor are any required. This standard does not apply.

17-3.3.040 Pedestrian Access and Circulation

B. **Standards.** Developments shall conform to all of the following standards for pedestrian access and circulation as generally illustrated in Figure 17-3.3-3:

1. **Continuous Walkway System.** A pedestrian walkway system shall extend throughout the development site and connect to adjacent sidewalks, if any, and to all future phases of the development, as applicable.

Findings: The Applicant's submitted site plan shows a continuous walkway that connects all proposed entrances and provides connections to the public sidewalks along Lynn LN, N Hezzie LN, and two connections on Leroy Ave. This standard is met.

2. **Safe, Direct, and Convenient.** Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way conforming to the following standards:

a. The walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line or it does not involve a significant amount of out-of-direction travel.

b. The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The Planning Official may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

c. The walkway network connects to all primary building entrances, consistent with the building design standards of Chapter 17-3.2 and, where required, Americans with Disabilities Act (ADA) requirements.

Findings: The submitted application shows continuous walkway system which extends to building entrances, on-site parking and athletic facilities, adjacent streets and sidewalks and other on-site features. All access paths to the main entrances of the building are proposed to be concrete paths which meet the maximum slope requirements of ADA. These standards are met.

3. Vehicle/Walkway Separation. Except as required for crosswalks, per subsection 4, below, where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the Planning Official may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.

Findings: The Applicant's submitted narrative states that the proposed walkway shall be raised from vehicle maneuvering areas and curbed with the exception of drive aisle crosswalks. This standard is met.

4. Crosswalks. Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians. Painted or thermo-plastic striping and similar types of non-permanent applications are discouraged, but may be approved for lesser used crosswalks not exceeding 24 feet in length.

Response: The applicant's submitted narrative states that raised concrete crossings will be provided where pedestrian pathways cross the private drives. This standard is met.

5. Walkway Width and Surface. Walkways, including access ways required for subdivisions pursuant to Chapter 17-4.3, shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than six feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians) shall be concrete or asphalt and shall conform to the current version of the Public Works Design Standards and Transportation System Plan.

6. Walkway Construction (Private). Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than six feet in width in commercial and mixed use developments and where access ways are required for subdivisions under Division IV.

Findings: The Applicant's submitted site plan shows proposed sidewalks and walkways that are at least 6ft in width and the submitted narrative states that they will be designed with appropriate materials to meet standards of this code. These standards are met.

7. Multi-Use Pathways. Multi-use pathways, where approved, shall be a minimum width and constructed of materials consistent with the current version of the Public Works Design Standards and Transportation System Plan.

Findings: No multi-use pathways are proposed. This standard does not apply.

Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting

17-3.4.030 Landscaping and Screening

A. **General Landscape Standard.** All portions of a lot not otherwise developed with buildings, accessory structures, vehicle maneuvering areas, or parking shall be landscaped.

Findings: The Applicant's submitted landscaping plan shows that all areas of the subject parcel that are not developed with buildings, vehicular areas, athletic fields, or pedestrian areas will be landscaped. This standard is met.

B. **Minimum Landscape Area.** All lots shall conform to the minimum landscape area standards of the applicable zoning district, as contained in Tables 17-2.2.040.D and 17-2.2.040.E. The Planning Official, consistent with the purposes in Section 17-3.4.010, may allow credit toward the minimum landscape area for existing vegetation that is retained in the development.

Findings: Minimum landscaped area in the PSP zone is 10%. The Applicant proposes 33,458 SF of planting area, 41,906 SF of meadow, 21,938 SF of lawn area. This accounts for 12.4% of the site and the standard is met with these assumptions. Including areas of stormwater swales and proposed athletic fields, 426,605 SF of the total site, or 58%, has permeable surface cover. This standard is met.

C. **Plant Selection.** A combination of deciduous and evergreen trees, shrubs, and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions, among other factors. When new vegetation is planted, soils shall be amended and irrigation shall be provided, as necessary, to allow for healthy plant growth. The selection of plants shall be based on all of the following standards and guidelines:

1. Use plants that are appropriate to the local climate, exposure, and water availability. The presence of utilities and drainage conditions shall also be considered.

Findings: Applicant's submitted landscaping plan shows locally adapted plants that meet size specifications. The applicant includes plans that are ideal for wetter conditions and has included them in a stormwater section. This standard is met.

2. Plant species that do not require irrigation once established (naturalized) are preferred over species that require irrigation.

Findings: This standard is not binding. Applicant's submitted landscaping plan shows native plants that thrive in the local climate. The applicant has also identified plants that thrive in water to be added in storm water areas. This standard is met.

3. Trees shall be not less than two-inch caliper for street trees and one and one-half-inch caliper for other trees at the time of planting. Trees to be planted under or near power lines shall be selected so as to not conflict with power lines at maturity.

Findings: The applicants' submitted landscaping plans show that trees are to be planted at the required size. This standard can be met.

4. Shrubs shall be planted from five-gallon containers, minimum, where they are for required screens or buffers, and two-gallon containers minimum elsewhere.

Findings: The applicants' submitted landscaping plans show proposed shrub plantings are compliant with this standard.

5. Shrubs shall be spaced in order to provide the intended screen or canopy cover within two years of planting.

Findings: The applicants' narrative acknowledges the requirements of this section. This standard can be met.

6. All landscape areas, whether required or not, that are not planted with trees and shrubs or covered with allowable non-plant material, shall have ground cover plants that are sized and spaced to achieve plant coverage of not less than 75 percent at maturity.

Findings: The applicants' narrative acknowledges the requirements of this section. This standard can be met.

7. Bark dust, chips, aggregate, or other non-plant ground covers may be used, but shall cover not more than 35 percent of any landscape area. Non-plant ground covers cannot be a substitute for required ground cover plants.

Findings: The applicant doesn't propose using non-plant ground covers. This standard is met.

8. Where stormwater retention or detention, or water quality treatment facilities are proposed, they shall meet the requirements of the current version of the Public Works Design Standards.

Findings: The submitted site plans show a storm detention pond on the northeast corner of the site and several stormwater retention areas through the site. Storm detention and retention areas shall meet Public Works design standards. This standard is met, subject to the conditions of approval.

9. Existing mature trees that can thrive in a developed area and that do not conflict with other provisions of this Code shall be retained where specimens are in good health, have desirable aesthetic characteristics, and do not present a hazard.

Findings: The applicant conducted a tree survey of all existing mature trees on the property. They inventoried 70 trees for health characteristics and have decided to replace 44 of them.

10. Landscape plans shall avoid conflicts between plants and buildings, streets, walkways, utilities, and other features of the built environment.

Findings: The species selected were chosen with regard to their placement location and avoid conflicts. This standard is met.

11. Evergreen plants shall be used where a sight-obscuring landscape screen is required.

Findings: Sight obscuring landscaping is not required. This standard does not apply.

12. Deciduous trees should be used where summer shade and winter sunlight is desirable.

Findings: The Applicant has proposed mainly deciduous trees adjacent to the building and pedestrian ways. They have included a few evergreen plants, which will likely lend interest in winter months. This standard is met.

13. Landscape plans should provide focal points within a development, for example, by preserving large or unique trees or groves or by using flowering plants or trees with fall color.

Findings: Applicant's landscaping plan shows a multitude of species that will provide contrast and interest. Several of the plants flower or exhibit seasonal color. A total of thirty-six (36) different plant species were chosen by Mayer/Reed Inc. Landscape architects to provide seasonal interest. Several larger trees abutting the southern frontage of the property along West LN as well as existing mature landscape trees along Leroy Ave will be retained. This standard is met.

14. Landscape plans should use a combination of plants for seasonal variation in color and yearlong interest.

Findings: Applicant's landscaping plan shows a multitude of species that will provide seasonal variation and yearlong interest. A total of thirty-six (36) different plant species were chosen by Mayer/Reed Inc. landscape architects to provide seasonal interest. This standard is met.

15. Where plants are used to screen outdoor storage or mechanical equipment, the selected plants shall have growth characteristics that are compatible with such features.

Findings: The Applicant has not proposed to screen outdoor storage or mechanical equipment using plants. This standard does not apply.

16. Landscape plans shall provide for both temporary and permanent erosion control measures, which shall include plantings where cuts or fills, including berms, swales, stormwater detention facilities, and similar grading, is proposed.

Findings: The applicant's submitted site plan show substantial plantings of moisture tolerant plants to aid with erosion control in both the stormwater detention pond and retention swales.. This standard is met.

17. When new vegetation is planted, soils shall be amended and irrigation provided, as necessary, until the plants are naturalized and able to grow on their own.

Findings: Applicant's submitted application states that landscape areas with new vegetation will be amended with 12'' of amended topsoil. A permanent irrigation system will also be provided for all landscape areas. This standard is met.

Central Commercial C-1 District Streetscape Standard. Developers of projects within the Central Commercial C-1 zoning district can meet the landscape area requirement of subsection B, in part, by installing street trees in front of their projects. The Planning Official shall grant credit toward the landscape area requirement using a ratio of 1:1, where one

square foot of planted area (e.g., tree well or planter surface area) receives one square foot of credit. The Planning Official may grant additional landscape area credit by the same ratio where the developer widens the sidewalk or creates a plaza or other civic space pursuant to Section 17-3.2.050.

Findings: The subject property is located within the PSP zone, not C-1. These standards do not apply.

D. Parking Lot Landscaping. All of the following standards shall be met for parking lots. If a development contains multiple parking lots, then the standards shall be evaluated separately for each parking lot.

1. A minimum of 10 percent of the total surface area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of shade trees distributed throughout the parking area. A combination of deciduous and evergreen trees, shrubs, and ground cover plants is required. The trees shall be planned so that they provide a partial canopy cover over the parking lot within five years. At a minimum, one tree per 12 parking spaces on average shall be planted over and around the parking area.

Findings: The northern parking lot consists of the staff parking lot and the front visitor parking area, which are connected and have a total area of 63,073 square feet and a total landscape area of 12,440 square feet, or 19.7 percent. The southern parking lot and bus loading area has a total area of 75,790 square feet and a total landscape area of 8,024 square feet, or 10.6 percent. The parking lot landscape area standards are met for each parking lot.

A combination of deciduous and evergreen trees, shrubs and groundcover plants have been distributed throughout the parking lot landscaping areas. The site has a total of 191 parking stalls, requiring 16 trees within the parking lot. A total of 36 trees are dispersed within the parking lot landscaping area. This standard is met.

2. All parking areas with more than 20 spaces shall provide landscape islands with trees that break up the parking area into rows of not more than 10 contiguous parking spaces. Landscape islands and planters shall have dimensions of not less than 48 square feet of area and no dimension of less than six feet, to ensure adequate soil, water, and space for healthy plant growth.

Findings: Both parking areas exceed 20 spaces. Parking lot islands are distributed throughout the parking area to break up the parking area into rows of not more than 10 continuous parking spaces. All landscape islands and planters have an area of at least 48 square feet and no dimensions less than six feet. This standard is met.

3. All required parking lot landscape areas not otherwise planted with trees must contain a combination of shrubs and groundcover plants so that, within two years of planting, not less than 50 percent of that area is covered with living plants.

Findings: All parking lot landscaping areas not otherwise planted with trees contain a combination of shrubs and groundcover plants as shown the applicants site plan. This standard is met.

4. Wheel stops, curbs, bollards, or other physical barriers are required along the edges of all vehicle-maneuvering areas to protect landscaping from being damaged by vehicles. Trees shall be planted not less than two feet from any such barrier.

Findings: Curbs are provided along the edges of all vehicle maneuvering areas to protect landscaping. All trees will be planted at least two feet from the curb. This standard is met.

5. Trees planted in tree wells within sidewalks or other paved areas shall be installed with root barriers, consistent with applicable nursery standards.

Findings: All trees planted on site will be installed consistent with applicable nursery standards. This standard is met.

E. **Screening Requirements.** Screening is required for outdoor storage areas, unenclosed uses, and parking lots, and may be required in other situations as determined by the Planning Official. Landscaping shall be provided pursuant to the standards of subsections F.1 through 3. (See also Figure 17-3.4-4.)

1. **Outdoor Storage and Unenclosed Uses.** All areas of a site containing or proposed to contain outdoor storage of goods, materials, equipment, and vehicles (other than required parking lots and service and delivery areas, per Site Design Review), and areas containing junk, salvage materials, or similar contents, shall be screened from view from adjacent rights-of-way and residential uses by a sight-obscuring fence, wall, landscape screen, or combination of screening methods. See also Section 17-3.4.040 for related fence and wall standards.

Findings: The applicant proposes to store lawn maintenance tools and community athletic equipment in a small storage building located in the southeast corner of the southern parking lot. Outdoor storage of goods is not proposed. This section is met.

2. **Parking Lots.** The edges of parking lots shall be screened to minimize vehicle headlights shining into adjacent rights-of-way and residential yards. Parking lots

abutting a sidewalk or walkway shall be screened using a low-growing hedge or low garden wall to a height of between three feet and four feet.

Findings: The edges of the parking lots have been planted with landscaping to provide screening and minimize vehicle headlights shining into adjacent rights-of-way and residential yards. Where the parking lot abuts a sidewalk that isn't used for student loading and unloading, a low-growing hedge has been provided. This standard is met.

3. **Other Uses Requiring Screening.** The Planning Official may require screening in other situations as authorized by this Code, including, but not limited to, outdoor storage areas, blank walls, Special Uses pursuant to Chapter 17-2.3, flag lots, and as mitigation where an applicant has requested an adjustment pursuant to Chapter 17-4.7.

Findings: Staff does not propose additional requirements for screening with this application.

F. **Maintenance.** All landscaping shall be maintained in good condition, or otherwise replaced by the property owner.

Findings: This standard can be met with a condition of approval. As an ongoing condition of approval all landscaping shall be maintained in good condition, or otherwise replaced by the property owner.

17-3.4.040 Fences and Walls

A. **Purpose.** This section provides general development standards for fences, and walls that are not part of a building, such as screening walls and retaining walls.

B. **Applicability.** Section 17-3.4.040 applies to all fences, and to walls that are not part of a building, including modifications to existing fences and walls.

Findings: The Applicant's proposal includes a 6 foot CMU wall around the secured area in the northwest portion of the property to which this section applies.

C. Height.
   1. Residential Zones.

Findings: The Applicant's proposal is in a non-residential zone. These standards do not apply.

2. Non-Residential Zones. Fences and freestanding walls (i.e., exclusive of building walls) for non-residential uses shall not exceed the following height above grade, where grade is measured from the base of the subject fence or wall.
   a. Within Front or Street-Facing Side Yard Setback. Four feet, except the following additional height is allowed for properties located within an industrial, public, or institutional zone:
      (1) Where approved by the City Planning Official, a fence constructed of open chain link or other "see-through" composition that allows 90 percent light transmission may reach a height of up to eight feet.

   b. Within an Interior Side or Rear Yard Setback. Eight feet; except the fence or wall height, as applicable, shall not exceed the distance from the fence or wall line to the nearest primary structure on an adjacent property.

Findings: The Applicant does not propose fences or walls within the setback area. Submitted site plans show that proposed fencing along the stormwater pond and abutting the street is 4'. This standard is met.

3. All Zones. Fences and walls shall comply with the vision clearance standards of Section 17-3.3.030.G. Other provisions of this Code, or the requirements of the roadway authority, may limit allowable height of a fence or wall below the height limits of this section.

Findings: No fences and walls are proposed in vision clearance areas. This standard is met.

D. Materials. Prohibited fence and wall materials include straw bales, tarps, barbed or razor wire (except in the M-2 Heavy Industrial zone); scrap lumber, untreated wood (except cedar or redwood), corrugated metal, sheet metal, scrap materials; dead, diseased, or dying plants; and materials similar to those listed herein.

Findings: The applicant's submitted site plan shows chain link fencing at the backstop areas of the baseball fields, around the stormwater facility, and around the outdoor play area. Applicant proposes chain link fencing for these fences. No prohibited materials are proposed in the construction of the proposed fence. This standard is met.

E. Permitting. A Type I approval is required to install a fence of six feet or less in height, or a wall that is four feet or less in height. All other walls and fences require review and approval by the Planning Official through a Type II procedure. The Planning Official may require installation of walls or fences as a condition of approval for development, as provided by

other Code sections. A building permit may be required for some fences and walls, pursuant to applicable building codes. Walls greater than four feet in height shall be designed by a Professional Engineer licensed in the State of Oregon.

Findings: All fences and walls are proposed as part of this Site Design Review application.

F. **Maintenance.** Fences and walls shall be maintained in good condition, or otherwise replaced by the property owner. (Ord. 2017-08 §1)

Findings: This standard is met subject to a condition of approval. As an ongoing condition of approval, fences and walls shall be maintained in good condition, or otherwise replaced by the property owner.

17-3.4.050 Outdoor Lighting

A. **Purpose.** This section contains regulations requiring adequate levels of outdoor lighting while minimizing negative impacts of light pollution.
B. **Applicability.** All outdoor lighting shall comply with the standards of this section.
C. **Standards.**
   1. Light poles, except as required by a roadway authority or public safety agency, shall not exceed a height of 20 feet; pedestal- or bollard-style lighting shall be used to illuminate walkways. Flag poles, utility poles, and streetlights are exempt from this requirement.

Findings: The Applicant's submitted lighting specifications show no 25' lighting poles which exceed the 20' standard. The applicant has submitted a variance application to adjust this standard in conjunction with this application. This standard can be met subject to variance approval.

   2. Where a light standard is placed over a sidewalk or walkway, a minimum vertical clearance of eight feet shall be maintained.

Findings: The Applicant's submitted lighting plan shows no proposed poles over walkways with less than 8 feet of clearance. This standard is met.

   3. Outdoor lighting levels shall be subject to review and approval through Site Design Review. As a guideline, lighting levels shall be no greater than necessary to provide for pedestrian safety, property or business identification, and crime prevention.

Findings: The Applicant's submitted lighting plan shows that lighting levels are designed for safety, business identification, and crime prevention and within the levels of guidance within these standards. This standard is met.

4. Except as provided for up-lighting of flags and permitted building-mounted signs, all outdoor light fixtures shall be directed downward, and have full cutoff and full shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties.

Findings: The Applicant's submitted lighting specifications show fixtures that direct light downwards with cutoff and shielding toward the night sky and adjacent properties. This standard is met.

5. Lighting shall be installed where it will not obstruct public ways, driveways, or walkways.

Findings: The Applicant's submitted lighting plan shows that proposed locations do not obstruct public ways, driveways, or walkways. This standard is met.

6. Walkway lighting in private areas shall have a minimum average illumination of not less than 0.2 foot-candles. Lighting along public walkways shall meet the current version of the Public Works Design Standards and AASHTO lighting requirements.

Findings: The Applicant's submitted lighting plan shows that the planned walkway lighting is greater than 0.2 foot candles. This standard is met.

7. Active building entrances shall have a minimum average illumination of not less than two foot-candles.

Findings: The Applicant's submitted lighting plan shows that the planned building entrance lighting consistently exceeds the minimum standard of 2 foot-candles. This standard is met.

8. Surfaces of signs shall have an illumination level of not more than two foot-candles.

Findings: The Applicant does not proposed illuminated signage. This standard is met.

9. Parking lots and outdoor services areas, including quick vehicle service areas, shall have a minimum illumination of not less than 0.2 foot-candles, average illumination of approximately 0.8 foot-candles, and a uniformity ratio (maximum-to-minimum ratio) of not more than 20:1.

Findings: For the parking areas the Applicant's submitted lighting plan shows an overall average illumination near 0.8 foot-candles and no min/max ratios exceed 20:1. No portion of the parking area has an illumination area less than 0.2 foot candles. This standard is met.

10. Where illumination grid lighting plans cannot be reviewed or if fixtures do not provide photometrics and bulbs are under 2,000 lumens, use the following guidelines:
    a. Poles should be no greater in height than four times the distance to the property line.
    b. Maximum lumen levels should be based on fixture height.
    c. Private illumination shall not be used to light adjoining public right-of-way.

Findings: The Applicant has submitted a photometrics plan meeting standards. These standards do not apply.

11. Where a light standard is placed within a walkway, an unobstructed pedestrian through zone not less than 48 inches wide shall be maintained.

Findings: The Applicant's submitted lighting plan shows that pedestrian lighting is not proposed within walkways, only adjacent. This standard is met.

12. Lighting subject to this section shall consist of materials approved for outdoor use and shall be installed according to the manufacturer's specifications.

Findings: This Applicant's submitted lighting specifications show lighting that are intended for outdoor use. Applicant states in their narrative that they will install lighting to manufacturers specifications. This standard is met.

D. Permitting. A Type I approval is required to install or replace outdoor lighting. The Planning Official may require lighting as a condition of approval for some projects, pursuant to other Code requirements.
E. Maintenance. For public health and safety, outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner. (Ord. 2017-08 §1)

Findings: These standards are met subject to a condition of approval. As an ongoing condition of approval, all outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner.

Chapter 17-3.5 Parking and Loading

Section 17-3.5.020 Applicability and General Regulations

A. **Where the Regulations Apply.** The regulations of this chapter apply to all parking areas in all zones, at all times, whether parking is required by this Code or put in for the convenience of property owners or users.

B. **Occupancy.** All required parking areas must be developed in accordance with the requirements of this Code prior to occupancy of any structure on the subject site. Where landscaping, screening, or other improvements are required pursuant to this Code, all such improvements must be installed and approved by the Planning Official prior to occupancy.

Findings: These standards are met subject to a condition of approval. As a condition of approval, all landscaping, parking, lighting, and other improvements shall be installed by the Applicant and approved by the Planning Official prior to occupancy.

C. **Calculations of Amounts of Required and Allowed Parking.**

1. When computing parking spaces based on floor area, parking structures and non-leasable floor spaces, such as storage closets, mechanical equipment rooms, and similar spaces, are not counted.
2. The number of parking spaces is computed based on the primary uses on the site except as stated in subsection C.3. When there are two or more separate primary uses on a site, the minimum and maximum parking for the site is the sum of the required or allowed parking for the individual primary uses. For shared parking, see Section 17-3.5.030.D.
3. When more than 50 percent of the floor area on a site is in an accessory use, the required or allowed parking is calculated separately for the accessory use. An example would be a 10,000 square foot building with a 7,000 square foot warehouse and a 3,000 square foot accessory retail area. The minimum and maximum parking would be computed separately for the retail and warehouse uses.
4. Required parking spaces periodically used for the storage of equipment or goods may be counted toward meeting minimum parking standards, provided that such storage

is an allowed use under Section 17-2.2.030, and is permitted as a Temporary Use under Section 17-2.3.160.

Findings: Parking is considered for a single use; the replacement middle school. The operations of the school include special events that often require additional on-site parking. The proposed on-site parking addresses employee, visitor, sporting events, and other on-site events. This standard is met.

D. **Use of Required Parking Spaces.** Except as otherwise provided by this section, required parking spaces must be available for residents, customers, or employees of the use. Fees may be charged for the use of required parking spaces. Required parking spaces may not be assigned in any way to a use on another site, except for shared parking pursuant to Section 17-3.5.030.D.

Findings: The Applicants site plan shows three lots that will provide sufficient parking for all students, staff, and guests of the middle school. These standards are met.

E. **Proximity of Parking to Use.** Required parking spaces for residential uses must be located on the site of the use or on a parcel or tract owned in common by all the owners of the properties that will use the parking area. Required parking spaces for nonresidential uses must be located on the site of the use or in a parking area that has its closest pedestrian access point within 800 feet of the site.

Findings: All proposed parking is on the subject parcel and closer than 800 ft from the primary pedestrian entrances that face the "shopping street"/ Leroy Avenue and West Lane. These standards are met.

F. **Improvement of Parking Areas.** Motorized vehicle parking is allowed only on streets with an improved shoulder of sufficient width; within garages, carports, and other approved structures; and on driveways or parking lots that have been developed in conformance with this Code. For applicable design standards, see Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting and Chapter 17-3.6 Public Facilities. (Ord. 2017-08 §1)

Findings: The site plan shows three parking lots that are in conformance with this code. Adjacent streets are to be built out with on-street parking in accordance with the Molalla Transportation systems plan. Lot conformance will be addressed in greater detail below.

Section 17-3.5.030 Automobile Parking

A. **Minimum Number of Off-Street Automobile Parking Spaces.** Except as provided by this subsection A, or as required for Americans with Disabilities Act compliance under subsection G, off-street parking shall be provided pursuant to one of the following three standards:
    1. The standards in Table 17-3.5.030.A;
    2. A standard from Table 17-3.5.030.A for a use that the Planning Official determines is similar to the proposed use; or
    3. Subsection B Exceptions, which includes a Parking Demand Analysis option.

Findings: The parking requirement for middle schools is one space per classroom. The proposed school has 24 primary classrooms and 8 additional classroom spaces, requiring a total of 32 parking stalls. A total of 168 parking spaces exists on site currently, and 191 parking spaces are proposed. This standard is met.

B. **Carpool and Vanpool Parking Requirements.**
    2. Carpool and vanpool parking spaces shall be identified for the following uses:
        a. New commercial and industrial developments with 50 or more parking spaces;
        b. New institutional or public assembly uses; and
        c. Transit park-and-ride facilities with 50 or more parking spaces.
    3. Of the total spaces available for employee, student, and commuter parking, at least five percent, but not fewer than two, shall be designated for exclusive carpool and vanpool parking.
    4. Carpool and vanpool parking spaces shall be located closer to the main employee, student or commuter entrance than all other parking spaces with the exception of ADA parking spaces.
    5. Required carpool/vanpool spaces shall be clearly marked "Reserved—Carpool/Vanpool Only."

Findings: These standards apply as the proposed use is institutional. The school site has approximately 60 parking spaces which are available for employee parking on site. As the site is a middle school, student parking is not applicable. Of the 60 staff stalls on site, a total of three are required to be carpool/vanpool spots, as shown on the applicants site plan. This standard is met.

As a condition of approval, Applicant shall include signage for carpool/vanpool spaces and place them closest of non-ADA spaces to the building entrance, as proposed. Applicant to include signage on submitted signage plan with civil permits.

C. Exceptions and Reductions to Off-Street Parking.

Findings: The Applicant has not requested any off-street parking exceptions and Staff finds that no exceptions are necessary to meet compliance with this code. This standard does not apply.

D. **Maximum Number of Off-Street Automobile Parking Spaces.** The maximum number of off-street automobile parking spaces allowed per site equals the minimum number of required spaces for the use pursuant to Table 17-3.5.030.A, times a factor of:
   1. 1.2 spaces for uses fronting a street with adjacent on-street parking spaces; or
   2. 1.5 spaces, for uses fronting no street with adjacent on-street parking; or
   3. A factor based on applicant's projected parking demand, subject to City approval.

Findings: Off-street parking standard D3 allows maximum parking to be based off of the applicant's projected parking demand. This is the appropriate way to address school parking, which needs to account for sporting and academic events in addition to visitor and employee parking. The ITE standard rates for a middle school with athletic fields has an estimated need of 150 parking spaces during the school day and 180 spaces off-hours. As shown on the applicants' site plan, a total of 156 parking spaces have been provided for school day use, with an additional 35 parking spaces located in the bus loading zone, which would be available for off-hour use. Staff agree with the applicants shown parking demand and approve the proposed number of off street parking spaces. This standard is met.

E. **Shared Parking.** Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlap (e.g., uses primarily of a daytime versus nighttime nature; weekday uses versus weekend uses), and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use. Shared parking requests shall be subject to review and approval through a Type I Review.

Findings: The Applicant has not requested any shared parking arrangements. This standard does not apply.

F. **Parking Stall Design and Minimum Dimensions.** Where a new off-street parking area is proposed, or an existing off-street parking area is proposed for expansion, the entire

parking area shall be improved in conformance with this Code. At a minimum the parking spaces and drive aisles shall be paved with asphalt, concrete, or other City-approved materials, provided the Americans with Disabilities Act requirements are met, and shall conform to the minimum dimensions in Table 17-3.5.030.F and the figures below. All off-street parking areas shall contain wheel stops, perimeter curbing, bollards, or other edging as required to prevent vehicles from damaging buildings or encroaching into walkways, sidewalks, landscapes, or the public right-of-way. Parking areas shall also provide for surface water management, pursuant to Section 17-3.6.050.

Findings: The Applicant's site plan shows that all proposed parking stalls have a stall curb width of at least 9 feet and a stall length of 20 feet. All drive aisles are at least 23 feet. This standard is met.

G. **Adjustments to Parking Area Dimensions.** The dimensions in subsection E are minimum standards. The Planning Official, through a Type II procedure, may adjust the dimensions based on evidence that a particular use will require more or less maneuvering 6area. For example, the Planning Official may approve an adjustment where an attendant will be present to move vehicles, as with valet parking. In such cases, a form of guarantee must be filed with the City ensuring that an attendant will always be present when the lot is in operation.

Findings: The Applicant has not requested any modifications to parking area dimensions and Staff finds that no adjustments are necessary to meet compliance with this code. This standard does not apply.

H. **Americans with Disabilities Act (ADA).** Parking shall be provided consistent with ADA requirements, including, but not limited to, the minimum number of spaces for automobiles, van-accessible spaces, location of spaces relative to building entrances, accessible routes between parking areas and building entrances, identification signs, lighting, and other design and construction requirements.

Findings: This standard is met subject to a condition of approval. As a condition of approval, parking shall be provided consistent with ADA requirements.

I. **Electric Charging Stations.** Charging stations for electric vehicles are allowed as an accessory use to parking areas developed in conformance with this Code, provided the charging station complies with applicable building codes and any applicable state or federal requirements.

Findings: No electric charging stations are proposed. This standard does not apply.

17-3.5.040 Bicycle Parking

A. **Standards.** Bicycle parking spaces shall be provided with new development and, where a change of use occurs, at a minimum, shall follow the standards in Table 17-3.5.040.A. Where an application is subject to Conditional Use Permit approval or the applicant has requested a reduction to an automobile-parking standard, pursuant to Section 17-3.5.030.C, the Planning Official may require bicycle parking spaces in addition to those in Table 17-3.5.040.A.

B. **Design.** Bicycle parking shall consist of staple-design steel racks or other City-approved racks, lockers, or storage lids providing a safe and secure means of storing a bicycle, consistent with the Public Works Design Standards.

C. **Exemptions.** This section does not apply to single-family and duplex housing, home occupations, and agricultural uses.

D. **Hazards.** Bicycle parking shall not impede or create a hazard to pedestrians or vehicles and shall be located to not conflict with the vision clearance standards of Section 17-3.3.030.G.

Findings: Schools require 2 bicycle parking spaces for every classroom. The school has 24 classrooms; therefore, 48 bike spaces are required. As shown on the Applicants' site plan, a total of 48 bicycle parking spaces have been provided on the school campus. The proposed bicycle parking area does not impede pedestrian traffic or vision. These standards are met.

17-3.5.040 Loading Areas

A. **Purpose.** The purpose of Section 17-3.5.050 is to provide adequate loading areas for commercial and industrial uses that do not interfere with the operation of adjacent streets.

B. **Applicability.** Section 17-3.5.050 applies to uses that are expected to have service or delivery truck visits. It applies only to uses visited by trucks with a 40-foot or longer wheelbase, at a frequency of one or more vehicles per week. The Planning Official shall determine through a Type I review the number, size, and location of required loading areas, if any.

C. Standard. Where an off-street loading space is required, it shall be large enough to accommodate the largest vehicle that is expected to serve the use without obstructing vehicles or pedestrian traffic on adjacent streets and driveways. The Planning Official may restrict the use of other public rights-of-way, so applicants are advised to provide complete and accurate information about the potential need for loading spaces.

D. Placement, Setbacks, and Landscaping. Loading areas shall conform to the standards of Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; and Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting. Where parking areas are prohibited between a building and the street, loading areas are also prohibited.

E. Exceptions and Adjustments. The Planning Official, through a Type I Review, may approve a loading area adjacent to or within a street right-of-way where it finds that loading and unloading operations are short in duration (i.e., less than one hour), infrequent, do not obstruct traffic during peak traffic hours, do not interfere with emergency response services, and are acceptable to the applicable roadway authority. (Ord. 2017-08 §1)

Findings: The school is not a commercial or industrial use and does not have materials loading areas. This standard does not apply.

Chapter 17-3.6 Public Facilities

17-3.6.10 Purpose and Applicability:

A. ***Purpose.*** *The standards of Chapter 17-3.6 implement the public facility policies of the City of Molalla Comprehensive Plan and adopted City plans.*

B. ***Applicability.*** *Chapter 17-3.6 applies to all new development, including projects subject to Land Division (Subdivision or Partition) approval and developments subject to Site Design Review where public facility improvements are required. All public facility improvements within the city shall occur in accordance with the standards and procedures of this chapter. When a question arises as to the intent or application of any standard, the City Engineer shall interpret the Code pursuant to Chapter 17-1.5.*

C. ***Public Works Design Standards.*** *All public facility improvements, including, but not limited to, sanitary sewer, water, transportation, surface water and storm drainage and parks projects, whether required as a condition of development or provided voluntarily, shall conform to the City of Molalla Public Works Design Standards. Where a conflict occurs between this Code and the Public Works Design Standards, the provisions of the Public Works Design Standards shall govern.*

D. ***Public Improvement Requirement.*** *No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of this Code and the Public Works Design Standards. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on public facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.*

E. *Limitations on Public Improvement Requirement. If the applicant asserts that it cannot legally be required, as a condition of building permit or site plan approval, to provide easements, dedications, or improvements at the level otherwise required by this section, then:*

1. *The building permit, site plan review, or appeal application shall include a rough proportionality report, prepared by a qualified civil or traffic engineer, as appropriate, showing:*

    a. *The estimated extent, on a quantitative basis, to which the improvements will be used by persons served by the building or development, whether the use is for safety or for convenience;*
    b. *The estimated level, on a quantitative basis, of improvements needed to meet the estimated extent of use by persons served by the building or development;*
    c. *The estimated impact, on a quantitative basis, of the building or development on the public infrastructure system of which the improvements will be a part;*
    d. *The estimated level, on a quantitative basis, of improvements needed to mitigate the estimated impact on the public infrastructure system; and*

e. The applicant shall, instead, be required to provide easements, dedications, and improvements that are roughly proportional to what is needed for the safety or convenience of persons served by the building or development, plus those additional easements, dedications, and improvements that are roughly proportional to what is needed to mitigate the impact of the building or development on the public infrastructure system of which the improvements will be a part, if the impacts are not fully mitigated by the easements, dedications, and improvements needed for the safety or convenience of persons served by the building or development.

Findings: These standards can be met subject to a condition of approval. The proposed development qualifies as new development and standards of this chapter apply. As the applicant proposes a new Middle School Facility appropriate adjacent public facilities are deemed proportional to the proposed development. No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of Molalla Municipal Code and the City of Molalla Standard Specifications for Public Works (Public Works Standards). If applicant chooses improvement bonding applicant shall submit a performance bond, irrevocable stand-by letter of credit, or a cash deposit that meets the requirements in MSSPW section 1.15.9 for public improvements, in a form and substance satisfactory to the City.

17-3.6.020 Transportation Standards:

A. General Requirements

1. *All street improvements, including the extension or widening of existing streets and public access ways, shall conform to Section 17-3.6.020, and shall be constructed consistent with the City of Molalla Public Works Design Standards.*
2. *All street improvements, including the extension or widening of existing streets and public access ways, shall conform to Section 17-3.6.020, and shall be constructed consistent with the City of Molalla Public Works Design Standards.*
3. *All new streets shall be contained within a public right-of-way. Public access ways (e.g., pedestrian ways) may be contained within a right-of-way or a public access easement, subject to review and approval of the City Engineer.*

Findings: These standards can be met subject to conditions of approvals. The subject site is surrounded by four right-of-ways; Leroy Ave to the east, Lynn LN to the north, N Hezzie LN to the west, and West LN to the south. None of these right-of-ways are built to current cross section recommendations of the Molalla Transportation Systems Plan and portions of Lynn LN and N Hezzie LN are unbuilt. Notably, the City and School District are in discussions to transfer the northern portion of N Hezzie LN to the school district. To the extent that this transfer is completed, improvements will not be required for the transferred portion.

Leroy Ave:
Leroy Ave from Toliver Road to OR-211 is a major collector street under City of Molalla jurisdiction.

Current right of way (ROW) width is shown at 60 feet which meets the city's TSP standard for a major collector street. The street is currently developed as a ¾ street lacking sidewalk, curb, and gutter along the eastern portion, and without a turn lane/parking lanes, and bike lanes. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to meet the cross section for major collectors that includes a turn lane, but no parking lanes, which includes construction of a 12-foot center/turn lane, two 11-foot travel lanes, two 6-foot bike lanes, 0.5-foot curbs, gutters and 6-foot sidewalks on both sides of the street, and an additional 0.5-foot buffer behind each sidewalk. In relation to street improvements, the applicant shall fill in the sidewalk gaps per the TSP project P14 and enhance the crossing at Toliver Road and Leroy Avenue intersection per the TSP project P36.

Intersection improvement at Leroy Ave and Toliver RD: Applicant will be required to construct the turn lane improvements at Leroy Ave/Toliver Road intersection and enhance crossing per the TSP project P36.

Intersection improvement at Leroy Ave and OR-211: The applicant submitted full 9 warrant signal analysis at OR-211 and Leroy Ave during normal school hours as a supplemental report in this application, found in Exhibit C. If the analysis does not meet the threshold for signal construction at the Leroy Ave/OR-211 intersection, the applicant shall pay a proportionate share of costs based on the following equation, or an alternative equation agreed to by the City and the applicant's traffic consultant at the time of construction:

Trip Generation of the Development at drop-off + pickup times / Total Trips through intersection at drop-off + pickup times * cost estimate for signal.

Hezzie Lane from West LN to the terminus at North Valley DR: This section of N Hezzie LN is a neighborhood street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet which meets the city's TSP standard for a neighborhood street. The street is currently developed as a ¾ street lacking sufficient travel lanes, sidewalk, curb, and gutter along the applicant's frontage. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct half street improvements along their frontage including 11-foot travel lane, 7-foot parking lane, 0.5-foot curb, gutter, a 6-foot sidewalk, and a 0.5-foot buffer behind the sidewalk.

The extension of Hezzie Lane from North Valley Drive to Lynn Lane: This section of N Hezzie LN is shown in the City's TSP as a Neighborhood Street. Current ROW width is shown as 60 feet which meets the city's TSP standard for a neighborhood street. The applicant is currently engaged in a land swap with the City with terms to abandon this section of ROW to the applicant. If this land swap does not close, the applicant will be required to construct a full street improvement as a Neighborhood Street in accordance with the City's TSP. The city will work with the applicant to adjust the course of the street to avoid conflict with the existing football field if construction is required.

West LN: West Lane is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which exceeds the City of Molalla TSP standard for local streets. The street is currently developed with travel lanes only. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curbs and gutters on both side of the street,

and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk.

Lynn Lane from Leroy Ave to the west side of the proposed Lynn Lane access: Lynn LN is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which exceeds the City of Molalla TSP standard for local streets. The street is currently developed as a gravel street that provides local access to the residents along Lynn Lane. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curb and gutter on both sides of the street, and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk.

Transportation SDC's – Transportation SDC's – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from transportation SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

4. *The purpose of this subsection is to coordinate the review of land use applications with roadway authorities and to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. The following provisions also establish when a proposal must be reviewed for potential traffic impacts; when a Transit Analysis Letter (TAL) or Traffic Impact Analysis (TIA) must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; the required contents of a TAL/TIA; and who is qualified to prepare the analysis.*

    a. Determining the Required Level of Transportation Analysis and Documentation. A Transportation Impact Analysis (TIA) is required for developments that are expected to have an impact on the transportation system. The analysis shall be based upon the latest edition of the ITE Trip Generation Manual or an agreed-upon alternative methodology where credible data is available to support the alternative methodology. When specific criteria generally associated with small developments are met, a Transportation Analysis Letter (TAL) may be substituted for the required TIA. At the discretion of the City Engineer, a TAL may satisfy the City's transportation analysis requirements, in lieu of a TIA when a development meets all the following criteria:

Findings: Thresholds for a transportation impact analysis were met as the proposed development is projected at 223 trips, and the threshold for a TIA is 25 trips. The applicant's submitted application includes a transportation impact analysis prepared by Lancaster Mobley in accordance with City standards. Between application submission and the hearing, the applicant also prepared a supplemental signal warrant analysis of the Leroy/OR-211 intersection that incorporated traffic counts from the school year. That analysis is included with the applicant's submitted application in Exhibit C. These standards are met.

B. Street Location, Alignment, Extension, and Grades

C. Rights-of-Way and Street Section Widths.
D. Transportation Connectivity and Future Street Plans.
E. Engineering Design Standards
F. Fire Code Standards

Findings: These standards can be met subject to a condition of approval. Applicant proposes new street extensions to N Hezzie LN and Lynn LN adjacent to the property as directed by the Molalla Transportation System Plan and within the existing right-of-ways dedicated to those streets. These street networks were planned to provide connectivity to the property and abutting lands. The proposed new street sections complete the block around the subject parcel to the extent practicable. Applicant to design and construct new proposed street sections in accordance with the Molalla Municipal Code, Molalla Transportation Systems Plan, Public Works Standards, and Fire Code Standards.

G. Substandard Existing Right-of-Way

Findings: Existing street sections of Leroy Ave, Lynn LN, and West LN adjacent to the proposed development are substandard per the cross sections of the Molalla Transportation Systems Plan.

H. Traffic Calming

Findings: The City is not recommending traffic calming features within the roadway. Consideration of intersection, signage, and pedestrian improvements has been considered under other portions within this section.

I. Sidewalks, Planter Strips, and Bicycle Lanes.

Findings: Public improvements to be designed concurrently with the proposed development. The recommended improvements relevant to sidewalks and bicycle lanes have been considered under other portions within this section.

J. Streets Adjacent to Railroad Right-of-Way.
K. Street Names.

Findings: The proposed project is not next to a railroad right-of-way and street names are already determined. These sections do not apply.

L. Survey Monuments

Findings: Applicant's surveyor to confirm that all survey monuments are reestablished and protected.

M. Street Signs

Findings: This standard can be met subject to a condition of approval. The applicant shall provide a signage and traffic control devices plan analysis, and including all appropriate signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features as appropriate, for city review and approval. All installation and materials shall comply with the Molalla Municipal Code, Molalla Public Works Standards, current Manual on Uniform Traffic Control Devices (MUTCD) standards, and state law, as applicable.

N. Streetlight Standards

Findings: This standard can be met subject to a condition of approval. Roadway lighting along adjacent roadways is substandard. Applicant shall install roadway lighting in accordance with Public Work Design Standards. Location and number shall be determined during civil plan review.

O. Mail Boxes

Findings: Applicant does not propose onsite mail boxes. This standard does not apply.

P. Street Cross Sections

Findings: All roadway improvements to be finalized and approved by Molalla Engineering prior to occupancy.

17-3.6.030 Required Parkland Dedication or Fee in Lieu:

Findings: The proposed development is for a new middle school. These standards do not apply to public facilities. Parks SDC credits from the existing middle school cancel the impact of the proposal and do not apply.

17-3.6.040 Sanitary Sewer and Water Service Improvements:

A. ***Sewers and Water Mains Required.*** *All new development is required to connect to City water and sanitary sewer systems. Sanitary sewer and water system improvements shall be installed to serve each new development and to connect developments to existing mains in accordance with the adopted facility master plans and applicable Public Works Design Standards. Where streets are required to be stubbed to the edge of the subdivision, sewer and water system improvements and other utilities shall also be stubbed with the streets, except as may be waived by the City Engineer where alternate alignment(s) are provided.*

Findings: Sanitary sewer and domestic water standards can be met subject to conditions of approval.

Sewer

The property is currently served by an existing 8-inch sewer service lateral connection off City sanitary main line located in Leroy Ave. Applicant is proposing to utilize the existing lateral as their main connection to City sanitary system. There is an existing 15" Main on Lynn Ln that shall serve the site from the extension of sewer service by gravity system. All sewer system improvements shall be designed and constructed in conformance with Molalla Public Standards and in accordance with Oregon state plumbing laws, the rules of the Oregon DEQ, and City Standards. This requirement will be met on the condition that all existing utilities remain operational to serve the current school and will be abandoned according to Oregon State plumbing laws and City Public Works Standards at the time of demolition of the existing buildings.

There is an existing 4-inch sewer service lateral located at the northeast portion of the property that served the existing storage building that was demolished during the grading phase of the project, and will need to be abandoned to the main line at the time of street improvements.

Sewer SDC's - In accordance with MMC 13.14 this design review does increase the impact to the public improvement facility and is therefore not exempt from Sewer SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

Water

The existing school building is being served by a 3-inch water service off Leroy Ave. This existing service can be utilized for irrigation purposes or must be decommissioned in accordance with the Molalla Public Work Standard. Applicant proposes installing a new 4-inch services connection from the 12-inch water main located within Leroy Ave, north of the existing service lateral, and will serve the new development. This standard shall be met subject to a condition of approval that all existing utilities remain operational to support the current school. Additionally, they must be properly abandoned according to Oregon State Plumbing laws and City Public Works standards at the time of the demolition of the existing buildings.

There is an existing 1-inch service located at the northeast portion of the property that served the existing storage building that was demolished during the grading phase of the project, and will need to be abandoned to the main line at the time of street improvements.

Water SDC's - In accordance with MMC 13.14 this design review does increase the impact to the public improvement facility and is therefore not exempt from Water SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

B. ***Sewer and Water Plan Approval.*** *Development permits for sewer and water improvements shall not be issued until the City Engineer has approved all sanitary sewer and water plans in conformance with City standards.*

Findings: This standard can be met subject to a condition of approval. Applicant shall submit a Public Works Permit and assurances in accordance with Section 1 of the Molalla Standard Specifications for Public Works Construction prior to any construction of public facilities.

C. ***Over-Sizing.*** *The City may require as a condition of development approval that sewer and water lines serving new development be sized to accommodate future development within the area as projected*

by the applicable facility master plans, and the City may authorize other cost-recovery or cost-sharing methods as provided under state law.

D. ***Inadequate Facilities.*** *Development permits may be restricted or rationed by the Planning Commission where a deficiency exists in the existing water or sewer system that cannot be rectified by the development and which, if not rectified, will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water and sewerage treatment systems. The City Engineer may require water booster pumps, sanitary sewer lift stations, and other critical facilities be installed with backup power. (Ord. 2017-08 §1)*

Findings: These standards can be met subject to a condition of approval. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, then the applicant's engineer shall coordinate with Public Works for the extension of the public waterline. Public waterlines shall be 8 inches in diameter, meeting City of Molalla Public Works Standards, and all public water lines and hydrants shall be within a public utility easement approved by the Public Works Department. Looping of the water line may impact the existing 6-inch water main within Lynn Lane at which time the development shall upsize the waterline to a 8-inch line to meet fire flow or as advised by the City.

17-3.6.050 Storm Drainage and Surface Water Management Facilities:

A. ***General Provisions.*** *The City shall issue a development permit only where adequate provisions for stormwater runoff have been made in conformance with the requirements of the current version of the Public Works Design Standards and Stormwater Master Plan.*

B. ***Accommodation of Upstream Drainage.*** *Culverts and other drainage facilities shall be large enough to accommodate existing and potential future runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the City Engineer.*

C. ***Effect on Downstream Drainage.*** *Where it is anticipated by the City Engineer that the additional runoff resulting from the development will overload an existing drainage facility, the City shall withhold approval of the development until provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with City standards.*

D. ***Over-Sizing.*** *The City may require as a condition of development approval that sewer, water, or storm drainage systems serving new development be sized to accommodate future development within the area as projected by the applicable facility master plan, provided that the City may grant the*

developer credit toward any required system development charge for the same pursuant to the System Development Charge.

E. ***Existing Watercourse.*** *Where a proposed development is traversed by a watercourse, drainage way, channel, or stream, the City may require a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance to protect the public health and safety. (Ord. 2017-08 §1)*

Findings: These standards can be met subject to conditions of approval. Applicant has submitted a stormwater report with their application, included as a part of Exhibit C and has proposed several onsite detention and conveyance systems. Existing conveyance systems exist via a drainage ditch adjacent to Lynn LN and stormwater facilities in Lynn LN and West LN.

General Public ROW Stormwater Condition: The applicant shall design and construct stormwater facilities, in conjunction with required and voluntary improvements, that comply with the City's stormwater master plan and public works design standards as well as any other applicable state or federal law or rule. The stormwater facilities will not be connected to upstream storm infrastructure, so no upstream analysis is required. The stormwater facilities shall be sized and/or controlled in accordance with a downstream capacity analysis, accepted by the City, and performed and stamped by an engineer certified in the State of Oregon to conduct stormwater design and analysis. The analysis shall extend from the point of intake downstream to a point in the drainage system where the additional flow from the proposed development site constitutes 10% or less of the total tributary drainage flow.

2. Lynn Lane is an undeveloped street that currently has an inadequate stormwater system. The existing system consists of an open ditch on the south side of the street. As part of the requirements for this development's frontage improvements, the applicant will be required to extend the public stormwater system along Lynn Lane from Leroy Avenue to Hezzie Lane.
3. West Lane, Hezzie Lane, and Leroy Ave are all served by existing stormwater infrastructure. The applicant shall ensure appropriate capacity of the existing system, where capacity is insufficient applicant shall propose upsizing the existing system and/or provide for sufficient flow control to ensure appropriate handling of runoff, all subject to City approval. Applicant will also be required to tie in all catch basins to the existing or upsized system as applicable.

ii. The applicant has submitted a wetland delineation report prepared by AKS Engineering & Forestry, LLC to the Department of State Lands. The applicant shall comply with the regulatory requirements outlined by the Oregon Department of State Lands as stated in the approval letter referenced as WD#2025-0090. Additionally, the applicant must adhere to the requirements set by the Oregon Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the National Marine Fisheries Service, and any other relevant state and federal agencies if any watercourses, drainages, or channels are identified within the development area.

Onsite Stormwater Condition: Applicant will be required to submit design and construction requirements for stormwater and surface water management at the time of Public Works Permit for the onsite private storm system for detention and water quality prior to discharge into a public facility. Design shall be in accordance with Section 3 of the Molalla Standard Specifications for Public Works Construction and Stormwater Master Plan. On-site private storm system shall comply with state plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit. in Accordance with MMC 13.13 Surface Water Management.

Stormwater SDC's - In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from stormwater SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

17-3.6.060 Utilities:

*B. **Underground Utilities.***

*1. **General Requirement.** The requirements of the utility service provider shall be met. All utility lines in new subdivisions, including, but not limited to, those required for electric, communication, and lighting, and related facilities, shall be placed underground, except where the City Engineer determines that placing utilities underground would adversely impact adjacent land uses. The Planning Official may require screening and buffering of above ground facilities to protect the public health, safety, or welfare.*

Findings: This standard can be met subject to a condition of approval. All utilities for the project shall be served by underground services. No overhead crossings of public right of way shall be approved by the City.

17-3.6.070 Easements:

*A. **Provision.** The developer shall make arrangements with the City and applicable utility providers for each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development.*

B. ***Recordation.*** All easements for sewers, storm drainage and water quality facilities, water mains, electric lines, or other utilities shall be recorded and referenced on a survey or final plat, as applicable. See Chapter 17-4.2 Site Design Review, and Chapter 17-4.3 Land Divisions and Property Line Adjustments.

Findings: These standards can be met subject to a condition of approval. Applicant will be required to dedicate a 10-foot-wide public utility easement fronting the public right-of-way if one does not exist. If one does exist, applicant shall provide proof of existing dedication.

17-3.6.080 Construction Plan Approval:

No development, including sanitary sewers, water, streets, parking areas, buildings, or other development, shall commence without plans having been approved by the City of Molalla Public Works Department and permits issued. Permit fees are required to defray the cost and expenses incurred by the City for construction and other services in connection with the improvement. Permit fees are as set by City Council resolution.

Findings: This standard can be met subject to a condition of approval. Applicant shall apply for a Public Works Permit in accordance with Section 1.15 DEVELOPMENTS PROCESS REQUIREMENTS of Molalla Standards. No work will be performed, not materials stored, nor encroachment made on or within a right-of-way, public easement, or public utility easement until all requirements have been meet and permit has been issued.

17-3.6.090 Facility Installation:

DESIGN REQUIREMENTS & POLICIES

Findings: The following standards apply to design and construction phases for public facilities:

A. ***Conformance Required.*** *Improvements installed by the developer, either as a requirement of these regulations or at the developer's option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the City.*

B. ***Adopted Installation Standards.*** *The City of Molalla has adopted Public Works Design Standards for public improvements and private utility installation within the public right-of-way.*

C. ***Commencement.*** *Work in a public right-of-way shall not begin until all applicable agency permits have been approved and issued.*

D. ***Resumption.*** *If work is discontinued for more than six months, it shall not be resumed until the Public Works Director is notified in writing and grants approval of an extension.*

E. ***City Inspection.*** *Improvements shall be constructed under the inspection of the City Engineer. The City Engineer may approve minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest, except that substantive changes to the approved design shall be subject to review under Chapter 17-4.5 Modifications to Approved Plans and Conditions of Approval. Any survey monuments that are disturbed before all improvements are completed by the developer or subdivider shall be replaced at the developer or subdivider's expense prior to final acceptance of the improvements.*

F. ***Engineer's Certification and As-Built Plans.*** *In accordance with the current version of the Public Works Design Standards, a registered civil engineer shall provide written certification in a form required by the City that all improvements, workmanship, and materials meet current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to City's acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide two sets of "as-built" plans, one paper set and one electronic set for permanent filing with the City. If required by the City, the developer or subdivider shall provide a warranty bond pursuant to Section 17-3.6.100. (Ord. 2017-08 §1*

G. ***Residential Development Projects****, No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provision of the Code and the Public Works Design Standards in accordance with MMC 17-3.6 Public Facilities. All public facilities shall be completed and accepted by the Public Works Department prior to issuance of final occupancy.*

H. ***Materials Submitted,*** *storm drain, domestic water and sanitary sewer facilities will be obtained from main line connections and/or extensions. Separate engineering drawings reflecting the installation of these public utilities will be required.*

I. ***Construction and/or Connection,*** *No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, bonding, right-of-way and easements have been obtained and approved by staff, and Staff is notified a minimum of 24 hours in advance.*

J. ***Revisions/Modifications,*** *Staff reserves the right to require revisions/modifications to the public improvement construction plans and completed street improvements, if additional modifications or expansion of the sight distance onto adjacent streets is required.*

K. ***Civil Review,*** *All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Work's Standards* as described in Section 1 of the Molalla Standard Specifications for Public Works Construction.

L. ***Monuments,*** *All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.*

M. ***Existing Wells,*** *The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells,*

they shall be properly abandoned in conformance with State standards and supply the City with a copy of the final document.

N. ***Sanitary Sewer,*** *designs require review by Oregon Department of Environmental Quality. Applicant shall be responsible for submission of plans to state agency and all associated fees. Applicant's Engineer will be required to submit final report to DEQ and provide a copy of the report to the City.*

O. ***Utilities****, All utilities will be stubbed out to the far end of each street for future extension. The project shall utilize existing water, sewer, and storm water 'stub-outs' wherever possible. Water for domestic and fire protection shall be looped through the proposed site. Any 'stub-outs' determined to be not needed for the proposed development or any future development of the subject property shall be abandoned in accordance with the Molalla Standard Specifications for Public Works Construction.*

P. ***Public Improvements,*** *All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director.*

Q. ***General Easements*** *– A 10-foot-wide public utility easement shall be dedicated to the City adjacent to all public right-of-way and no structures are allowed to encroach into the easement. Applicant shall be required to submit a legal description and exhibit map for review and sign City easements. Once completed, applicant will be required to record easements with the County Recorder's Office and return the original document to the City prior to final occupancy.*

R. ***General Wetland Requirements*** *– The applicant will be required to provide Public Works with a letter of concurrence from the Department of State Lands regarding any wetlands on the subject property.*

S. ***General Erosion Control*** *– The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance.*

17-3.6.100 Performance Guarantee and Warranty:

A. ***Performance Guarantee Required.*** *The City at its discretion may approve a final plat or building permit when it determines that all of the public improvements required for the site development or land division, or phase thereof, are complete and the applicant has an acceptable assurance for the balance of said improvements. The applicant shall provide a performance and payment bond in accordance with the current version of the Public Works Design Standards.*

B. ***Determination of Sum.*** *The assurance of performance shall be for a sum determined by the City Engineer as required to cover the cost of the improvements and repairs, including related engineering*

and incidental expenses, plus reasonable inflationary costs. The assurance shall not be less than 150 percent of the estimated improvement costs.

Findings: These standards can be met subject to a condition of approval. Performance Bond shall be in place prior to issuance of permit and before any public construction begins. The sum of the Performance Bond will be based on Engineering Cost Estimates provided at the time of application submittal.

C. ***Itemized Improvement Estimate.*** *The applicant shall furnish to the City an itemized improvement estimate, certified by a registered civil engineer, to assist the City in calculating the amount of the performance assurance.*

Findings: See findings under 17-3.6.100 "A" & "B"

D. ***Agreement.*** *A written agreement between the City and applicant shall be signed and recorded. The agreement may include a provision for the construction of the improvements in stages and for the extension of time under specific conditions. The agreement shall contain all of the following:*
   1. *The period within which all required improvements and repairs shall be completed.*
   2. *A provision that if work is not completed within the period specified, the City may complete the work and recover the full cost and expenses from the applicant.*
   3. *The required improvement fees and deposits.*

Findings: These standards are met subject to a condition of approval. Applicant shall not be granted a building permit until all required improvements are completed and accepted by the City, or an agreement and financial assurance acceptable to the City for all outstanding public improvements is recorded against the property.

E. ***When Applicant Fails to Perform.*** *In the event the applicant fails to carry out all provisions of the agreement and the City has un-reimbursed costs or expenses resulting from such failure, the City shall call on the bond, cash deposit, or letter of credit for reimbursement.*

Findings: This standard is met subject to a condition of approval. The Applicant shall perform the public improvements as required and in accordance with the City of Molalla's Public Works Design Standards. In the event Applicant fails to perform within period of validity for construction plan review, the City will call on the financial assurance to complete said improvements.

F. ***Termination of Performance Guarantee.*** *The applicant shall not cause termination, nor allow expiration, of the guarantee without first securing written authorization from the City.*

Findings: This standard is met subject to a condition of approval. At completion of the project and acceptance of Warranty Bond, the City will release the Performance Bond. If the applicant allows the financial assurance to expire, or terminate without written authorization from the City, a stop work order will be placed on the project and no occupancy will be granted. Additionally, the city will seek all available remedies under the law.

G. ***Warranty Bond.*** *A warranty bond good for two years is required on all public improvements and landscaping when installed in the public right-of-way. The warranty bond shall equal 120 percent of the total cost of improvements and begin upon acceptance of said improvements by the City. (Ord. 2017-08 §1)*

Findings: This standard is met subject to a condition of approval. Warranty Bond shall be in place prior to final completion and acceptance of the project and meeting the requirements in subsection 1.15.9 of the Molalla Standards and subject to all easements and legal documents have been recorded with the County.

D. For non-residential uses, all adverse impacts to adjacent properties, such as light, glare, noise, odor, vibration, smoke, dust, or visual impact, are avoided; or where impacts cannot be avoided, they are minimized; and

Findings: The proposed school is not anticipated to create adverse impacts to adjacent properties, which are all residential uses. The Applicant has proposed vegetative screening adjacent to all parking lots to prevent headlight glare and has proposed a visually appealing building and frontage. Proposed light fixtures to be angled downward to prevent light spillage onto adjacent properties. School setbacks to allow visual relief.

E. The proposal meets all existing conditions of approval for the site or use, as required by prior land use decision(s), as applicable. Note: Compliance with other City codes and requirements, though not applicable land use standards, may be required prior to issuance of building permits. (Ord. 2017-08 §1)

Findings: This standard can be met subject to a condition of approval. Applicant is currently in the process of grading the site for the new middle school in accordance with Molalla Planning File# EXG02-2025. All conditions of EXG02-2025 to be completed prior to building permit issuance. Staff is not aware of any other outstanding conditions from previous land use decisions or permitting.

Exhibit B:

Findings of Fact for VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025

17-4.7.040 Variances:

VAR01-2025 and VAR02-2025 – Variances to MMC 17-3.2.040.D.6 and MMC 17-3.2.040.D.9

Summary of proposal:
VAR01-2025 and VAR02-2025 both consider variances associated with window glazing coverage and are considered together.

The Applicant has requested:

A Variance to Section 17-3.2.040.D.6 to allow 38% window coverage on the building elevation facing Lynn LN and 36% window coverage on the elevation facing Leroy Avenue. Standard 17-3.2.040.D.6 requires at least 60% window coverage on street facing elevations between30 inches and 72 inches above sidewalk grade.

a 21% window glazing coverage on a non-. This coverage comes in below the requirement of 30 percent between a plane of 30 in and 72 in above the street grade for non-street facing facades. The application was evaluated to the following standards:

A. Applicability. A Variance is similar to an Adjustment, but does not otherwise meet the criteria under Section 17-4.7.030.

Findings: The Applicant's proposed variance exceeds the 20% maximum standard for an adjustment and thus requires a variance for approval.

B. Approval Criteria. The Planning Commission through a Type III procedure may approve a Variance upon finding that it meets all of the following criteria:

1. The Variance is necessary because the subject Code provision does not account for special or unique physical circumstances of the subject site, existing development patterns, or adjacent land uses. A legal lot determination may be sufficient evidence of a hardship for purposes of approving a variance;

Findings: The Applicant's submitted application states that the window glazing requirements of the code:

> *Do not account for special circumstances which exist within a middle school building including the safety and security of the students, the programmatic uses of interior spaces such as gymnasiums and auditoriums which do not often have windows on lower levels, efficient heating and cooling of the interior spaces, and the structural needs of the building. Display windows meant to provide full visibility to interior spaces is not appropriate for the school use.*

The Applicant thus states that design standards do not consider physical requirements for the proposed use. The Molalla Municipal Development Code design standards are currently tailored towards central commercial retail uses and the considerations of a school facility are not considered by the code. Staff finds that this standard is met.

2. The Variance is the minimum necessary to address the special or unique physical circumstances related to the subject site;

Findings: The Applicant's submitted application shows that the design team took measures to provide as much glazing as possible to provide natural lighting for each classroom while still ensuring the security of the school. This standard is met.

3. The need for the Variance is not self-imposed by the applicant or property owner. (For example, the Variance request does not arise as a result of a property line adjustment or land division approval previously granted to the applicant);

Findings: The Applicant's submitted application states that unique security requirements of the proposed use create the need for the variance. No previous land use decisions have contributed towards this need. This standard is met.

4. The Variance does not conflict with other applicable City policies or other applicable regulations;

Findings: The proposed variance is isolated to glazing and does not affect compliance with other standards. The Applicant has provided analysis showing consistency with applicable Comprehensive Plan provisions. This standard is met.

5. The Variance will result in no foreseeable harm to adjacent property owners or the public; and

Findings: No changes to approved uses are being proposed and no direct harm is foreseen due to a reduction in window glazing. The applicant has provided a plan showing an attractive frontage and landscaping in lieu of required glazing. This standard is met.

6. All applicable building code requirements and engineering design standards shall be met. (Ord. 2017-08 §1)

Findings: All design requirements not addressed in response to proposed adjustments and variances have been addressed in responses to SDR02-2025. Applicant will be required to meet standards of Oregon Building Codes through building permit review and engineering standards through engineering review.

VAR03-2025 - Variances to MMC 17-3.2.040.E.1

Summary of proposal:
The Applicant has requested a Variance to MMC Section 17-3.2.040.E.1. This code section requires a break in the wall plane of at least 24 inches every 30 ft.

The applicant's submitted application included the elevation facing Lynn LN in this variance. The elevation facing Lynn LN has a break in wall plane of at least 24 inches with a maximum distance between breaks of 35 feet and a minimum distance of 7 feet. The average length of the wall plane is 23 feet. Staff finds that this elevation is compliant with Molalla Municipal Code since the average distance between breaks is less than 30 ft.

The elevation facing Leroy Ave has a break in wall plane of at least 24 inches with a maximum distance between breaks of 139 feet and a minimum distance of 10 feet. The average length of the wall plane is 56 feet. This elevation requires variance consideration.

A. **Applicability.** A Variance is similar to an Adjustment, but does not otherwise meet the criteria under Section 17-4.7.030.

Findings: The distance between breaks on the elevation facing Leroy Ave exceeds the threshold for an adjustment so a variance is required.

B. **Approval Criteria.** The applicant's proposed articulation :

1. The Variance is necessary because the subject Code provision does not account for special or unique physical circumstances of the subject site, existing development patterns, or adjacent land uses. A legal lot determination may be sufficient evidence of a hardship for purposes of approving a variance;

Findings: The Applicant's submitted application states that:

The theater and music room have been designed to meet both capacity and acoustic requirements, with limitations to the number of wall plane breaks along the walls of the rooms. The proposed articulation variance is the minimum necessary to meet the needs of the school.

The Applicant thus states that design standards do not consider physical requirements for the proposed theater/music use. Staff finds that this standard is met.

2. The Variance is the minimum necessary to address the special or unique physical circumstances related to the subject site;

Findings: The Applicant's submitted elevation plans show that the design team took measures to provide distinguishing articulation features such as change in materials and vertical patterning on facades where no breaks are provided. This standard is met.

3. The need for the Variance is not self-imposed by the applicant or property owner. (For example, the Variance request does not arise as a result of a property line adjustment or land division approval previously granted to the applicant);

Findings: Requirements of a theater building create the need for a variance. No previous land use decisions have contributed towards this need. This standard is met.

4. The Variance does not conflict with other applicable City policies or other applicable regulations;

Findings: The proposed variance is isolated to articulation and does not affect compliance with other standards. The Applicant has provided analysis showing consistency with applicable Comprehensive Plan provisions. This standard is met.

5. The Variance will result in no foreseeable harm to adjacent property owners or the public; and

Findings: No changes to approved uses are being proposed and no direct harm is foreseen due to a reduction in articulation. The applicant has provided plans showing an attractive frontage and landscaping in lieu of required articulation. This standard is met.

6. All applicable building code requirements and engineering design standards shall be met. (Ord. 2017-08 §1)

Findings: All design requirements not addressed in response to proposed adjustments and variances have been addressed in response to SDR02-2025. Applicant will be required to meet standards of Oregon Building Codes through building permit review and engineering standards through engineering review.

VAR04-2025 - Variance to MMC 17-3.4.050.C.1

Summary of proposal:
The Applicant has requested a Variance to MMC Section 17-3.2.040.C.1. This code section limits lighting poles to a height of 20' and proposed lighting poles are 25' in height.

A. **Applicability.** A Variance is similar to an Adjustment, but does not otherwise meet the criteria under Section 17-4.7.030.

Findings: The distance between breaks on the elevation facing Leroy Ave exceeds the threshold for an adjustment so a variance is required.

B. **Approval Criteria.** The applicant's proposed articulation :

1. The Variance is necessary because the subject Code provision does not account for special or unique physical circumstances of the subject site, existing development patterns, or adjacent land uses. A legal lot determination may be sufficient evidence of a hardship for purposes of approving a variance;

Findings: The Applicant's submitted application states that:

Raising the height of the light poles allows for an overall reduction in the total number of poles required. This reduces the visual impact on the neighbors while providing good light distribution for safety and security across the site. The reduction of light poles further reduces the necessary maintenance for the District. The proposed lighting provides adequate light on the site, while not exceeding the light trespass requirement.

Staff finds that this standard is met.

2. The Variance is the minimum necessary to address the special or unique physical circumstances related to the subject site;

Findings: The Applicant's choice of higher light poles was done to reduce the overall number of light poles required to illuminate the site. This standard is met.

3. The need for the Variance is not self-imposed by the applicant or property owner. (For example, the Variance request does not arise as a result of a property line adjustment or land division approval previously granted to the applicant);

Findings: Requirements of the school building create the need for a variance. No previous land use decisions have contributed towards this need. This standard is met.

4. The Variance does not conflict with other applicable City policies or other applicable regulations;

Findings: The proposed variance is isolated to lighting height. The Applicant's submitted photometrics plan show that all other lighting standards such as spillage onto adjacent properties and downward facing fixtures, which could impact adjacent neighbors, meet the standards of this code. This standard is met.

5. The Variance will result in no foreseeable harm to adjacent property owners or the public; and

Findings: The Applicant's submitted photometrics plan show that all other lighting standards such as spillage onto adjacent properties and downward facing fixtures, which could impact adjacent neighbors, meet the standards of this code. This standard is met.

6. All applicable building code requirements and engineering design standards shall be met. (Ord. 2017-08 §1)

Findings: All design requirements not addressed in response to proposed adjustments and variances have been addressed in response to SDR02-2025. Applicant will be required to meet standards of Oregon Building Codes through building permit review and engineering standards through engineering review.

Exhibit C:

Consolidated Application Package For SDR02-2025, VAR01-2025, VAR02-2025, VAR03-2025, and VAR04-2025

Community Development Department
315 Kennel Ave/PO Box 248
Molalla, OR 97038
Phone 503.759.0205
www.cityofmolalla.com

LAND USE ACTION APPLICATION

Type of land use action requested (more than one may apply)

Annexation:	☐	Conditional Use:	☐
Zone Change:	☐	Partition:	☐
Comp Plan Amendment:	☐	Site Design Review:	☑
Master Plan Development:	☐	Variance:	☑
Subdivision:	☐	Other: _____	

Applicant information
Name: 3J Consulting Phone: _____
Mailing Address: 9600 SW Nimbus Avenue, Suite 100
City: Beaverton State: OR Zip: 97008
Email: heather.austin@3j-consulting.com

Owner Information
Name: Molalla River Middle School Phone: 503-829-2359
Mailing Address: PO Box 188 / 412 S. Swiegle Avenue
City: Molalla State: OR Zip: 97038
Email: ron.stewart@molallariv.k12.or.us

Property Information
Site address: 318 Leroy Avenue
Zoning district: PSP Overlay: _____ Tax lot #52E08B 03000
Tax Account Number(s): 03000 T: 5S R: 2E S: 08B
Property dimensions: 760 ft x 1025 ft Property acreage: 17.90
Surrounding property uses; North: Residential South: Residential East: Residential
West: Residential Topography: Slight slope to the north

Project Information

Description of Proposal: A new 115,360 square foot middle school and associated site improvements on the existing middle school site.

Describe all existing buildings or structures on property: Main school building, two modular classrooms, one detached classroom space, storage shed.

Prior Use: Molalla RIver Middle School

Current Use: Molalla RIver Middle School

Proposed Use: Molalla RIver Middle School

City Utilities Impacted: **Water:** ☑ **Sewer:** ☑ **Stormwater:** ☑ **None:** ☐

Site Plan(s) and Documents Required

1. Ownership documents if different than Clackamas County CMAP property information.
2. Provide All Easements, Covenants, Conditions, Restrictions, and Encumbrances on the property – Attach to this form.
3. Provide Elevation profiles meeting architectural standards of MCC 17-3.2.030 (D)
4. If your project is subservient to a prior project(s) please provide:
   - Planning File Number(s):_____
   - Subdivision name/date approved: _____
   - Special Planning Permits (attach): Conditional Use/Variance/Other: _____
   - Planning Conditions of Approval (attach)
5. Site/Plot Plan

   Plot Plan Requirements
   - Applicant's name and address.
   - Legal description of the property (Township, Range, Section and Tax Lot).
   - SITE PLAN MUST INCLUDE DIMENSIONS OF ALL EXISTING AND PROPOSED STRUCTURES, PROPERTY LINES, SETBACKS, AND DRIVEWAYS.
   - Direction of North.
   - Driveway location and location of adjacent streets.
   - Proposed and existing structures.
   - Location of any existing wells on the property.
   - Walkways, patios, patio slabs, and mechanical units (e.g. air conditioning unit)
   - Location of existing and proposed utility connections.
   - Approximate ground slope and direction of the slope.
   - Property Lines.
   - Position of all creeks, streams, ponds, springs, or other drainageways.
   - Relative elevations (1) At lot corners or construction area, and (2) At building site.
   - Existing and proposed easements.
   - All streets abutting the property.
   - All existing and proposed site features must be included and labeled as such.
   - You must also indicate what is proposed to remain and what is proposed to be removed.

Owner's Signature: Tony Mann Digitally signed by Tony Mann Date: 2025.05.28 16:32:26 -07'00' Date: May 28, 2025

Printed Name: Tony Mann Date: May 28, 2025

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Appendices

Appendix A – Land Use Application Form

Appendix B – Pre-Application Conference Notes – December 10, 2024

Appendix C – Neighborhood Meeting Information – March 31, 2024

- Exhibit 1: Certified Letter to Property Owners within 300 Feet
- Exhibit 2: Affidavit of Mailing Notice
- Exhibit 3: Certified Mail Receipts
- Exhibit 4: Mailing List
- Exhibit 5: Meeting Sign-In Sheet
- Exhibit 6: Meeting Minutes
- Exhibit 7: Meeting Exhibit Board

Appendix D – Technical Reports

- Exhibit 8: Transportation Impact Study, Lancaster Mobley – May 22, 2025
- Exhibit 9: Sewer Capacity Analysis, Standridge, Inc. – May 21, 2025
- Exhibit 10: Public Facilities and Services Impact Study, Standridge, Inc. – May 21, 2025
- Exhibit 11: Preliminary Drainage Report, Standridge, Inc. – May 2025
- Exhibit 12: Geotechnical Report, PBS – March 25, 2025
- Exhibit 13: Molalla River School District Long Range Planning Committee Report
- Exhibit 14: Lighting Cut Sheets, May 21, 2025
- Exhibit 15: Wetland and Water Delineation Report, AKS Engineering and Forestry - May 2025

Appendix E – Land Use Plans

Civil Drawings:

- C0.00 Cover
- C0.01 General Notes
- C0.50 Demolition Plan - North
- C0.51 Demolition Plan - South
- C1.00 Layout & Paving Plan – North
- C1.01 Layout & Paving Plan – South
- C2.00 Grading Plan - North
- C2.01 Grading Plan – South
- C3.00 Utility Plan - North
- C3.01 Utility Plan - South
- C4.00 N Hezzie Lane Plan & Profile
- C4.01 Leroy Ave Plan & Profile
- C4.02 Lynn Lane Plan & Profile
- C4.03 West Lane Plan & Profile
- C4.04 Street Cross-Sections
- C5.00 Private Site & Utility Details
- C5.01 Private Utility Details
- C5.02 Public Storm Details
- C5.03 Public Storm Details
- C5.04 Public Street & Water Details

Landscape Drawings:

- L0.00 Key Plan
- L0.11 Tree Protection and Removal Plan - Northwest
- L0.12 Tree Protection and Removal Plan - Northeast
- L0.13 Tree Protection and Removal Plan - Southwest
- L0.14 Tree Protection and Removal Plan - Southeast
- L5.00 Planting Notes and Schedule
- L5.01 Planting Plan - Northwest
- L5.02 Planting Plan - Northeast
- L5.03 Planting Plan - Southwest
- L5.04 Planting Plan - Southeast

Architectural Drawings:

- LU-01 Architectural Site Plan
- LU-02 Floor Plan Level 01
- LU-03 Floor Plan Level 02
- LU-04 Roof Plan
- LU-05 Exterior Elevations
- LU-06 Exterior Building Materiality
- LU-07 Renderings and Site Line Diagrams

Photometric Drawings:

- EL0.81 Land Use Site Plan – Lighting
- EL0.82 Lighting Schedule – Land Use

GENERAL INFORMATION

Property Owner and Applicant:	**Molalla River Middle School** PO Box 188/412 S. Swiegle Ave Molalla, OR 97038 Contact: Ron Stewart Phone: (503) 829-2359 Email: ron.stewart@molallariv.k12.or.us
Planning Consultant:	**3J Consulting, Inc.** 9600 SW Nimbus Avenue, Suite 100 Beaverton, OR 97008 Contact: Mercedes Serra Phone: (503) 946-9365 Email: mercedes.serra@3j-consulting.com
Project Management:	**Otak, Inc.** 808 SW Third Ave., Suite 800 Portland, OR 97204 Contact: Bob Collins Phone: (503) 434-3650 Email: bob.collins@otak.com
Architect:	**Opsis Architecture** 975 SE Main St Portland, OR 97214 Contact: Steve Nelsen Phone: (503) 525-9511 Email: steve@opsisarch.com
Civil Engineer:	**Standridge Inc.** 703 Broadway Street, Suite 610 Vancouver, Washington 98660 Contact: Laura Standridge Phone: (360) 597-9240 Email: laura@standridgeinc.com
Landscape Architect:	**Mayer/Reed** 920 SW 6th Avenue, Ste 425 Portland, Oregon 97204 Contact: Michael O'Brien Phone: (503) 223-5953 Email: mobrien@mayerreed.com

SITE INFORMATION

Parcel Number:	52E08B 03000
Address:	318 Leroy Avenue
Gross Site Area:	17.90 acres
Zoning Designation:	Public and Semi Public (PSP)
Existing Use:	Molalla River Middle School
Surrounding Zoning:	The properties to the north and east are zoned Single Family Residential (R-1). The properties to the south are zoned Central Commercial (C-2). The properties to the west are zoned Public and Semi Public (PSP) and Single Family Residential (R-1).
Street Classification:	Leroy Avenue is classified as a Major Collector. N Hezzie Lane is classified as a Neighborhood Street. Lynn Lane and West Lane are classified as local streets.

INTRODUCTION

APPLICANT'S REQUEST

The Molalla River School District ("the District") proposes to construct a replacement middle school on the existing site of Molalla River Middle School and seeks concurrent approval of a Site Design Review Application and four Variances. This narrative has been prepared to describe the proposed development and to document compliance with the relevant sections of Molalla's Development Code ("MDC") Title 17 and Chapters "17-2.2 Zoning District Regulations", "Chapter 17-3.2 Building Orientation and Design", "17-3.3 Access and Circulation", "17-3.4 Landscaping, Fences and Walls, Outdoor Lighting", "17-3.5 Parking and Loading", '17-4.1 General Review Procedures", "17-4.2 Site Design Review", and "17-4.7 Adjustments and Variances".

Site Design Review applications are evaluated under the Type II decision process. A Variance application is evaluated under the Type III Quasi-Judicial process. The Planning Commission will render the Type III decision after a public hearing on the application is held.

SITE DESCRIPTION/SURROUNDING LAND USE

Molalla River Middle School is located at 318 Leroy Avenue within the City of Molalla (the "City"). The development site consists of one tax lot. The site is 17.9 acres and is zoned PSP. The site is generally flat but slopes to the north.

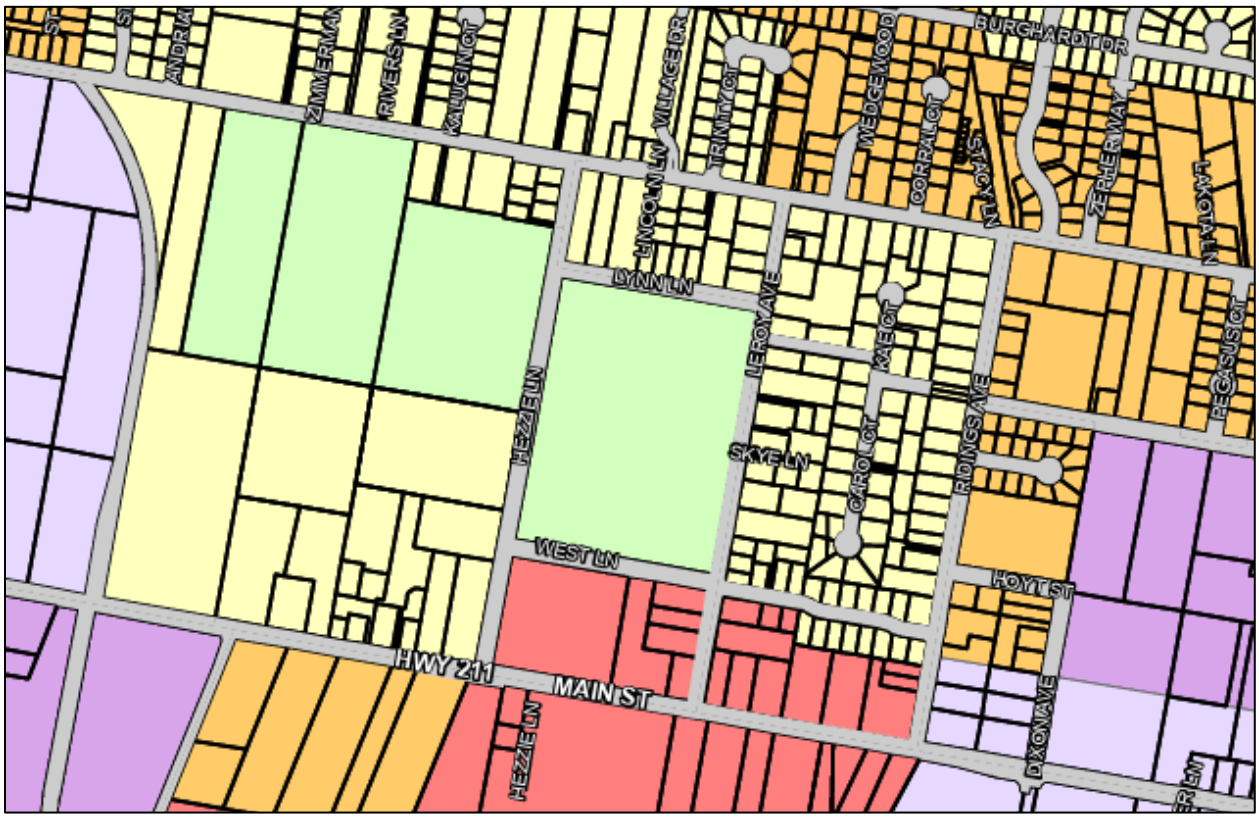

Figure A: Zoning Map

The existing single-story school was built in 1953 and is 91,000 square feet. The school has an enrollment of 531 students, and a maximum capacity of 800 students as identified in the Molalla River School District Long Range Planning Committee Report. The main school building is in the southeast corner of the site. Two transportable classroom buildings are located northwest of the main school building. A detached building to the west of the main school building is currently used as classroom space. Parking is dispersed throughout the site, with the main parking areas for the school building located to the south and north of the building, with additional parking between building wings on the west side of the building. Additional parking for events is provided north of the school building off of Leroy Avenue. School bus queuing is currently provided on Leroy Avenue. The site has a total of 168 parking spaces. Athletic fields are located along the western and northern areas of the school property, with hard scape play areas and play structures located west of the school building. The middle school currently utilizes the recreation space on both the middle school and elementary school site for P.E. classes as well as extra-curricular activities.

Figure B: Site Aerial

PROPOSAL

The Molalla River School District is proposing to construct a new 115,360 square-foot middle school on the existing 17.90-acre Molalla River Middle School campus. The development includes a 6,200 square foot covered play area and 1,840 square feet of exterior covered area. The proposed redevelopment will preserve the compatibility within the existing neighborhood by utilizing the existing school site. The new middle school and athletic fields will be constructed on the site while the existing school is occupied. Once construction of the new middle school building is completed, the existing school building will be demolished, and the site improvements will be completed.

The new school building will have 24 standard classrooms with 8 additional learning spaces including a gymnasium and an auditorium. The new school building will have capacity for up to 700 students. The projected enrollment when the school opens in 2027 is 550 students. The proposed building will be two stories in height and have a maximum height of 35 feet. Site improvements will include an entry plaza, soft and hard surface play areas, athletic fields, and outdoor learning areas. The primary parent loading area and visitor parking lot will be located at the main entrance of the new school, with access from Leroy Avenue. Staff parking will located north of the new building and will be accessed from Lynn Lane. The bus loading and event parking will be located south of the building and will be accessed from Hezzie Lane. A total of 191 parking stalls will be provided on site. Pedestrian pathways will connect the main school building with site facilities and surrounding pedestrian infrastructure. The site will include pedestrian level lighting within the parking lot and around the building for safety.

The proposed development will include three-quarter street frontage improvements on Leroy Avenue including sidewalks along the school frontage, bike lanes, two travel lanes, a center turn lane and curbs and gutters on both sides of the road. Lynn Lane will be improved with a three-quarter street improvement and will tie to the proposed extension of Lynn Lane from the west with a new sidewalk along the school frontage. West Lane will be improved with a three-quarter street improvement. Hezzie Lane will be improved with half-street improvements from N. Valley Drive to West Lane. All proposed improvements will be made within the existing City right-of-way. The frontage improvements will allow for on-street parking along the school frontages of Lynn Lane, West Lane, and Hezzie Lane.

NEIGHBORHOOD MEETING

The Applicant conducted a neighborhood meeting on March 31, 2025, to explain the proposed development and answer questions from the surrounding property owners. The submitted materials include the affidavits, mailing list, certified mail receipts, meeting exhibit, sign-in sheet and meeting minutes.

An informal follow-up neighborhood meeting was held on May 22, 2025, to provide an update on the project with community members and neighbors within 300 feet of the site.

APPLICABLE CRITERIA

The following sections of Molalla's Development Code have been extracted as they have been deemed to be applicable to the proposal. Following each **bold** applicable criteria or design standard, the Applicant has provided a series of draft findings. The intent of providing code and detailed responses and findings is to document, with absolute certainty, that the proposed development has satisfied the approval criteria for a Site Design Review application.

Title 17 Development Code

Division II Zoning Regulations
CHAPTER 17-2.2 ZONING DISTRICT REGULATIONS
17-2.2.030 Allowed Uses

Table 17-2.2.030 Uses Allowed by Zoning District	
Uses	**Public Use**
B. Public and Institutional Uses	**PSP**
School, Secondary	**P**

Finding: Public schools are permitted in the PSP zone. The proposed middle school is a public educational facility.

17-2.2.040 Lot and Development Standards

Table 17-2.2.040.E Lot and Development Standards for Non-Residential Zones	
Standard	**PSP**
Minimum Lot Area (square feet) *Development must conform to lot width, depth, yard setback, and coverage standards	None
Minimum Lot Width and Depth	None
Building and Structure Height	55 ft
Fences and Non-Building Walls Maximum Height – Front Yard Maximum Height – Interior Side Maximum Height – Rear Yard Maximum Height – Street-Side or Reverse Frontage Lot (rear) (See also Section 17-3.4.040)	 4 ft 6 ft 6 ft 4 ft, or 6 ft with 5 ft landscape buffer
Lot Coverage. Maximum Lot Coverage **Minimum Landscape Area (% site area),** includes required parking lot landscaping and any required screening. This standard does not apply to individual, detached single-family dwellings. Landscape area may include street trees and civic space improvements in some zones, per Sections 17-3.2.050 and 17-3.4.030.	NA 10%
Minimum Setback Yards (feet): (See also Section 17-2.2.050) Front, Street-Side, Interior Side, and Rear property lines, except garage or carport, or as required by other code provisions Garage or Carport Entry, set back from street	 0 ft

Alley Adjacent to R Districts	20 ft 3 ft 10 ft
Special Setback for Planned Street Improvements: Except as waived by the City Engineer, new structures or additions on lots abutting an existing public street that does not meet the right-of-way standards of Section 17-3.6.020, shall provide setbacks sufficient to allow for the future planned right-of-way, plus the minimum required yard setback.	

Finding: The development will not create new lots; therefore, lot area, lot depth, and lot width are not applicable. The existing lot dimensions exceed all minimum required dimensional standards. The subject site is a through lot, with a front lot line on Lynn Lane and West Lane and street side yards on Hezzie Lane and Leroy Lane. The minimum setback for all front, street-side and interior side yards is 0 feet. The proposed building meets the required setbacks.

The maximum building height is 55 feet. The main portions of the proposed middle school will have a height of 37 feet. The rooftop mechanical equipment and screening will have a maximum height of 10 feet above the maximum building height.

The site will have fencing around the play fields which will exceed the maximum height but be located outside of the required setbacks.

This section is met.

Division III Community Design Standards
CHAPTER 17.3.2 BUILDING ORIENTATION AND DESIGN

17-3.2.020 Applicability.
Chapter 17-3.2 applies to all new buildings, including single-family detached homes, and exterior alterations to existing buildings. The Planning Official, through a Type II procedure, may grant adjustments to Chapter 17-3.2, pursuant to the criteria of Chapter 17-4.7 Adjustments and Variances.

Finding: The proposed development will include a new building. This requirements of this section are applicable.

17-3.2.040 Non-Residential Buildings.

A. Purpose and Applicability. The following requirements apply to non-residential development, including individual buildings and developments with multiple buildings such as shopping centers, office complexes, mixed-use developments, and institutional campuses. The standards are intended to create and maintain a built environment that is conducive to pedestrian accessibility, reducing dependency on the automobile for short trips, while providing civic space for employees and customers, supporting natural

surveillance of public spaces, and creating human-scale design. The standards require buildings placed close to streets, with storefront windows (where applicable), with large building walls divided into smaller planes, and with architectural detailing.

Finding: The proposed development is an institutional campus. The non-residential building standards apply to the proposed school.

B. Building Orientation. The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. Buildings subject to this section shall conform to the applicable build-to line standard in Table 17-2.2.040.E, as generally illustrated in Figure 17-3.2-6. The standard is met when at least 50 percent of the abutting street frontage has a building placed no farther from at least one street property line than the build-to line in Table 17-2.2.040.E; except in the Central Commercial C-1 zone, at least 80 percent of the abutting street frontage shall have a building placed no farther from at least one street property line than the required build-to-line. The Planning Official, through Site Design Review, may waive the build to line standard where it finds that one or more of the conditions in subdivisions a through g occurs.

Finding: The build-to line standard does not apply in the PSP zone. The requirements of this section are not applicable.

2. Except as provided in subsections C.5 and 6, all buildings shall have at least one primary entrance (i.e., tenant entrance, lobby entrance, breezeway entrance, or courtyard entrance) facing an abutting street (i.e., within 45 degrees of the street property line); or if the building entrance must be turned more than 45 degrees from the street (i.e., front door is on a side or rear elevation) due to the configuration of the site or similar constraints, a pedestrian walkway must connect the primary entrance to the sidewalk in conformance with Section 17-3.3.040.

Finding: The proposed school will have a main entrance vestibule oriented towards Leroy Avenue. Additional building entrances will be located on the south and west sides of the building. This standard is met.

3. Off-street parking, trash storage facilities, and ground-level utilities (e.g., utility vaults), and similar obstructions shall not be placed between building entrances and the street(s) to which they are oriented. To the extent practicable, such facilities shall be oriented internally to the block and accessed by alleys or driveways.

Finding: The new school has been oriented towards Leroy Avenue, with the main entrance facing Leroy Avenue. The parent parking lot and drop-off and pick-up area is located

at the main entrance of the school building between Leroy Avenue and the building. The parent drop-off aisle, which acts as an internal shopping street, per the City's definition is located between the building and the main school entrance. Pedestrian pathways connect along the entire parent drop-off zone and provide pedestrian connectivity to the main school entrance. The school entrance and main parking lot are located to provide safe and clear access to students and parents during drop-off and pick-up times. The location also provides a natural sight line from the administrative offices to the on-site visitor parking consistent with the recommendations for school placement from both Partner Alliance for Safer Schools (PASS) and Crime Prevention Through Environmental Design (CPTED) for school parking lots. The staff parking lot is located along the north end of the building, while the event parking lot is located south of the school building.

Trash storage facilities are located on the southern side of the building within an enclosed space and will not be located between a street and the building. The trash facility will be accessed from the bus lane. A PGE switch vault is located along Leroy Avenue. All other above ground utility services are located internally to the site. This standard is met.

4. **Off-street parking shall be oriented internally to the site to the extent practicable, and shall meet the Access and Circulation requirements of Chapter 17-3.3, the Landscape and Screening requirements of Chapter 17-3.4, and the Parking and Loading requirements of Chapter 17-3.5.**

Finding: The new campus has been designed with on-site parking dispersed within three lots on the site. A lot north of the school between the school building and Lynn Avenue will provide parking mainly for school staff. A parking lot south of the building will primarily be used for bus loading and unloading and event parking. The main entrance to the site will be located on Leroy Avenue and will connect to the main building entrance. This parking lot will act as a parent drop-off and pick-up lot, with parking and on-site queueing. The main entrance and main parking lot are located to provide safe and clear access to students and parents during drop-ff and pick-up times. The location also provides a natural sight line from the administrative offices to the on-site visitor parking. The internal "shopping street" directly adjacent to the front of the building and associated pedestrian network will create a safe and highly visible pedestrian friendly building entrance. Existing and proposed landscaping within the parking lot and along the perimeter will provide additional visual buffering between the parking lot and nearby street and neighboring properties. Pedestrian pathways connect nearby streets to the main entrance, providing for clear and safe pedestrian circulation. The intent of the code is met to the extent practicable.

5. **Where a development contains multiple buildings and there is insufficient street frontage to meet the above building orientation standards for all buildings on the subject site, a building's primary entrance may orient to plaza, courtyard, or similar pedestrian space containing pedestrian amenities and meeting the requirements under Section 17-3.2.050, subject to Site Design Review approval. When oriented this**

way, the primary entrance(s), plaza, or courtyard shall be connected to the street by a pedestrian walkway conforming to Section 17-3.3.040.

Finding: The proposed development contains one main building. The requirements of this section are not applicable.

C. Large-Format Developments. Plans for new developments, or any phase thereof, with a total floor plate area (ground floor area of all buildings) greater than 35,000 square feet, shall meet all of the following standards in subsections C.1 through 9, as generally illustrated in Figure 17-3.2-7. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **The site plan or preliminary subdivision plan, as applicable, shall comply with the street connectivity standards of Section 17-3.6.020. The plan approval shall bind on all future phases of the development, if any, to the approved block layout.**
2. **Except as provided by subsections C.6 through 9, the site shall be configured into blocks with building pads that have frontage onto improved streets meeting City standards, and shall contain interior parking courts and with interconnected pedestrian walkways.**

Finding: The school campus is a single lot with existing right-of-way along the north, south, east and southwest. Improvements will be made to the existing right-of-way on adjacent frontages, however new streets and subdivision of the site is not proposed. The entire campus site will be utilized to provide the school building and associated site improvements to support the school, including parking and recreation areas.

3. **The build-to line standards in Table 17-2.2.040.E shall be met across not less than 75 percent of the site's street frontage, consistent with subsection 17-3.2.040.B, except the build-to standard does not apply where a railroad, expressway, water body, topographic constraint, or similar physical constraint makes it impractical to orient buildings to a particular street or highway.**

Finding: The build-to line standard does not apply in the PSP zone. The requirements of this section are not applicable.

4. **Walkways shall connect the street right-of-way to all primary building entrances, and shall connect all primary building entrances to one another, including required pedestrian crossings through interior parking areas, if any, in accordance with Section 17-3.3.040. The Planning Official may condition development to provide facilities exceeding those required by Section 17-3.3.040, including a requirement for lighting, stairways, ramps, and midblock pedestrian access ways (e.g., to break up an otherwise**

long block) to ensure reasonably safe, direct, and convenient pedestrian circulation. Development in the right-of-way shall be approved by the City Engineer.

Finding: The Application includes an Architectural Site Plan (Sheet LU-01) which shows connections between all building entrances and the street. The proposed pedestrian circulation system connects the entrances on site. The requirements of this section are met.

5. **Buildings placed at a block corner shall have a primary entrance oriented to the block corner. That entrance shall be located no more than 20 feet from the corner, as measured from the street curb and shall have a direct and convenient pedestrian walkway connecting to the corner sidewalk.**

Finding: The proposed building has not been oriented to a block corner. The requirements of this section are not applicable.

6. **All buildings shall orient to a street, pursuant to subsection B. Where it is not practical to orient all buildings to streets due to existing parcel configuration or a similar site constraints, buildings may orient to a "shopping street" providing, at a minimum, on-street parking (parallel or angled parking), 10-foot sidewalks (which shall include a four-foot zone for street trees and furnishings such as benches and other street furniture), and pedestrian-scale lighting. Shopping street dimensions do not apply to the public right-of-way.**

Finding: The most architecturally significant façade is oriented towards Leroy Avenue. This standard is met.

7. **Each building that is proposed as orienting to a shopping street shall comply with the orientation standards of subsection B in reference to the shopping street, and shall have at least one primary entrance oriented to the shopping street.**

Finding: The main entrance of the building is oriented towards Leroy Avenue, with an internal parent pick-up/drop off lane acting as an internal “street”. This standard is met.

8. **Where a building fronts both a shopping street and a public street, that building shall contain at least one primary entrance oriented to each street; except that an entrance is not required where the public street is not improved with a sidewalk and the City determines that sidewalk improvements to the public street cannot be required as a condition of approval.**

Finding: The main entrance of the building is oriented towards Leroy Avenue. This standard is met.

9. **All other provisions of this Code apply to large-format developments.**

Finding: The applicant has addressed all applicable code criteria. This standard is met.

D. Primary Entrances and Windows. The following standards, as generally illustrated in Figures 17-3.2-8 and 17.3.2-9, apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **All Elevations of Building. Architectural designs shall address all elevations of a building. Building forms, detailing, materials, textures, and color shall to contribute to a unified design with architectural integrity. Materials used on the front façade must turn the building corners and include at least a portion of the side elevations, consistent with the overall composition and design integrity of the building.**

Finding: All elevations of the building have been designed to contribute to a unified design with architectural integrity. The building form, detailing, materials, textures, and colors are complimentary to each other on all building elevations. The building elevations will feature a mix of brick, fiber cement paneling, and metal paneling. Other materials used throughout the building will include concrete, wood, curtainwall window systems, and gluelam wood structural elements. The materials used are consistent across all elevations and are appropriate for an institutional school building. This standard is met.

2. **Pedestrian Entrances. Ground level entrances oriented to a street shall be at least partly transparent for natural surveillance and to encourage an inviting and successful business environment. This standard may be met by providing a door with a window or windows, a transom window above the door, or sidelights beside the door. Where ATMs or other kiosks are proposed on any street-facing elevation, they shall be visible from the street for security and have a canopy, awning, or other weather protection shelter.**

Finding: The primary entrance has been located facing Leroy Avenue and will be constructed of a metal and glazing curtain wall system with a gluelam roof structure that provides transparency for natural surveillance while providing weather protection. This standard is met.

3. **Corner Entrances. Buildings on corner lots are encouraged to have corner entrances. Where a corner entrance is not provided, the building plan shall provide an architectural element or detailing (e.g., tower, beveled corner, art, special trim, etc.) that accentuates the corner location.**

Finding: The proposed building is located on a corner lot, however a corner entrance is not proposed. A monument sign and landscaping is proposed to be located at the corner to accentuate the corner location.

4. **Street Level Entrances. All primary building entrances shall open to the sidewalk and shall conform to Americans with Disabilities Act (ADA) requirements, as applicable. Primary entrances above or below grade may be allowed where ADA accessibility is provided.**

Finding: All primary building entrances will open to the on-site pedestrian network, which conforms to ADA requirements. This standard is met.

5. **Windows—General. Except as approved for parking structures or accessory structures, the front/street-facing elevations of buildings shall provide display windows, windowed doors, and where applicable, transom windows to express a storefront character.**

Finding: The proposed school is not an office or commercial building, therefore storefront windows are not appropriate for the design of the school across the entire elevation. The school building will have windows and window doors along all elevations that provide visual interest and relief on the facades and transparency within internal building spaces. The proposed windows and doors at the building entry express a storefront character to the extent practicable for a school use. This standard is met.

6. **Storefront Windows. Storefront windows shall consist of framed picture or bay windows, which may be recessed. Framing shall consist of trim detailing such as piers or pilasters (sides), lintels or hoods (tops), and kick plates or bulkheads (base)—or similar detailing—consistent with a storefront character. The ground floor, street-facing elevation(s) of all buildings shall comprise at least 60 percent transparent windows, measured as a section extending the width of the street-facing elevation between the building base (or 30 inches above the sidewalk grade, whichever is less) and a plane 72 inches above the sidewalk grade.**

Finding: The proposed school is not an office or commercial building; therefore, storefront windows are not appropriate for the design of the school. The design of the school building will utilize the strategic placement of glazing and window elements to provide beneficial daylight within the school building, connection of interior spaces to the site and to emphasize transparency within the building. The school building has two street facing elevations, one on Leroy Avenue and one on Lynn Lane. The total glazing area between 30 inches and 72 inches facing Lynn Lane is 38 percent. The total glazing area between 30 inches and 72 inches facing Leroy Avenue is 36 percent. The District is requesting a Variance to the requirement for storefront windows. The Variance Criteria of 17-4.7.040 have been addressed within this narrative.

7. **Defined Upper Story(ies). Building elevations shall contain detailing that visually defines street level building spaces (storefronts) from upper stories. The distinction between street level and upper floors shall be established, for example, through the use of awnings, canopies, belt course, or similar detailing, materials, or fenestration.**

Upper floors may have less window area than ground floors, but shall follow the vertical lines of the lower level piers and the horizontal definition of spandrels and any cornices. Upper floor window orientation shall primarily be vertical, or have a width that is no greater than height. Paired or grouped windows that, together, are wider than they are tall, shall be visually divided to express the vertical orientation of individual windows.

Finding: The north end of the school building has been designed with two stories, where the classroom spaces are located. The two-story section of the building feature defined upper stories, with a distinction between the lower and upper story made in the form of a belt course that continues across the two-story sections of the building, consisting of either brick or metal paneling. The upper floors follow the vertical lines of the lower levels. Upper-level windows have been oriented vertically within window groupings. Window mullions are laid out to reinforce the vertical nature of the punched window openings. The elevations of the two-story portions of the building are provided below.

Figure C: North Elevation

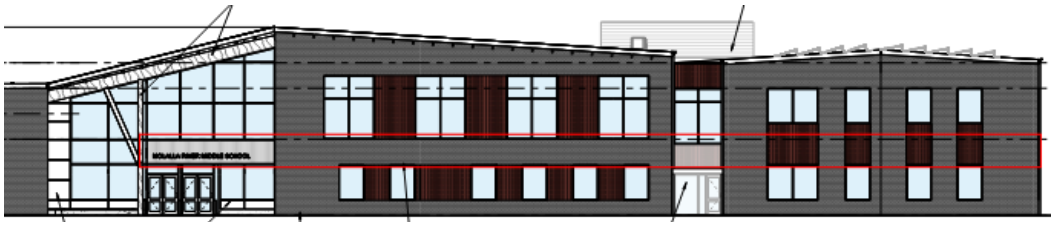

Figure D: East Elevation

Figure E: East Elevation

This standard is met.

8. **Buildings Not Adjacent to a Street. Buildings that are not adjacent to a street or a shopping street, such as those that are setback behind another building and those that are oriented to a civic space (e.g., internal plaza or court), shall meet the 60 percent transparency standard on all elevations abutting civic space(s) and on elevations containing a primary entrance.**

Finding: The building is oriented towards Leroy Avenue. The requirements of this section are not applicable.

9. **Side and Rear Elevation Windows. All side and rear elevations, except for zero lot line or common wall elevations, where windows are not required, shall provide not less than 30 percent transparency.**

Finding: The south facing elevation has a total glazing area of 10 percent. The west facing elevation has a total glazing area of 21 percent. The District has requested a Variance of the requirements for the glazing standards on the side and rear elevations. The Variance Criteria of 17-4.7.040 have been addressed within this narrative.

10. **Window Trim. At a minimum, windows shall contain trim, reveals, recesses, or similar detailing of not less than four inches in width or depth as applicable. The use of decorative detailing and ornamentation around windows (e.g., corbels, medallions, pediments, or similar features) is encouraged.**

Finding: The windows have been designed with recesses of four inches. This standard is met.

11. **Projecting Windows, Display Cases. Windows and display cases shall not break the front plane of the building (e.g., projecting display boxes are discouraged). For durability and aesthetic reasons, display cases, when provided, shall be flush with the building façade (not affixed to the exterior) and integrated into the building design with trim or other detailing. Window flower boxes are allowed, provided they do not encroach into the pedestrian through-zone.**

Finding: The proposed windows will not break the front plane of the building. Display cases are not proposed. This standard is met.

12. **Window Exceptions. The Planning Official may approve an exception to the above standards where existing topography makes compliance impractical. Where it is not practicable to use glass, windows for parking garages or similar structures, the building design must incorporate openings or other detailing that resembles window patterns (rhythm and scale).**

Finding: The school building does not meet the requirement for window exceptions. The requirements of his section are not applicable.

E. Articulation and Detailing. The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Articulation. All building elevations that orient to a street or civic space shall have breaks in the wall plane (articulation) of not less than one break for every 30 feet of building length or width, as applicable, pursuant to the following standards, which are generally illustrated in Figures 17-3.2-10, 17-3.2-11, and 17-3.2-12.**
   a. **A "break" for the purposes of this subsection is a change in wall plane of not less than 24 inches in depth. Breaks may include, but are not limited to, an offset, recess, window reveal, pilaster, frieze, pediment, cornice, parapet, gable, dormer, eave, coursing, canopy, awning, column, building base, balcony, permanent awning or canopy, marquee, or similar architectural feature.**
   b. **The Planning Official through Site Design Review may approve detailing that does not meet the 24-inch break-in-wall-plane standard where it finds that proposed detailing is more consistent with the architecture of historically significant or historic-contributing buildings existing in the vicinity.**
   c. **Changes in paint color and features that are not designed as permanent architectural elements, such as display cabinets, window boxes, retractable and similar mounted awnings or canopies, and other similar features, do not meet the 24-inch break-in-wall-plane standard.**
   d. **Building elevations that do not orient to a street or civic space need not comply with the 24-inch break-in-wall-plane standard but should complement the overall building design.**

Finding: The articulation and detailing requirements of this section are applicable to the elevations which face Leroy Avenue and Lynn Lane. Articulation has been provided on the elevations which face Lynn Lane and Leroy Avenue, however the requirement to provide a 24 inch break every 30 feet is not met for the entirety of either elevation. The District has requested a variance to the articulation requirements. The Variance Criteria of 17-4.7.040 have been addressed within this narrative.

2. **Change in Materials. Elevations should incorporate changes in material that define a building's base, middle, and top, as applicable, and create visual interest and relief. Side and rear elevations that do not face a street, public parking area, pedestrian access way, or plaza may utilize changes in texture and/or color of materials, provided that the design is consistent with the overall composition of the building.**

Finding: The building has been designed with a mix of brick fiber cement paneling, and metal paneling. The materials have been selected in order to emphasize the buildings base, middle and top as applicable and create visual interest and relief. A continuous brick course is maintained around the base of the building in order to emphasize the building's base. The use of both metal paneling and windows provide definition of the middle of the building. A roof line provides definition of the top of the building. This standard is met.

3. **Horizontal Lines. New buildings and exterior remodels shall generally follow the prominent horizontal lines existing on adjacent buildings at similar levels along the**

street frontage. Examples of such horizontal lines include, but are not limited to: the base below a series of storefront windows, an awning or canopy line, a belt course between building stories, a cornice, or a parapet line. Where existing adjacent buildings do not meet the City's current building design standards, a new building may establish new horizontal lines.

Finding: There are not adjacent buildings to the school building which establish prominent horizontal lines; therefore, the school building has been designed with new horizontal lines, including a base below the windows and a belt course that is maintained between the first and second floor of areas which are two stories in height. This standard is met.

4. **Ground Floor and Upper Floor Division. A clear visual division shall be maintained between the ground level floor and upper floors, for example, through the use of a belt course, transom, awning, canopy, or similar division.**

Finding: A belt course has been maintained between the first and second floor of the building areas which are two stories on the north half of the building. This standard is met.

5. **Vertical Rhythms. New construction or front elevation remodels shall reflect a vertical orientation, either through breaks in volume or the use of surface details.**

Finding: Vertical Rhythms are provided on the elevations of the building through the use of windows with brick and paneling materials to provide breaks in the volume and surface details. This standard is met.

F. Pedestrian Shelters. The following standards apply to new buildings and building additions that are subject to Site Design Review. The Planning Official may approve adjustments to the standards as part of a Site Design Review approval, pursuant to Chapters 17-4.2 and 17-4.7, respectively.

1. **Minimum Pedestrian Shelter Coverage. Permanent awnings, canopies, recesses, or similar pedestrian shelters shall be provided along at least 75 percent of the ground floor elevation(s) of a building where the building abuts a sidewalk, civic space, or pedestrian access way. Pedestrian shelters used to meet the above standard shall extend at least five feet over the pedestrian area; except that the Planning Official, through Site Design Review, may reduce the above standards where it finds that existing right-of-way dimensions, easements, or building code requirements preclude standard shelters. In addition, the above standards do not apply where a building has a ground floor dwelling, as in a mixed-use development or live-work building, and the dwelling has a covered entrance. The Planning Official shall waive the above standards if the pedestrian shelter would extend into the right-of-way and the roadway authority does not allow encroachments in the right-of-way.**
2. **Pedestrian Shelter Design. Pedestrian shelters shall comply with applicable building codes, and shall be designed to be visually compatible with the architecture of a building. If mezzanine or transom windows exist, the shelter shall be below such**

windows where practical. Where applicable, pedestrian shelters shall be designed to accommodate pedestrian signage (e.g., blade signs), while maintaining required vertical clearance.

Finding: The school campus has several walkways and outdoor pedestrian areas which do not abut the building and are therefore uncovered. The main entrance and southern entrance are covered to provide pedestrian shelter coverage in accordance with the requirements of this section.

G. Mechanical Equipment.

1. **Building Walls. Where mechanical equipment, such as utility vaults, air compressors, generators, antennae, satellite dishes, or similar equipment, is permitted on a building wall that abuts a public right-of-way or civic space, it shall be screened pursuant to Chapter 17-3.4. Standpipes, meters, vaults, and similar equipment need not be screened but shall not be placed on a front elevation when other practical alternatives exist; such equipment shall be placed on a side or rear elevation where practical.**
2. **Rooftops. Except as provided below, rooftop mechanical units shall be set back or screened behind a parapet wall so that they are not visible from any public right-of-way or civic space. Where such placement and screening is not practicable, the Planning Official may approve painting of mechanical units in lieu of screening; such painting may consist of colors that make the equipment visually subordinate to the building and adjacent buildings, if any.**
3. **Ground-Mounted Mechanical Equipment. Ground-mounted equipment, such as generators, air compressors, trash compactors, and similar equipment, shall be limited to side or rear yards and screened with fences or walls constructed of materials similar to those on adjacent buildings. Hedges, trellises, and similar plantings may also be used as screens where there is adequate air circulation and sunlight, and irrigation is provided. The City may require additional setbacks and noise attenuating equipment for compatibility with adjacent uses.**

Finding: The mechanical equipment provided on the rooftop has been setback so that it is not visible from any public right-of-way or civic space. A Renderings and Site Line Diagrams Plan (Sheet LU-7) has been provided under Appendix E which illustrates the sight line of the rooftop equipment from adjacent residential streets. Mechanical equipment is not provided on the building walls or ground. The school's generator and trash compactor are located on the ground and are located within a building recess and screened from view with an eight foot tall solid wall and gate. The requirements of this section are met.

17-3.2.050 Civic Space and Pedestrian Amenities.

A. Purpose. This section provides standards for civic spaces where such areas are required or provided voluntarily. Civic spaces allow for light and air circulation, visual relief, pedestrian resting areas, and opportunities for socialization in the most densely developed parts of the City. The code allows projects to meet minimum landscape area standards of Chapter 17-3.4 by providing civic space adjacent to street frontages or in

courtyards or plazas between buildings, instead of with planted areas elsewhere on a lot as is typically done for residential developments.

B. Applicability. All new commercial and mixed use developments with more than 10,000 square feet of gross leasable floor area within the Central Commercial C-1 and General Commercial C-2 zones are required to meet the standards of this section.

Finding: The proposed development is not a new commercial or mixed-use development. The requirements of this section are not applicable.

CHAPTER 17-3.3 ACCESS AND CIRCULATION

17-3.3.020 Applicability.

Chapter 17-3.3 applies to new development and changes in land use necessitating a new or modified street or highway connection. Except where the standards of a roadway authority other than the City supersede City standards, Chapter 17-3.3 applies to all connections to a street or highway, and to driveways and walkways. The Planning Official, through a Type II procedure, may grant adjustments to Chapter 17-3.3, pursuant to the criteria of Chapter 17-4.7 Adjustments and Variances. For street improvement requirements, refer to Section 17-3.6.020.

Finding: The proposed development will include modifications to the adjacent street frontages and access locations for the new school building. The requirements of this section are applicable.

17-3.3.030 Vehicular Access and Circulation.

A. Purpose and Intent. Section 17-3.3.030 implements the street access policies of the City of Molalla Transportation System Plan. It is intended to promote safe vehicle access and egress to properties, while maintaining traffic operations in conformance with adopted standards. "Safety," for the purposes of this chapter, extends to all modes of transportation.

B. Permit Required. Vehicular access to a public street (e.g., a new or modified driveway connection to a street or highway) requires an approach permit approved by the applicable roadway authority.

Finding: The District will obtain all necessary permits for the proposed development.

C. Traffic Study Requirements. The City, in reviewing a development proposal or other action requiring an approach permit, may require a traffic impact analysis, pursuant to Section 17-3.6.020, to determine compliance with this Code.

Finding: A Transportation Impact Study has been prepared by Lancaster Mobley and Associates and has been provided under Appendix D.

D. Approach and Driveway Development Standards. Approaches and driveways shall conform to all of the following development standards:

1. **The number of approaches on higher classification streets (e.g., collector and arterial streets) shall be minimized; where practicable, access shall be taken first from a lower classification street.**

Finding: The subject site has frontage on Leroy Avenue which is classified as a collector street; Hezzie lane which is classified as a neighborhood street, and Lynn Lane and West Lane which are both local roads. The school site currently has three access points on Leroy Avenue and access along West Lane. In the current configuration, bus queueing occurs on Leroy Avenue in front of the school entrance. The new school will allow for this queueing to occur on site rather than on adjacent streets. The relocation of the school to the north end of the existing campus allows for connection to Lynn Lane, Leroy Avenue, and Hezzie Lane. The proposed replacement school will have three access points. The primary access point to the site will be from Leroy Avenue and will provide direct access to the main parent pick-up and drop-off zone at the school's main entrance. A secondary access has been provided on Lynn Lane, which will primarily provide access for the staff parking lot to the north and fire access to the site. A third access point will be from Hezzie Lane to the main bus loading and unloading zone and event parking area. The Applicant has provided a Transportation Impact Study which analyzes the proposed access points, existing traffic volumes and any necessary mitigation for safety. The access points on Leroy Avenue have been reduced from three driveways to one single driveway. Access will be taken from two adjacent lower classification roads. The number of approaches on higher classification streets has been minimized to the extent practicable. This standard is met.

2. **Approaches shall conform to the spacing standards of subsections E and F, below, and shall conform to minimum sight distance and channelization standards of the roadway authority.**

Finding: The spacing standards of subsections E and F below have been met. All driveways will meet the minimum sight distance and channelization standards of the roadway authority. This standard is met.

3. **Driveways shall be paved and meet applicable construction standards. Where permeable paving surfaces are allowed or required, such surfaces shall conform to applicable Public Works Design Standards.**

Finding: The proposed driveways have been designed to meet the applicable construction standards of the Molalla Public Works Design Standards. This standard is met.

4. **The City Engineer may limit the number or location of connections to a street, or limit directional travel at an approach to one-way, right-turn only, or other restrictions, where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.**

Finding: The District understands that the City Engineer may limit the number or location of connections to a street or limit the directional travel at an approach to one-way, right-turn only or other restrictions where mitigation is necessary to alleviate safety or traffic operations concerns. This standard is met.

5. **Where the spacing standards of the roadway authority limit the number or location of connections to a street or highway, the City Engineer may require a driveway extend to one or more edges of a parcel and be designed to allow for future extension and inter-parcel circulation as adjacent properties develop. The City Engineer may also require the owner(s) of the subject site to record an access easement for future joint use of the approach and driveway as the adjacent property(ies) develop(s).**

Finding: The design of the site meets the spacing standards of the roadway authority. The requirements of this section are met.

6. **Where applicable codes require emergency vehicle access, approaches and driveways shall be designed and constructed to accommodate emergency vehicle apparatus and shall conform to applicable fire protection requirements. The City Engineer may restrict parking, require signage, or require other public safety improvements pursuant to the recommendations of an emergency service provider.**

Finding: The site has been designed with fire access lanes along all four sides of the new school building. The new school building has a maximum height of 35 feet. Fire apparatus access has been provided along the southern end of the building. This standard is met.

7. **As applicable, approaches and driveways shall be designed and constructed to accommodate truck/trailer-turning movements.**

Finding: The driveway entrance from Hezzie Lane has been designed to accommodate school buses, delivery vehicles, fire trucks and garbage service vehicles. The driveway entrances from Lynn and Leroy have been designed to accommodate fire trucks. This standard is met.

8. **Except where the City Engineer and roadway authority, as applicable, permit an open access with perpendicular or angled parking, driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.**

Finding: The site has been designed to accommodate all on-site circulation and queuing without stacking or backing up onto the adjacent streets. This standard is met.

9. **Driveways shall be designed so that vehicle areas, including, but not limited to, drive-up and drive-through facilities and vehicle storage and service areas, do not obstruct any public right-of-way.**

Finding: Driveways have been designed so that vehicle areas do not obstruct any public right-of-way. This standard is met.

10. **Approaches and driveways shall not be wider than necessary to safely accommodate projected peak hour trips and turning movements, and shall be designed to minimize crossing distances for pedestrians.**

Finding: The City identifies a 30-foot minimum driveway width for commercial driveways and a maximum width of 40 feet. The driveways on Hezzie Lane and Lynn Lane are 30 feet in width. The driveway on Leroy Avenue is 36 feet in width with a right and left turn lane. All driveways have been designed to accommodate project peak hour trips and turning movements will minimize crossing distances for pedestrians. This standard is met.

11. **As it deems necessary for pedestrian safety, the City Engineer, in consultation with the roadway authority, as applicable, may require that traffic-calming features, textured driveway surfaces (e.g., pavers or similar devices), curb extensions, signage or traffic control devices, or other features, be installed on or in the vicinity of a site as a condition of development approval.**

Finding: The District will provide raised crosswalks in all of the onsite parking lots. The District acknowledges that the City Engineer may require traffic-calming features, textured driveway surfaces, curb extensions, signage or traffic control devices or other features in the vicinity of the site as a condition of approval.

12. **Construction of approaches along acceleration or deceleration lanes, and along tapered (reduced width) portions of a roadway, shall be avoided; except where no reasonable alternative exists and the approach does not create safety or traffic operations concern.**

Finding: The driveways are not located along acceleration or deceleration lanes or tapered portions of the roadway. The requirements of this section are not applicable.

13. **Approaches and driveways shall be located and designed to allow for safe maneuvering in and around loading areas, while avoiding conflicts with pedestrians, parking, landscaping, and buildings.**

Finding: The driveway on Leroy Avenue has been located to align with the private drive located on the east side of Leroy Avenue to reduce vehicle turning conflicts. The main pedestrian connections to the school are not located at the main driveway to avoid pedestrian conflicts.

The driveway on Hezzie Lane has been located to align with the intersection with N. Valley Drive to provide safe maneuvering for vehicles and pedestrians, with maneuvering areas connecting to the parking and bus loading areas.

The driveway on Lynn Lane is located on the west side of the main school building and on-site parking primarily to provide fire safety access and maneuvering. A pedestrian connection is located to the east of the driveway and will be well marked to allow for safe crossing for students.

All driveways have been located to avoid conflicts with landscaping, parking and buildings. This standard is met.

14. **Where sidewalks or walkways occur adjacent to a roadway, driveway aprons constructed of concrete shall be installed between the driveway and roadway edge. The roadway authority may require the driveway apron be installed outside the required sidewalk or walkway surface, consistent with Americans with Disabilities Act (ADA) requirements, and to manage surface water runoff and protect the roadway surface.**

Finding: The proposed driveway aprons will be constructed of concrete and will meet the ADA and surface water requirements. This standard is met.

15. **Where an accessible route is required pursuant to ADA, approaches and driveways shall meet accessibility requirements where they coincide with an accessible route.**

Finding: The school site has been designed to comply with ADA requirements, with accessible routes provided throughout the site. This standard is met.

16. **The City Engineer may require changes to the proposed configuration and design of an approach, including the number of drive aisles or lanes, surfacing, traffic-calming features, allowable turning movements, and other changes or mitigation, to ensure traffic safety and operations.**

Finding: The District acknowledges that the City Engineer may require changes to the proposed configuration and design of an approach to ensure traffic safety and operations.

17. **Where a new approach onto a state highway or a change of use adjacent to a state highway requires ODOT approval, the applicant is responsible for obtaining ODOT approval. The City Engineer may approve a development conditionally, requiring the applicant first obtain required ODOT permit(s) before commencing development, in which case the City will work cooperatively with the applicant and ODOT to avoid unnecessary delays.**

Finding: The proposed development does not require a new approach onto a state highway. The requirements of this section are not applicable.

18. **Where an approach or driveway crosses a drainage ditch, canal, railroad, or other feature that is under the jurisdiction of another agency, the applicant is responsible for obtaining all required approvals and permits from that agency prior to commencing development.**

Finding: The proposed development does not have any driveways which cross drainage ditch, canal, railroad, or other features that are under the jurisdiction of another agency. The requirements of this section are not applicable.

19. **Where a proposed driveway crosses a culvert or drainage ditch, the City Engineer may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant to applicable Public Works Design Standards.**

Finding: The proposed development does not have any driveways which cross a culvert or drainage ditch. The requirements of this section are not applicable.

20. **Except as otherwise required by the applicable roadway authority or waived by the City Engineer temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.**

Finding: All driveways providing temporary access for construction and staging will be paved or graveled to prevent tracking of mud onto adjacent paved streets. This standard is met.

21. **Development that increases impervious surface area shall conform to the storm drainage and surface water management requirements of Section 17-3.6.050.**

Finding: The proposed development will conform to the storm drainage and surface water management requirements of Section 17-3.6.050, which have been addressed in this narrative.

E. **Approach Separation from Street Intersections. Except as provided by subsection H, minimum distances shall be maintained between approaches and street intersections consistent with the current version of the Public Works Design Standards and Transportation System Plan.**
F. **Approach Spacing. Except as provided by subsection H or as required to maintain street operations and safety, the following minimum distances shall be maintained between approaches consistent with the current version of the Public Works Design Standards and Transportation System Plan.**

Finding: The design of the site will include three new driveway approaches. Lynn Lane is classified as a local street, with a minimum spacing requirement of 50 feet for a private access drive. The driveway approach on Lynn Lane is located approximately 440 feet from the intersection of Lynn Lane and Leroy Avenue and approximately 300 feet from Hezzie Lane.

Leroy Avenue is classified as a major collector street, with a minimum spacing requirement of 150 feet for a private access drive. The driveway approach on Leroy Avenue is located approximately 320 feet from the intersection of Lynn Lane and Leroy Avenue and approximately 700 feet from West Lane.

Hezzie Lane is classified as a Neighborhood Collector, with a minimum spacing requirement of 100 feet for a private access drive. The driveway approach on Hezzie Lane is aligned with the intersection of N. Valley Drive and approximately 200 feet from the intersection of Bear Creek Drive and Hezzie Lane.

The driveway spacing requirements are met for all proposed driveways.

G. Vision Clearance. No visual obstruction (e.g., sign, structure, solid fence, or shrub vegetation) greater than 2.5 feet in height shall be placed in "vision clearance areas" at street intersections.. The minimum vision clearance area may be modified by the Planning Official through a Type I procedure, upon finding that more or less sight distance is required (i.e., due to traffic speeds, roadway alignment, etc.). Placement of light poles, utility poles, and tree trunks should be avoided within vision clearance areas.

Finding: The proposed development does not have any visual obstructions greater than 2.5 feet in height within the vision clearance areas at street intersections. This standard is met.

H. Exceptions and Adjustments. The City Engineer may approve adjustments to the spacing standards of subsections E and F, above, where an existing connection to a City street does not meet the standards of the roadway authority and the proposed development moves in the direction of code compliance. The Planning Official through a Type II procedure may also approve a deviation to the spacing standards on City streets where it finds that mitigation measures, such as consolidated access (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right-in/right-out only), or other mitigation alleviate all traffic operations and safety concerns.

Finding: The District is not requesting any adjustments to the spacing standards of E and F above. The requirements of this section are not applicable.

I. Joint Use Access Easement and Maintenance Agreement. Where the City approves a joint use driveway, the property owners shall record an easement with the deed allowing joint use of and cross access between adjacent properties. The owners of the properties agreeing to joint use of the driveway shall record a joint maintenance agreement with the deed, defining maintenance responsibilities of property owners. The applicant shall provide a fully executed copy of the agreement to the City for its records, but the City is not responsible for maintaining the driveway or resolving any dispute between property owners.

Finding: The District is not proposing a joint use access easement or maintenance agreement. The requirements of this section are not applicable.

17-3.3.040 Pedestrian Access and Circulation.

A. Purpose and Intent. Section 17-3.3.040 implements the pedestrian access and connectivity policies of the City of Molalla Transportation System. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.

B. Standards. Developments shall conform to all of the following standards for pedestrian access and circulation as generally illustrated in Figure 17-3.3-3:

1. Continuous Walkway System. A pedestrian walkway system shall extend throughout the development site and connect to adjacent sidewalks, if any, and to all future phases of the development, as applicable.

2. Safe, Direct, and Convenient. Walkways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way conforming to the following standards:

a. The walkway is reasonably direct when it follows a route that does not deviate unnecessarily from a straight line or it does not involve a significant amount of out-of-direction travel.

b. The walkway is designed primarily for pedestrian safety and convenience, meaning it is reasonably free from hazards and provides a reasonably smooth and consistent surface and direct route of travel between destinations. The Planning Official may require landscape buffering between walkways and adjacent parking lots or driveways to mitigate safety concerns.

c. The walkway network connects to all primary building entrances, consistent with the building design standards of Chapter 17-3.2 and, where required, Americans with Disabilities Act (ADA) requirements.

Finding: The school site features a continuous walkway system which extends to building entrances, on-site parking and athletic facilities, adjacent streets and sidewalks and other on-site features. All access paths to the main entrances of the building are proposed to be concrete paths which meet the maximum slope requirements of ADA. The requirements of this section are met.

3. **Vehicle/Walkway Separation. Except as required for crosswalks, per subsection 4, below, where a walkway abuts a driveway or street it shall be raised six inches and curbed along the edge of the driveway or street. Alternatively, the Planning Official may approve a walkway abutting a driveway at the same grade as the driveway if the walkway is physically separated from all vehicle-maneuvering areas. An example of such separation is a row of bollards (designed for use in parking areas) with adequate minimum spacing between them to prevent vehicles from entering the walkway.**

Finding: All on-site sidewalks will be separated from vehicle areas by a raised six-inch curb, except for where crosswalks are provided. This standard is met.

4. **Crosswalks. Where a walkway crosses a parking area or driveway ("crosswalk"), it shall be clearly marked with contrasting paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrasting material). The crosswalk may be part of a speed table to improve driver-visibility of pedestrians. Painted or thermo-plastic striping and similar types of non-permanent applications are discouraged, but may be approved for lesser used crosswalks not exceeding 24 feet in length.**

Finding: Where a walkway crosses a parking area or driveway, it will be marked with raised concrete. Roll curbs have been used at the fire access entrance and the surface access entrance. This standard is met.

5. **Walkway Width and Surface. Walkways, including access ways required for subdivisions pursuant to Chapter 17-4.3, shall be constructed of concrete, asphalt, brick or masonry pavers, or other durable surface, as approved by the City Engineer, and not less than six feet wide. Multi-use paths (i.e., designed for shared use by bicyclists and pedestrians) shall be concrete or asphalt and shall conform to the current version of the Public Works Design Standards and Transportation System Plan.**

Finding: All on-site walkways will be constructed of concrete. This standard is met.

6. **Walkway Construction (Private). Walkway surfaces may be concrete, asphalt, brick or masonry pavers, or other City-approved durable surface meeting ADA requirements. Walkways shall be not less than six feet in width in commercial and mixed use developments and where access ways are required for subdivisions under Division IV.**

Finding: All on-site walkways will be constructed of concrete and will meet ADA requirements. This standard is met.

7. **Multi-Use Pathways. Multi-use pathways, where approved, shall be a minimum width and constructed of materials consistent with the current version of the Public Works Design Standards and Transportation System Plan.**

Finding: Multi-use pathways are not proposed on the site. The requirements of this section are not applicable.

CHAPTER 17-3.4 LANDSCAPING, FENCES AND WALLS, OUTDOOR LIGHTING

17-3.4.030 Landscaping and Screening.

A. General Landscape Standard. All portions of a lot not otherwise developed with buildings, accessory structures, vehicle maneuvering areas, or parking shall be landscaped.

B. Minimum Landscape Area. All lots shall conform to the minimum landscape area standards of the applicable zoning district, as contained in Tables 17-2.2.040.D and 17-2.2.040.E. The Planning Official, consistent with the purposes in Section 17-3.4.010, may allow credit toward the minimum landscape area for existing vegetation that is retained in the development.

Finding: The PSP zone has a minimum landscape requirement of 10 percent of the site. The site has a gross area of 779,780 square feet. The total landscape area at full build out of the site, including parking lot landscaping for the site is 426,605 square feet, or 58 percent of the gross site area. This standard is met.

C. Plant Selection. A combination of deciduous and evergreen trees, shrubs, and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions, among other factors. When new vegetation is planted, soils shall be amended and irrigation shall be provided, as necessary, to allow for healthy plant growth. The selection of plants shall be based on all of the following standards and guidelines:

1. **Use plants that are appropriate to the local climate, exposure, and water availability. The presence of utilities and drainage conditions shall also be considered.**
2. **Plant species that do not require irrigation once established (naturalized) are preferred over species that require irrigation.**
3. **Trees shall be not less than two-inch caliper for street trees and one and one-half-inch caliper for other trees at the time of planting. Trees to be planted under or near power lines shall be selected so as to not conflict with power lines at maturity.**
4. **Shrubs shall be planted from five-gallon containers, minimum, where they are for required screens or buffers, and two-gallon containers minimum elsewhere.**
5. **Shrubs shall be spaced in order to provide the intended screen or canopy cover within two years of planting.**
6. **All landscape areas, whether required or not, that are not planted with trees and shrubs or covered with allowable non-plant material, shall have ground cover plants that are sized and spaced to achieve plant coverage of not less than 75 percent at maturity.**
7. **Bark dust, chips, aggregate, or other non-plant ground covers may be used, but shall cover not more than 35 percent of any landscape area. Non-plant ground covers cannot be a substitute for required ground cover plants.**

8. **Where stormwater retention or detention, or water quality treatment facilities are proposed, they shall meet the requirements of the current version of the Public Works Design Standards.**
9. **Existing mature trees that can thrive in a developed area and that do not conflict with other provisions of this Code shall be retained where specimens are in good health, have desirable aesthetic characteristics, and do not present a hazard.**
10. **Landscape plans shall avoid conflicts between plants and buildings, streets, walkways, utilities, and other features of the built environment.**
11. **Evergreen plants shall be used where a sight-obscuring landscape screen is required.**
12. **Deciduous trees should be used where summer shade and winter sunlight is desirable.**
13. **Landscape plans should provide focal points within a development, for example, by preserving large or unique trees or groves or by using flowering plants or trees with fall color.**
14. **Landscape plans should use a combination of plants for seasonal variation in color and yearlong interest.**
15. **Where plants are used to screen outdoor storage or mechanical equipment, the selected plants shall have growth characteristics that are compatible with such features.**
16. **Landscape plans shall provide for both temporary and permanent erosion control measures, which shall include plantings where cuts or fills, including berms, swales, stormwater detention facilities, and similar grading, is proposed.**
17. **When new vegetation is planted, soils shall be amended and irrigation provided, as necessary, until the plants are naturalized and able to grow on their own.**

Finding: A Planting Plan (Sheets L5.01-5.04) and Planting Schedule (Sheet L5.00) prepared by a professional landscape architect have been provided under Appendix E of this application. All plant materials that have been selected meet the characteristics provided in subsection 1-17 above. This standard is met.

D. Central Commercial C-1 District Streetscape Standard. Developers of projects within the Central Commercial C-1 zoning district can meet the landscape area requirement of subsection B, in part, by installing street trees in front of their projects. The Planning Official shall grant credit toward the landscape area requirement using a ratio of 1:1, where one square foot of planted area (e.g., tree well or planter surface area) receives one square foot of credit. The Planning Official may grant additional landscape area credit by the same ratio where the developer widens the sidewalk or creates a plaza or other civic space pursuant to Section 17-3.2.050.

Finding: The subject site is not located in the Central Commercial C-1 District. The requirements of this section are not applicable.

E. Parking Lot Landscaping. All of the following standards shall be met for parking lots. If a development contains multiple parking lots, then the standards shall be evaluated separately for each parking lot.

1. A minimum of 10 percent of the total surface area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of shade trees distributed throughout the parking area. A combination of deciduous and evergreen trees, shrubs, and ground cover plants is required. The trees shall be planned so that they provide a partial canopy cover over the parking lot within five years. At a minimum, one tree per 12 parking spaces on average shall be planted over and around the parking area.

Finding: The northern parking lot consists of the staff parking lot and the front visitor parking area, which are connected and have a total area of 63,073 square feet and a total landscape area of 12,440 square feet, or 19.7 percent. The southern parking lot and bus loading area has a total area of 75,790 square feet and a total landscape area of 8,024 square feet, or 10.6 percent. The parking lot landscape area standards are met for each parking lot.

A combination of deciduous and evergreen trees, shrubs and groundcover plants have been distributed throughout the parking lot landscaping areas. The site has a total of 191 parking stalls, requiring 16 trees within the parking lot. A total of 36 trees are dispersed within the parking lot landscaping area. This standard is met.

2. All parking areas with more than 20 spaces shall provide landscape islands with trees that break up the parking area into rows of not more than 10 contiguous parking spaces. Landscape islands and planters shall have dimensions of not less than 48 square feet of area and no dimension of less than six feet, to ensure adequate soil, water, and space for healthy plant growth.

Finding: Both parking areas exceed more than 20 spaces. Parking lot islands are distributed throughout the parking area to break up the parking area into rows of not more than 10 continuous parking spaces. All landscape islands and planters have an area of at least 48 square feet and no dimensions less than six feet. This standard is met.

3. All required parking lot landscape areas not otherwise planted with trees must contain a combination of shrubs and groundcover plants so that, within two years of planting, not less than 50 percent of that area is covered with living plants.

Finding: All parking lot landscaping areas not otherwise planted with trees contain a combination of shrubs and groundcover plants as shown on the Planting Plans (Sheet L5.01-L5.04) submitted under Appendix E. This standard is met.

4. **Wheel stops, curbs, bollards, or other physical barriers are required along the edges of all vehicle-maneuvering areas to protect landscaping from being damaged by vehicles. Trees shall be planted not less than two feet from any such barrier.**

Finding: Curbs are provided along the edges of all vehicle maneuvering areas to protect landscaping. All trees will be planted at least two feet from the curb. This standard is met.

5. **Trees planted in tree wells within sidewalks or other paved areas shall be installed with root barriers, consistent with applicable nursery standards.**

Finding: All trees planted on site will be installed consistent with applicable nursery standards.

F. Screening Requirements. Screening is required for outdoor storage areas, unenclosed uses, and parking lots, and may be required in other situations as determined by the Planning Official. Landscaping shall be provided pursuant to the standards of subsections F.1 through 3. (See also Figure 17-3.4-4.)

1. **Outdoor Storage and Unenclosed Uses. All areas of a site containing or proposed to contain outdoor storage of goods, materials, equipment, and vehicles (other than required parking lots and service and delivery areas, per Site Design Review), and areas containing junk, salvage materials, or similar contents, shall be screened from view from adjacent rights-of-way and residential uses by a sight-obscuring fence, wall, landscape screen, or combination of screening methods. See also Section 17-3.4.040 for related fence and wall standards.**

Finding: There is a small storage building which will be used to store lawn maintenance tools and community athletic equipment located in the southeast corner of the southern parking lot which will be constructed of profiled metal paneling. Outdoor storage of goods is not proposed. This section is met.

2. **Parking Lots. The edges of parking lots shall be screened to minimize vehicle headlights shining into adjacent rights-of-way and residential yards. Parking lots abutting a sidewalk or walkway shall be screened using a low-growing hedge or low garden wall to a height of between three feet and four feet**

Finding: The edges of the parking lots have been planted with landscaping to provide screening and minimize vehicle headlights shining into adjacent rights-of-way and residential yards. Where the parking lot abuts a sidewalk that isn't used for student loading and unloading, a low-growing hedge has been provided. This standard is met.

3. **Other Uses Requiring Screening. The Planning Official may require screening in other situations as authorized by this Code, including, but not limited to, outdoor**

storage areas, blank walls, Special Uses pursuant to Chapter 17-2.3, flag lots, and as mitigation where an applicant has requested an adjustment pursuant to Chapter 17-4.7.

Finding: The District acknowledges that there may be other uses which require screening.

G. Maintenance. All landscaping shall be maintained in good condition, or otherwise replaced by the property owner.

Finding: The District acknowledges that the landscaping on site shall be maintained in good condition or replaced.

17-3.4.040 Fences and Walls.

A. Purpose. This section provides general development standards for fences, and walls that are not part of a building, such as screening walls and retaining walls.

B. Applicability. Section 17-3.4.040 applies to all fences, and to walls that are not part of a building, including modifications to existing fences and walls.

C. Height.

1. Residential Zones. Fences and freestanding walls (i.e., exclusive of building walls) for residential uses shall not exceed the following heights above grade, where grade is measured from the base of the subject fence or wall.

Finding: The site is not residential. The requirements of this section are not applicable.

2. Non-Residential Zones. Fences and freestanding walls (i.e., exclusive of building walls) for non-residential uses shall not exceed the following height above grade, where grade is measured from the base of the subject fence or wall.

a. Within Front or Street-Facing Side Yard Setback. Four feet, except the following additional height is allowed for properties located within an industrial, public, or institutional zone:

(1) Where approved by the City Planning Official, a fence constructed of open chain link or other "see-through" composition that allows 90 percent light transmission may reach a height of up to eight feet.

b. Within an Interior Side or Rear Yard Setback. Eight feet; except the fence or wall height, as applicable, shall not exceed the distance from the fence or wall line to the nearest primary structure on an adjacent property.

Finding: There are no fences or walls proposed within the required setbacks on the site. The requirements of this section are met.

3. All Zones. Fences and walls shall comply with the vision clearance standards of Section 17-3.3.030.G. Other provisions of this Code, or the requirements of the roadway

authority, may limit allowable height of a fence or wall below the height limits of this section.

Finding: There are no fences or walls proposed within the vision clearance areas. Vision clearance triangles are shown on the Paving Plan North (Sheet C1.00) and Paving Plan South (Sheet C1.01).

D. Materials. Prohibited fence and wall materials include straw bales, tarps, barbed or razor wire (except in the M-2 Heavy Industrial zone); scrap lumber, untreated wood (except cedar or redwood), corrugated metal, sheet metal, scrap materials; dead, diseased, or dying plants; and materials similar to those listed herein.

Finding: The site will have fencing provided at the backstop areas of the baseball fields, around the stormwater facility, and around the outdoor play area. All of the proposed fencing will be constructed of coated chain link, which is not a prohibited material. This standard is met.

E. Permitting. A Type I approval is required to install a fence of six feet or less in height, or a wall that is four feet or less in height. All other walls and fences require review and approval by the Planning Official through a Type II procedure. The Planning Official may require installation of walls or fences as a condition of approval for development, as provided by other Code sections. A building permit may be required for some fences and walls, pursuant to applicable building codes. Walls greater than four feet in height shall be designed by a Professional Engineer licensed in the State of Oregon.

Finding: All fences and walls are proposed as part of this Site Design Review application.

F. Maintenance. Fences and walls shall be maintained in good condition, or otherwise replaced by the property owner.

Finding: The District acknowledges that all fences and walls shall be maintained in good condition.

17-3.4.050 Outdoor Lighting.

A. Purpose. This section contains regulations requiring adequate levels of outdoor lighting while minimizing negative impacts of light pollution.

B. Applicability. All outdoor lighting shall comply with the standards of this section.

C. Standards.

1. Light poles, except as required by a roadway authority or public safety agency, shall not exceed a height of 20 feet; pedestal- or bollard-style lighting shall be used to illuminate walkways. Flag poles, utility poles, and streetlights are exempt from this requirement.

2. **Where a light standard is placed over a sidewalk or walkway, a minimum vertical clearance of eight feet shall be maintained.**

Finding: The proposed parking lot lights have a proposed height of 25 feet. The District has requested a variance for the pole height of the parking lot lighting.

All other proposed light poles will not exceed a height of 20 feet. Where lighting is placed over a sidewalk or walkway, a minimum vertical clearance of eight feet is maintained. The proposed fixtures and locations have been shown on the Land Use Site Plan – Lighting (Sheet EL0.81) and the Lighting Schedule – Land Use (Sheet EL0.82) in Appendix E. This standard is met.

3. **Outdoor lighting levels shall be subject to review and approval through Site Design Review. As a guideline, lighting levels shall be no greater than necessary to provide for pedestrian safety, property or business identification, and crime prevention.**

Finding: The outdoor lighting levels are no greater than necessary to provide pedestrian safety, property or business identification, and crime prevention. The proposed lighting levels have been shown on the Land Use Site Plan – Lighting (Sheet EL0.81) This standard is met.

4. **Except as provided for up-lighting of flags and permitted building-mounted signs, all outdoor light fixtures shall be directed downward, and have full cutoff and full shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties.**

Finding: All outdoor light fixtures will be directed downward and have full cutoff and full shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties. Lighting Cut Sheets have been provided in Appendix D. This standard is met.

5. **Lighting shall be installed where it will not obstruct public ways, driveways, or walkways.**

Finding: All lighting will be installed where it will not obstruct public ways, driveways or walkways. The locations of the proposed site lighting are shown on the Land Use Site Plan – Lighting (Sheet EL0.81) provided in Appendix E. This standard is met.

6. **Walkway lighting in private areas shall have a minimum average illumination of not less than 0.2 foot-candles. Lighting along public walkways shall meet the current version of the Public Works Design Standards and AASHTO lighting requirements.**

Finding: All walkway lighting in private areas will have a minimum average illumination of at least 0.2 foot-candles. Lighting along the public walkways will meet the Public Works

Design Standards and AASHTO lighting requirements. The lighting illumination levels are illustrated on the Land Use Site Plan – Lighting (Sheet EL0.81) provided in Appendix E. This standard is met.

7. **Active building entrances shall have a minimum average illumination of not less than two foot-candles.**

Finding: All active building entrances will have a minimum average illumination of at least 0.2 foot-candles. The lighting illumination levels are illustrated on the Land Use Site Plan – Lighting (Sheet EL0.81) provided in Appendix E. This standard is met.

8. **Surfaces of signs shall have an illumination level of not more than two foot-candles.**

Finding: All new signs will meet the illumination requirements of this section. This standard is met.

9. **Parking lots and outdoor services areas, including quick vehicle service areas, shall have a minimum illumination of not less than 0.2 foot-candles, average illumination of approximately 0.8 foot-candles, and a uniformity ratio (maximum-to-minimum ratio) of not more than 20:1.**

Finding: All parking lots will have a minimum average illumination of at least 0.2 foot-candles and an average illumination of 0.8 foot-candles and a uniformity ratio of not more than 20:1. The lighting illumination levels are illustrated on the Land Use Site Plan – Lighting (Sheet EL0.81) provided in Appendix E. This standard is met.

10. **Where illumination grid lighting plans cannot be reviewed or if fixtures do not provide photometrics and bulbs are under 2,000 lumens, use the following guidelines:**
    a. **Poles should be no greater in height than four times the distance to the property line.**
    b. **Maximum lumen levels should be based on fixture height.**
    c. **Private illumination shall not be used to light adjoining public right-of-way.**

Finding: The District has provided a photometric lighting plan, a fixture schedule and cut sheets which provide details on the proposed lighting on the site for review.

11. **Where a light standard is placed within a walkway, an unobstructed pedestrian through zone not less than 48 inches wide shall be maintained.**

Finding: An unobstructed pedestrian through zone of not less than 48 inches wide will be maintained. This standard is met.

12. **Lighting subject to this section shall consist of materials approved for outdoor use and shall be installed according to the manufacturer's specifications.**

Finding: All on-site lighting subject to this section consists of materials approved for outdoor use and will be installed to the manufacturer's specifications. This standard is met.

D. Permitting. A Type I approval is required to install or replace outdoor lighting. The Planning Official may require lighting as a condition of approval for some projects, pursuant to other Code requirements.

Finding: The proposed lighting will be installed under the proposed Site Design Review application. An additional land use application is not required.

E. Maintenance. For public health and safety, outdoor lighting shall be maintained in good condition, or otherwise replaced by the property owner.

Finding: The District acknowledges that outdoor lighting shall be maintained in good condition or replaced. This standard is met.

CHAPTER 17-3.5 PARKING AND LOADING

17-3.5.020 Applicability and General Regulations.

A. Where the Regulations Apply. The regulations of this chapter apply to all parking areas in all zones, at all times, whether parking is required by this Code or put in for the convenience of property owners or users.

B. Occupancy. All required parking areas must be developed in accordance with the requirements of this Code prior to occupancy of any structure on the subject site. Where landscaping, screening, or other improvements are required pursuant to this Code, all such improvements must be installed and approved by the Planning Official prior to occupancy.

C. Calculations of Amounts of Required and Allowed Parking.

1. **When computing parking spaces based on floor area, parking structures and non-leasable floor spaces, such as storage closets, mechanical equipment rooms, and similar spaces, are not counted.**
2. **The number of parking spaces is computed based on the primary uses on the site except as stated in subsection C.3. When there are two or more separate primary uses on a site, the minimum and maximum parking for the site is the sum of the required or allowed parking for the individual primary uses. For shared parking, see Section 17-3.5.030.D.**
3. **When more than 50 percent of the floor area on a site is in an accessory use, the required or allowed parking is calculated separately for the accessory use. An example would be a 10,000 square foot building with a 7,000 square foot warehouse and a 3,000 square foot accessory retail area. The minimum and maximum parking would be computed separately for the retail and warehouse uses.**
4. **Required parking spaces periodically used for the storage of equipment or goods may be counted toward meeting minimum parking standards, provided that such storage is**

an allowed use under Section 17-2.2.030, and is permitted as a Temporary Use under Section 17-2.3.160.

Finding: The primary use of the site is a middle school. The operations of the school include special events that often require additional on-site parking. The proposed on-site parking addresses on-site events and use of on-site facilities in addition to everyday use of the school. This standard is met.

D. Use of Required Parking Spaces. Except as otherwise provided by this section, required parking spaces must be available for residents, customers, or employees of the use. Fees may be charged for the use of required parking spaces. Required parking spaces may not be assigned in any way to a use on another site, except for shared parking pursuant to Section 17-3.5.030.D.

Finding: Required parking spaces will be available for use on the site. A shared parking agreement is not proposed.

E. Proximity of Parking to Use. Required parking spaces for residential uses must be located on the site of the use or on a parcel or tract owned in common by all the owners of the properties that will use the parking area. Required parking spaces for nonresidential uses must be located on the site of the use or in a parking area that has its closest pedestrian access point within 800 feet of the site.

Finding: All parking is provided on the site. This standard is met.

F. Improvement of Parking Areas. Motorized vehicle parking is allowed only on streets with an improved shoulder of sufficient width; within garages, carports, and other approved structures; and on driveways or parking lots that have been developed in conformance with this Code. For applicable design standards, see Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting and Chapter 17-3.6 Public Facilities.

Finding: All on-site parking areas will be improved to meet the City's standards. On-street parking will be provided where the streets are improved with sufficient width. This standard is met.

17-3.5.030 Automobile Parking.

A. Minimum Number of Off-Street Automobile Parking Spaces. Except as provided by this subsection A, or as required for Americans with Disabilities Act compliance under subsection G, off-street parking shall be provided pursuant to one of the following three standards:

1. The standards in Table 17-3.5.030.A;

2. **A standard from Table 17-3.5.030.A for a use that the Planning Official determines is similar to the proposed use; or**
3. **Subsection B Exceptions, which includes a Parking Demand Analysis option.**

Table 17-3.5.030.A Automobile Parking Spaces by Use	
Use Categories	**Minimum Parking per Land Use (Fractions are rounded down to the closest whole number)**
Institutional	
Schools	**Pre-School through Middle-School: 1 space per classroom**

Finding: The proposed school has 24 primary classrooms and 8 additional classroom spaces. At one space per classroom, the minimum required parking is 32 parking stalls. The school site has been designed to provide the existing number of parking spaces on the redeveloped site. A total of 168 parking spaces exists on site currently, and 191 parking spaces are proposed.

B. Carpool and Vanpool Parking Requirements.

1. **Carpool and vanpool parking spaces shall be identified for the following uses:**
   a. **New commercial and industrial developments with 50 or more parking spaces;**
   b. **New institutional or public assembly uses; and**
   c. **Transit park-and-ride facilities with 50 or more parking spaces.**
2. **Of the total spaces available for employee, student, and commuter parking, at least five percent, but not fewer than two, shall be designated for exclusive carpool and vanpool parking.**
3. **Carpool and vanpool parking spaces shall be located closer to the main employee, student or commuter entrance than all other parking spaces with the exception of ADA parking spaces.**
4. **Required carpool/vanpool spaces shall be clearly marked "Reserved—Carpool/Vanpool Only."**

Finding: The school site has approximately 60 parking stalls which are available for employee parking on site. As the site is a middle school, student parking is not applicable. Of the 60 staff stalls on site, a total of three are required to be carpool/vanpool spots. The District would accept a condition of approval to provide three clearly marked carpool/vanpool spaces in accordance with the requirements of this section.

C. Exceptions and Reductions to Off-Street Parking.

Finding: The District is not requesting an exception or reduction to the required off-street parking. The requirements of this section are not applicable.

D. Maximum Number of Off-Street Automobile Parking Spaces. The maximum number of off-street automobile parking spaces allowed per site equals the minimum number of required spaces for the use pursuant to Table 17-3.5.030.A, times a factor of:

1. **1.2 spaces for uses fronting a street with adjacent on-street parking spaces; or**
2. **1.5 spaces, for uses fronting no street with adjacent on-street parking; or**
3. **A factor based on applicant's projected parking demand, subject to City approval.**

Finding: The middle school has a minimum parking requirement of 32 spaces. On-street parking will be available on the improved frontage of Lynn Lane, Hezzie Lane and West Lane, therefore a factor of 1.2 spaces would apply. The maximum parking allowed on the school site under this standard would be 38 parking spaces, which does not meet the needs of the school.

Based on the ITE standard rates for a middle school with athletic fields, the following parking estimates have been developed.

- A 700-student middle school has an average demand of 72 parking spaces. The 85th percentile of sites surveyed was 133 parking spaces.
- A four-field soccer complex has an average midweek demand of 66 spaces and an 85th percentile demand of 75 spaces. For a tournament scenario, the average parking demand is 239 spaces and 85th percentile demand is 283 spaces.
- The site has an estimated need of 150 parking spaces during the school day and 180 spaces off-hours.

A total of 156 parking spaces have been provided for school day use, with an additional 35 parking spaces located in the bus loading zone, which would be available for off-hour use.

The existing middle school has 168 parking spaces currently. The new middle school has been designed with 191 parking spaces based the projected parking demand of the District. This standard is met.

E. Shared Parking. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlap (e.g., uses primarily of a daytime versus nighttime nature; weekday uses versus weekend uses), and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use. Shared parking requests shall be subject to review and approval through a Type I Review.

Finding: The District is not proposing shared parking. The requirements of this section are not applicable.

F. Parking Stall Design and Minimum Dimensions. Where a new off-street parking area is proposed, or an existing off-street parking area is proposed for expansion, the entire parking area shall be improved in conformance with this Code. At a minimum the parking spaces and drive aisles shall be paved with asphalt, concrete, or other City-approved materials, provided the Americans with Disabilities Act requirements are met, and shall conform to the minimum dimensions in Table 17-3.5.030.F and the figures below. All off-street parking areas shall contain wheel stops, perimeter curbing, bollards, or other edging as required to prevent vehicles from damaging buildings or encroaching into walkways, side-walks, landscapes, or the public right-of-way. Parking areas shall also provide for surface water management, pursuant to Section 17-3.6.050.

Table 17-3.5.030.F Parking Area Minimum Dimensions*								
Parking Angle< °	Curb Length	Stall Depth		Aisle Width		Bay Width		Stripe Length
		Single D1	Double D2	One Way A1	Two Way A2	One Way B1	Two Way B2	
90°	8'-6"	18'	36'	23'	23'	59'	59'	18'
0°	22'	8'-6"	17'	12'	18'	29'	35'	8'-6"

Finding: All proposed parking stalls have been designed to with a curb length of 9 feet and a stripe length of 20 feet. All of the single bays are at least 20 feet. All drive aisles are at least 23 feet. The parent drop-off zone has a width of 9 feet, with an adjacent drive aisle width of 23 feet. The requirements of this section are met.

G. Adjustments to Parking Area Dimensions. The dimensions in subsection E are minimum standards. The Planning Official, through a Type II procedure, may adjust the dimensions based on evidence that a particular use will require more or less maneuvering area. For example, the Planning Official may approve an adjustment where an attendant will be present to move vehicles, as with valet parking. In such cases, a form of guarantee must be filed with the City ensuring that an attendant will always be present when the lot is in operation.

Finding: The proposed parking will meet the minimum dimensional requirements; an adjustment is not requested.

H. Americans with Disabilities Act (ADA). Parking shall be provided consistent with ADA requirements, including, but not limited to, the minimum number of spaces for automobiles, van-accessible spaces, location of spaces relative to building entrances, accessible routes between parking areas and building entrances, identification signs, lighting, and other design and construction requirements.

Finding: Parking has been provided consistent with ADA requirements including the minimum number of spaces, van-accessible spaces, the location of spaces relative to building entrances, accessible routes between parking areas and building entrances, identification signs, lighting and other requirements. This standard is met.

I. Electric Charging Stations. Charging stations for electric vehicles are allowed as an accessory use to parking areas developed in conformance with this Code, provided the charging station complies with applicable building codes and any applicable state or federal requirements.

Finding: Electric charging stations are not proposed.

Table 17-3.5.040 A Minimum Required Bicycle Parking Spaces	
Use	**Minimum Number of Spaces**
Schools (all types)	**2 bike spaces per classroom**

Finding: The school has 24 primary classrooms; therefore, 48 bike spaces are required. A total of 48 bicycle parking spaces have been provided on the school campus, with 24 spaces at the primary building entrance and 24 spaces at the southern entrance. This standard is met.

B. Design. Bicycle parking shall consist of staple-design steel racks or other City-approved racks, lockers, or storage lids providing a safe and secure means of storing a bicycle, consistent with the Public Works Design Standards.

Finding: Bicycle parking has been provided via staple design steel racks. This standard is met.

C. Exemptions. This section does not apply to single-family and duplex housing, home occupations, and agricultural uses.

Finding: The proposed school is not exempt from the bicycle parking requirements.

D. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians or vehicles, and shall be located so as to not conflict with the vision clearance standards of Section 17-3.3.030.G.

Finding: The proposed bicycle parking has been located to not impede or create a hazard to pedestrians or vehicles and is not in conflict with the vision clearance standards of Section 17.3.3.030.G. The proposed bicycle parking is shown on the Architectural Site Plan (Sheet LU-01) provided in Appendix E.

17-3.5.050 Loading Areas.

A. Purpose. The purpose of Section 17-3.5.050 is to provide adequate loading areas for commercial and industrial uses that do not interfere with the operation of adjacent streets.

B. Applicability. Section 17-3.5.050 applies to uses that are expected to have service or delivery truck visits. It applies only to uses visited by trucks with a 40-foot or longer

wheelbase, at a frequency of one or more vehicles per week. The Planning Official shall determine through a Type I review the number, size, and location of required loading areas, if any.

C. Standard. Where an off-street loading space is required, it shall be large enough to accommodate the largest vehicle that is expected to serve the use without obstructing vehicles or pedestrian traffic on adjacent streets and driveways. The Planning Official may restrict the use of other public rights-of-way, so applicants are advised to provide complete and accurate information about the potential need for loading spaces.

D. Placement, Setbacks, and Landscaping. Loading areas shall conform to the standards of Chapter 17-3.2 Building Orientation and Design; Chapter 17-3.3 Access and Circulation; and Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting. Where parking areas are prohibited between a building and the street, loading areas are also prohibited.

Finding: The school is not a commercial or industrial use; however, the site is expected to have school bus loading, garbage service and service and delivery vehicles. The school bus loading zone south of the site has been sized to meet the anticipated needs for bus loading and service vehicles in accordance with the requirements of this section.

E. Exceptions and Adjustments. The Planning Official, through a Type I Review, may approve a loading area adjacent to or within a street right-of-way where it finds that loading and unloading operations are short in duration (i.e., less than one hour), infrequent, do not obstruct traffic during peak traffic hours, do not interfere with emergency response services, and are acceptable to the applicable roadway authority.

Finding: The District is not requesting an exception or adjustment to the loading area requirements. This standard is not applicable.

CHAPTER 17-3.6 PUBLIC FACILITIES

17-3.6.010 Purpose and Applicability.

A. Purpose. The standards of Chapter 17-3.6 implement the public facility policies of the City of Molalla Comprehensive Plan and adopted City plans.

B. Applicability. Chapter 17-3.6 applies to all new development, including projects subject to Land Division (Subdivision or Partition) approval and developments subject to Site Design Review where public facility improvements are required. All public facility improvements within the city shall occur in accordance with the standards and procedures of this chapter. When a question arises as to the intent or application of any standard, the City Engineer shall interpret the Code pursuant to Chapter 17-1.5.

Finding: The proposed development is subject to Site Design Review. The requirements of this section are applicable.

C. Public Works Design Standards. All public facility improvements, including, but not limited to, sanitary sewer, water, transportation, surface water and storm drainage and parks projects, whether required as a condition of development or provided voluntarily, shall conform to the City of Molalla Public Works Design Standards. Where a conflict occurs between this Code and the Public Works Design Standards, the provisions of the Public Works Design Standards shall govern.

Finding: All proposed public facility improvements conform to the City of Molalla Public Works Design Standards. This standard is met.

D. Public Improvement Requirement. No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of this Code and the Public Works Design Standards. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on public facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.

Finding: The District has proposed road improvements along Leroy Avenue, Hezzie Lane, Lynn Lane, and West Lynn along with utility upgrades and improvements as needed to serve the proposed development, provide for the safety and convenience of the users of the site and to meet the requirements of mitigation for the impact of the proposed development.

Leroy Avenue:

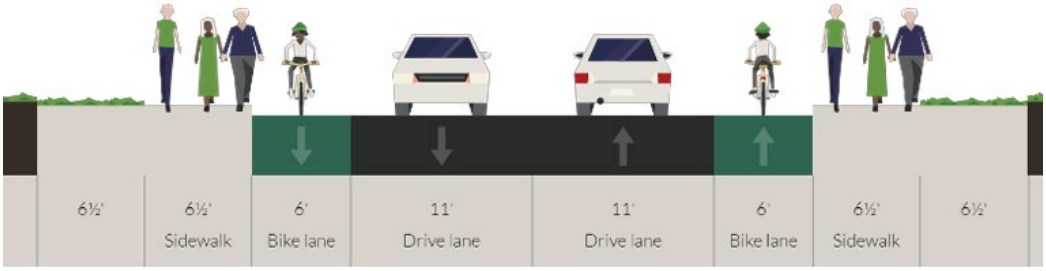

Figure F: Major Collector Cross Section (60-foot ROW, 34-foot Paved Width), City of Molalla Transportation System Plan (Exhibit 4)

Existing Condition:

Leroy Avenue is classified as a Major Collector with a required 60-foot right-of-way width. In its current condition, Leroy Avenue maintains a 60-foot-wide right-of-way along the entirety of the school's frontage. The existing paved width on Leroy Avenue has slight variation but on average, it is 29-feet-wide. From the painted street centerline, approximately 35 feet of paved width is maintained along the school frontage. A curb and curb-tight sidewalk are provided along the school

property from West Lane to the existing school driveway across from Skye Lane. North of the driveway across from Skye Lane, a sidewalk and roadside ditch run along the remainder of the school frontage to Lynn Lane. The existing sidewalk along the west side of Leroy Avenue connects Lynn Lane to Tolliver Road and West Lane to W Main Street. There are two existing marked pedestrian crossings on Leroy Avenue that provide access from the east side of Leroy Avenue. The first is north of West Lane and connects into the school's existing on-site sidewalk. The second is just south of W Heintz Street and connects into the public sidewalk.

Proposed Improvements:

Additional dedication is not required to meet the City's standard for a Major Collector. The District will provide three-quarter street improvements to Leroy Avenue including two travel lanes, a center turn lane, bike lanes, curb and gutter on both sides of the street, and sidewalk along the school frontage in accordance with City requirements. The south pedestrian crossing will be realigned with the new sidewalk at West Lane.

West Lane:

Figure G: Local Road (50-foot ROW, 34-foot Paved Width),
City of Molalla Transportation System Plan (Exhibit 7)

Existing Condition:

West Lane is classified as a Local Street with a required 50-foot right-of-way width. In its current condition, West Lane maintains a 60-foot-wide right-of-way along the entirety of the school's frontage. The existing paved width on West Lane varies from 20-45 feet. West Lane does not have a curb or sidewalk along the school property frontage. A marked pedestrian crossing is provided at the intersection with Leroy Avenue.

Proposed Improvements:

Additional dedication is not required to meet the City's standard for a local road. The District will provide three-quarter street improvements to West Lane in accordance with City requirements.

Lynn Lane:

Figure H: Local Road (50-foot ROW, 34-foot Paved Width),
City of Molalla Transportation System Plan (Exhibit 7)

Existing Condition:

Lane is classified as a Local Street with a required 50-foot right-of-way width. In its current condition, Lynn Lane maintains a 60-foot-wide right-of-way along the entirety of the school's frontage. The existing paved width on Lynn Lane varies from 17-25 feet for approximately 473 feet from the intersection at Leroy Avenue. Lynn Lane does not have a curb or sidewalk along the school property frontage. Lynn Lane is unimproved for approximately 290 feet from the western terminus at the unimproved Hezzie right-of-way.

Proposed Improvements:

Additional dedication is not required to meet the City's standard for a local road. The District will provide three-quarter street improvements to Lynn Lane along the school frontage where it connects the improved portion of Lynn Lane to the west. A new sidewalk will be provided along the portion of the frontage where an adjacent developer to the north will provide three-quarter street improvements.

Hezzie Lane:

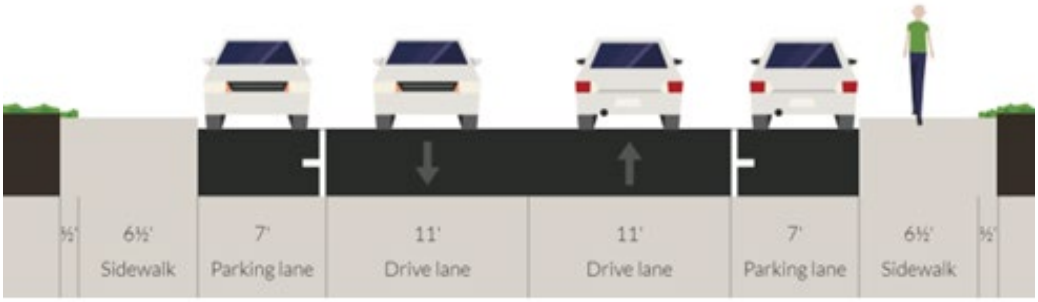

Figure I: Neighborhood Route (50-foot ROW, 36-foot Paved Width),
City of Molalla Transportation System Plan (Exhibit 6)

Existing Condition:

Hezzie Lane is classified as a Neighborhood Route with a required 50-foot right-of-way width. In its current condition, Hezzie Lane maintains a 60-foot-wide right-of-

way along the entirety of the school's frontage. Hezzie Lane is paved on the southwest end from N. Valley Drive to West Lane. North of N. Valley Drive, Hezzie is unimproved along the school frontage. The paved travel lane along the school frontage south of N. Valley Drive is approximately 20 feet in width. On the west side of the street, a curb and sidewalk are provided.

Proposed Improvements:

Additional dedication is not required to meet the City's standard for a Neighborhood Route. The District will provide half-street improvements to Hezzie Lane from N. Valley Drive to West Lane. It is the District's understanding at the time of submission of this land use application that the portion of Hezzie Lane between N. Valley Drive and Lynn Lane will be removed from the City right-of-way and added to the Molalla River School District property and will remain unimproved.

E. Limitations on Public Improvement Requirement. If the applicant asserts that it cannot legally be required, as a condition of building permit or site plan approval, to provide easements, dedications, or improvements at the level otherwise required by this section, then:

1. The building permit, site plan review, or appeal application shall include a rough proportionality report, prepared by a qualified civil or traffic engineer, as appropriate, showing:

a. The estimated extent, on a quantitative basis, to which the improvements will be used by persons served by the building or development, whether the use is for safety or for convenience;

b. The estimated level, on a quantitative basis, of improvements needed to meet the estimated extent of use by persons served by the building or development;

c. The estimated impact, on a quantitative basis, of the building or development on the public infrastructure system of which the improvements will be a part;

d. The estimated level, on a quantitative basis, of improvements needed to mitigate the estimated impact on the public infrastructure system; and

2. The applicant shall, instead, be required to provide easements, dedications, and improvements that are roughly proportional to what is needed for the safety or convenience of persons served by the building or development, plus those additional easements, dedications, and improvements that are roughly proportional to what is needed to mitigate the impact of the building or development on the public infrastructure system of which the improvements will be a part, if the impacts are not fully mitigated by the easements, dedications, and improvements needed for the safety or convenience of persons served by the building or development.

Finding: The District is not requesting limitations on public improvements and will make improvements in accordance with the requirements of the City.

17-3.6.020 Transportation Standards.

A. General Requirements.

1. **Except as provided by subsection A.5, existing substandard streets and planned streets within or abutting a proposed development shall be improved in accordance with the standards of Chapter 17-3.6 as a condition of development approval.**
2. **All street improvements, including the extension or widening of existing streets and public access ways, shall conform to Section 17-3.6.020, and shall be constructed consistent with the City of Molalla Public Works Design Standards.**

Finding: The proposed development will include three-quarter street frontage improvements on Leroy Avenue and West Lane along the full frontage of the school site. Lynn Lane will be improved with a three-quarter street improvement along the school's frontage which will be tied into improvements being made by an adjacent development to the north at the western half of the street. Sidewalks will be added along the frontage where improvements are made by the adjacent developer. Half-street frontage improvements are proposed on Hezzie Lane to tie into the existing improved right-of-way. The proposed improvements will be done in accordance with the standards of Chapter 17-3.6 and the City of Molalla Public Works Design Standards. This standard is met.

3. **All new streets shall be contained within a public right-of-way. Public access ways (e.g., pedestrian ways) may be contained within a right-of-way or a public access easement, subject to review and approval of the City Engineer.**

Finding: New streets are not proposed. The requirements of this section are not applicable.

4. **The purpose of this subsection is to coordinate the review of land use applications with roadway authorities and to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. The following provisions also establish when a proposal must be reviewed for potential traffic impacts; when a Transit Analysis Letter (TAL) or Traffic Impact Analysis (TIA) must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; the required contents of a TAL/TIA; and who is qualified to prepare the analysis.**
    a. **Determining the Required Level of Transportation Analysis and Documentation. A Transportation Impact Analysis (TIA) is required for developments that are expected to have an impact on the transportation system. The analysis shall be based upon the latest edition of the ITE Trip Generation Manual or an agreed-upon alternative methodology where credible data is available to support the alternative methodology. When specific criteria generally associated with small developments are met, a Transportation Analysis Letter (TAL) may be substituted for the required TIA. At the discretion of the City Engineer, a TAL may satisfy the City's transportation analysis requirements, in lieu of a TIA when a development meets all the following criteria:**

(1) The development generates fewer than 25 peak hour trips during either the AM or PM peak hour. (Two examples of common developments generating fewer trips than these threshold levels are: a subdivision containing 25 or fewer single-family residences or a general office building less than 15,000 square feet.)

(2) The development is not expected to impact intersections that currently fail to meet the City's level of service standards or intersections that are operating near the limits of the acceptable level of service thresholds during a peak operating hour.

(3) The development is not expected to significantly impact adjacent roadways and intersections that are high accident locations, areas that contain an identified safety concern, or high concentration of pedestrians or bicyclists such as school zones.

(4) The development generates an increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by less than 10 vehicles per day.

b. Transportation Analysis Letter Contents. If the City determines, based on information provided by the applicant and in accordance with the criteria specified in Section 3.1, that a TAL is the appropriate document to submit. the following requirements shall apply.

(1) The TAL shall be prepared by or prepared under the direct supervision of a registered professional engineer who shall sign and stamp the TAL.

(2) The TAL shall include the following:

i. The expected trip generation of the proposed development including the AM peak hour, the PM peak hour, daily traffic, and other germane periods as may be appropriate, together with appropriate documentation and references.

ii. Site plan showing the location of all access driveways or private streets where they intersect with public streets plus driveways of abutting properties and driveways on the opposite side of the street from the proposed development.

iii. Documentation that all site access driveways meet City of Molalla Private Access Driveway Width Standards.

iv. Documentation that all site access driveways meet City of Molalla's Minimum City Street Intersection Spacing Standards.

v. Documentation that all new site accesses and/or public street intersections meet AASHTO intersection sight distance guidelines.

vi. Documentation that there are no inherent safety issues associated with the design and location of the site access driveways.

vii. Documentation that the applicant has reviewed the City's TSP and that proposed streets and frontage improvements do or will comply with any applicable standards regarding the functional

classification, typical sections, access management, traffic calming and other attributes as appropriate.

c. Transportation Impact Analysis Contents. The following information shall be included in each TIA submitted to the City. Additional information specified by the City in the scoping summary or through the pre-application meeting or other project meetings shall also be included.

(1) Completed TIA checklist signed by the professional engineer responsible for the preparation of the TIA.

(2) Table of Contents—Listings of all sections, figures, and tables included in the report.

(3) Executive Summary—A summary of key points, findings, conclusions, and recommendation including a mitigation plan.

(4) Introduction, including:

i. Proposed land use action including site location, zoning, building size, and project scope.

ii. Map showing the proposed site, building footprint, access driveways, and parking facilities.

iii. Map of the study area that shows site location and surrounding roadway facilities.

(5) Existing Conditions.

i. Existing site conditions and adjacent land uses.

ii. Roadway characteristics of important transportation facilities and modal opportunities located within the study area, including roadway functional classifications, street cross-section, posted speeds, bicycle and pedestrian facilities, on-street parking, and transit facilities.

iii. Existing lane configurations and traffic control devices at the study area intersections.

iv. Existing traffic volumes and operational analysis of the study area roadways and intersections.

v. Roadway and intersection crash history analysis.

vi. Intersection and stopping sight distance related to new and impacted driveways and intersections.

(6) Background Conditions (Without the Proposed Land Use Action).

i. Approved in-process developments and funded transportation improvements in the study area.

ii. Traffic growth assumptions.

iii. Addition of traffic from other planned developments.

iv. Background traffic volumes and operational analysis.

(7) Full Buildout Traffic Conditions (With the Proposed Land Use Action).

i. Description of the proposed development plans.

ii. Trip generation characteristics of proposed project (including trip reduction documentation).

iii. **Trip distribution assumptions.**
iv. **Full buildout traffic volumes and intersection operational analysis.**
v. **Site circulation and parking.**
vi. **Intersection and site-access driveway queuing analysis.**
vii. **Recommended roadway and intersection mitigation measures (if necessary).**

(8) **Conclusions and recommendations.**

(9) **Appendix—With Dividers or Tabs.**

i. **Traffic count summary sheets.**
ii. **Crash analysis summary sheets.**
iii. **Existing, background, and full buildout traffic operational analysis worksheets with detail to review capacity calculations.**
iv. **Signal, left-turn, and right-turn lane warrant evaluation calculations.**
v. **Signal timing sheets depicting the timing and phasing used in analysis.**
vi. **Other analysis summary sheets such as queuing.**

(10) **To present the information required to analyze the transportation impacts of development, the following figures shall be included in the TIS:**

i. **Vicinity Map.**
ii. **Existing Lane Configurations and Traffic Control Devices.**
iii. **Existing Traffic Volumes and Levels of Service for each required time period.**
iv. **Future Year Background Traffic Volumes and Levels of Service for each required time period.**
v. **Proposed Site Plan, including access points for abutting parcels and for those across the street from the proposed development.**
vi. **Future Year Assumed Lane Configurations and Traffic Control Devices.**
vii. **Estimated Trip Distribution/Assignment Pattern.**
viii. **Trip reductions (pass-by trips at site access(es)).**
ix. **Site-Generated Traffic Volumes for each required time period.**
x. **Full Buildout Traffic Volumes and Levels of Service for each required time period.**

Finding: A Transportation Impact Study prepared by Lancaster Mobley in accordance with the requirements of this section and has been submitted under Appendix D.

5. **The City Engineer may waive or allow deferral of standard street improvements, including sidewalk, roadway, bicycle lane, undergrounding of utilities, and landscaping, as applicable, where one or more of the following conditions in subdivisions (a) through (d) is met. Where the City Engineer agrees to defer a street improvement, it shall do so only where the property owner agrees not to remonstrate against the formation of a local improvement district in the future.**
   a. **The standard improvement conflicts with an adopted capital improvement plan.**
   b. **The standard improvement would create a safety hazard.**

c. **It is unlikely due to the developed condition of adjacent property that the subject improvement would be extended in the foreseeable future, and the improvement under consideration does not by itself significantly improve transportation operations or safety.**
d. **The improvement under consideration is part of an approved partition and the proposed partition does not create any new street.**

Finding: The District is not requesting a waiver or deferral of standard street improvements. The requirements of this section are not applicable.

B. Street Location, Alignment, Extension, and Grades.

1. **All new streets, to the extent practicable, shall connect to the existing street network and allow for the continuation of an interconnected street network, consistent with adopted public facility plans and pursuant to subsection D Transportation Connectivity and Future Street Plans.**

Finding: New streets are not proposed. The requirements of this section are not applicable.

2. **Specific street locations and alignments shall be determined in relation to existing and planned streets, topographic conditions, public convenience and safety, and in appropriate relation to the proposed use of the land to be served by such streets.**
3. **Grades of streets shall conform as closely as practicable to the original (pre-development) topography to minimize grading.**
4. **New streets and street extensions exceeding a grade of 10 percent over a distance more than 200 feet, to the extent practicable, shall be avoided. Where such grades are unavoidable, the City Engineer may approve an exception to the 200-foot standard and require mitigation, such as a secondary access for the subdivision, installation of fire protection sprinkler systems in dwellings, or other mitigation to protect public health and safety.**
5. **Where the locations of planned streets are shown on a local street network plan, the development shall implement the street(s) shown on the plan.**
6. **Where required local street connections are not shown on an adopted City street plan, or the adopted street plan does not designate future streets with sufficient specificity, the development shall provide for the reasonable continuation and connection of existing streets to adjacent developable properties, conforming to the standards of this Code.**
7. **Existing street-ends that abut a proposed development site shall be extended with the development, unless prevented by environmental or topographical constraints, existing development patterns, or compliance with other standards in this Code. In such situations, the applicant must provide evidence that the environmental or topographic constraint precludes reasonable street connection.**

8. **Proposed streets and any street extensions required pursuant to this section shall be located, designed, and constructed to allow continuity in street alignments and to facilitate future development of vacant or redevelopable lands.**

Finding: New streets and street extensions are not proposed. The proposed development will include the widening and improvement of existing streets following the existing alignment and grade. The requirements of this section are not applicable.

C. Rights-of-Way and Street Section Widths.

1. **Street rights-of-way and section widths shall comply with the current version of the Public Works Design Standards and Transportation System Plan. The standards are intended: to provide for streets of suitable location, width, and design to accommodate expected vehicle, pedestrian, and bicycle traffic; to afford satisfactory access to law enforcement, fire protection, sanitation, and road maintenance equipment; and to provide a convenient and accessible network of streets, avoiding undue hardships to adjoining properties.**
2. **All streets shall be improved in accordance with the construction standards and specifications of the applicable roadway authority, including requirements for pavement, curbs, drainage, striping, and traffic control devices. Where a planter strip is provided it shall consist of a minimum five-foot-wide strip between the sidewalk and the curb or roadway. Where a swale is provided, it shall either be placed between the roadway and sidewalk or behind the sidewalk on private property, subject to City Engineer approval and recording of required public drainage way and drainage way maintenance easements. Streets with parking on one side only should be avoided. When used, they must be posted NO PARKING.**
3. **Where a range of street width or improvement options is indicated, the City Engineer shall determine requirements based on the advice of a qualified professional and all of the following factors:**
    a. **Street classification and requirements of the roadway authority, if different than the City's street classifications and requirements;**
    b. **Existing and projected street operations relative to applicable standards;**
    c. **Safety of motorists, pedestrians, bicyclists, and South Clackamas Transit District (SCTD) users, including consideration of accident history;**
    d. **Convenience and comfort for pedestrians, bicyclists, and SCTD users;**
    e. **Provision of on-street parking;**
    f. **Placement of utilities;**
    g. **Street lighting;**
    h. **Slope stability, erosion control, and minimizing cuts and fills;**
    i. **Surface water management and storm drainage requirements;**
    j. **Emergency vehicles or apparatus and emergency access, including evacuation needs;**
    k. **Transitions between varying street widths (i.e., existing streets and new streets); and**

l. Other factors related to public health, safety, and welfare.

Finding: The proposed development will include three-quarter street frontage improvements on Leroy Avenue and West Lane along the full frontage of the school site. Lynn Lane will be improved with a three-quarter street improvement along the school's frontage which will be tied into improvements being made by an adjacent development to the north at the western half of the street. Sidewalks will be added along the frontage where improvements are made by the adjacent developer. Half-street frontage improvements are proposed on Hezzie Lane to tie into the existing improved right-of-way. All proposed street improvements will be installed according to City Standards. This standard is met.

D. Transportation Connectivity and Future Street Plans. The following standards apply to the creation of new streets:

Finding: New streets are not proposed with the development. The requirements of this section are not applicable.

17-3.6.040 Sanitary Sewer and Water Service Improvements.

A. Sewers and Water Mains Required. All new development is required to connect to City water and sanitary sewer systems. Sanitary sewer and water system improvements shall be installed to serve each new development and to connect developments to existing mains in accordance with the adopted facility master plans and applicable Public Works Design Standards. Where streets are required to be stubbed to the edge of the subdivision, sewer and water system improvements and other utilities shall also be stubbed with the streets, except as may be waived by the City Engineer where alternate alignment(s) are provided.

B. Sewer and Water Plan Approval. Development permits for sewer and water improvements shall not be issued until the City Engineer has approved all sanitary sewer and water plans in conformance with City standards.

C. Over-Sizing. The City may require as a condition of development approval that sewer and water lines serving new development be sized to accommodate future development within the area as projected by the applicable facility master plans, and the City may authorize other cost-recovery or cost-sharing methods as provided under state law.

D. Inadequate Facilities. Development permits may be restricted or rationed by the Planning Commission where a deficiency exists in the existing water or sewer system that cannot be rectified by the development and which, if not rectified, will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water and sewerage treatment systems. The City Engineer may require water booster pumps, sanitary sewer lift stations, and other critical facilities be installed with backup power.

Finding: The subject site has adequate existing sanitary sewer and water services available to serve the new school. The development will connect into the existing services,

including the existing 8-inch sanitary line in Leroy Avenue and the existing water line in Leroy Avenue. This standard is met.

17-3.6.050 Storm Drainage and Surface Water Management Facilities.

A. General Provisions. The City shall issue a development permit only where adequate provisions for stormwater runoff have been made in conformance with the requirements of the current version of the Public Works Design Standards and Stormwater Master Plan.

B. Accommodation of Upstream Drainage. Culverts and other drainage facilities shall be large enough to accommodate existing and potential future runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the City Engineer.

C. Effect on Downstream Drainage. Where it is anticipated by the City Engineer that the additional runoff resulting from the development will overload an existing drainage facility, the City shall withhold approval of the development until provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with City standards.

D. Over-Sizing. The City may require as a condition of development approval that sewer, water, or storm drainage systems serving new development be sized to accommodate future development within the area as projected by the applicable facility master plan, provided that the City may grant the developer credit toward any required system development charge for the same pursuant to the System Development Charge.

E. Existing Watercourse. Where a proposed development is traversed by a watercourse, drainage way, channel, or stream, the City may require a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance to protect the public health and safety.

Finding: The design of the school site includes a storm planter within the main entry parking lot, a storm planter in the southwest corner of the bus parking lot area and a stormwater detention pond in the northwest corner of the site. The Preliminary Drainage Report submitted under Appendix D provides a detailed analysis of the proposed stormwater management system. This standard is met.

17-3.6.060 Utilities.

The following standards apply to new development where extension of electric power, gas, or communication lines is required:

A. General Provision. The developer of a property is responsible for coordinating the development plan with the applicable utility providers and paying for the extension and installation of utilities not otherwise available to the subject property.

Finding: The District acknowledges that they are responsible for coordinating the development plan with the applicable utility providers and paying for the extension and installation of utilities. This standard can be met.

B. Underground Utilities.

1. General Requirement. The requirements of the utility service provider shall be met. All utility lines in new subdivisions, including, but not limited to, those required for electric, communication, and lighting, and related facilities, shall be placed underground, except where the City Engineer determines that placing utilities underground would adversely impact adjacent land uses. The Planning Official may require screening and buffering of above ground facilities to protect the public health, safety, or welfare.

Finding: All new utility lines will be placed underground as applicable. This standard can be met.

2. Subdivisions. In order to facilitate underground placement of utilities, the following additional standards apply to all new subdivisions:

Finding: The proposed development is not a subdivision. The requirements of this section are not applicable.

C. Exception to Undergrounding Requirement. The City Engineer may grant exceptions to the undergrounding standard where existing physical constraints, such as geologic conditions, streams, or existing development conditions make underground placement impractical.

Finding: The District is not requesting exceptions to the undergrounding requirement.

17-3.6.070 Easements.

A. Provision. The developer shall make arrangements with the City and applicable utility providers for each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development.

B. Standard. Utility easements shall conform to the requirements of the utility service provider. All other easements shall conform to the City of Molalla Public Works Design Standards.

C. Recordation. All easements for sewers, storm drainage and water quality facilities, water mains, electric lines, or other utilities shall be recorded and referenced on a survey or final plat, as applicable. See Chapter 17-4.2 Site Design Review, and Chapter 17-4.3 Land Divisions and Property Line Adjustments.

Finding: The District will make arrangements with the City and applicable utility providers for each utility franchise for the provision and dedication of utility easements. The Utility easements will conform to the requirements of the utility service provider or City of Molalla Public Works Design Standards. All easements will be referenced in a survey. This standard can be met.

Division IV Application Review Procedures and Approval Criteria

CHAPTER 17-4.2 SITE DESIGN REVIEW

17-4.2.020 Applicability.

Site Design Review approval is required for new development. Site Design Review approval is also required to expand a nonconforming use or development. Except as specified by a condition of approval of a prior City decision, or as required for uses subject to Conditional Use Permit approval, Site Design Review is not required for the following:

- **A. Change in occupancy from one type of land use to a different land use resulting in no increase in vehicular traffic or development;**
- **B. Single-family detached dwelling (including manufactured home) on its own lot, except as required for designated historic landmarks or properties within a designated historic district;**
- **C. A single duplex;**
- **D. Non-residential building addition of up to 500 square feet or 10 percent, whichever is greater;**
- **E. Home occupation, except for uses requiring a Conditional Use Permit;**
- **F. Development and land uses that are already approved as part of a Site Design Review or Conditional Use Permit application, provided that modifications to such plans may require Site Design Review, pursuant to Chapter 17-4.2;**
- **G. Public improvements required by City standards or as stipulated by a condition of land use approval (e.g., transportation facilities and improvements, parks, trails, utilities, and similar improvements), as determined by the Planning Official and City Engineer, except where a condition of approval requires Site Design Review; and**
- **H. Regular maintenance, repair, and replacement of materials (e.g., roof, siding, awnings, etc.), parking resurfacing, and similar maintenance and repair.**

Finding: The proposed development is subject to the Site Design Review process and approval criteria which have been addressed within this narrative.

17-4.2.030 Review Procedure.

Site Design Review shall be conducted using the Type II procedure in Section 17-4.1.030, except that proposals exceeding any one of the thresholds below shall be reviewed using the Type III procedure in Section 17-4.1.040:

- **A. The proposed use's estimated vehicle trip generation exceeds 100 average daily trips, based on the latest edition of the Institute of Transportation Engineers (ITE) Manual;**
- **B. The use exceeds 5,000 square feet of gross leasable floor area; or the project involves more than one acre total site area;**
- **C. The proposal involves a Conditional Use (new or expanded);**
- **D. The proposal involves a variance under Chapter 17-4.7;**
- **E. The proposal involves expansion of a nonconforming use; or**
- **F. The Planning Official determines that, due to the nature of the proposal, a public hearing is the most effective way to solicit public input in reviewing the application.**

Finding: The proposed development is not expected to generate an addition of 100 average daily trips above what is currently existing on the site. The proposal does include variances under Chapter 17-4.7; therefore, a Type III review procedure is applicable.

17-4.2.050 Approval Criteria.

An application for Site Design Review shall be approved if the proposal meets all of the following criteria. The Planning Official, in approving the application, may impose reasonable conditions of approval, consistent with the applicable criteria.

A. The application is complete, in accordance with Section 17-4.2.040;

Finding: All required materials have been submitted in accordance with Section 17-4.2.040. This standard is met.

B. The application complies with all of the applicable provisions of the underlying Zoning District (Division II), including, but not limited to, building and yard setbacks, lot area and dimensions, density and floor area, lot coverage, building height, building orientation, architecture, and other applicable standards;

Finding: The new middle school complies with the applicable provisions of the underlying zoning except where an adjustment or variance to the standard has been requested. The applicable code criteria of Chapter 17-2.2. and chapter 17-4.7 have been addressed within this narrative. This standard is met.

C. The proposal includes required upgrades, if any, to existing development that does not comply with the applicable zoning district standards, pursuant to Chapter 17-1.4 Nonconforming Situations;

Finding: The new middle school will replace the existing school, which will be demolished. No existing non-conforming situations will remain on the site. This standard is met.

D. The proposal complies with all of the Development and Design Standards of Division III, as applicable, including, but not limited to:

3. Chapter 17-3.3 Access and Circulation,
4. Chapter 17-3.4 Landscaping, Fences and Walls, Outdoor Lighting,
5. Chapter 17-3.5 Parking and Loading,
6. Chapter 17-3.6 Public Facilities, and
7. Chapter 17-3.7 Signs;

Finding: All applicable code provisions have been addressed within this narrative. This standard is met.

E. For non-residential uses, all adverse impacts to adjacent properties, such as light, glare, noise, odor, vibration, smoke, dust, or visual impact, are avoided; or where impacts cannot be avoided, they are minimized; and

Finding: The District has considered the impacts of the school on the neighborhood in the placement of a new building on the existing site. While it is necessary to relocate the building specifically on the northern half of the site in order to construct the new building while the existing school building remains operational, the programmatic elements of the site have been placed to minimize impacts. The recreation program areas of the site including recreation fields, the gymnasium and the auditorium have been located to the south and west on the school site, where fewer homes are located directly adjacent to the site in order to minimize the noise impact and parking impact on adjacent properties. The building mass will include a mix of one and two-story spaces, with higher single-story roof lines on the auditorium and gymnasium. The building is set back from the property lines to provide distance from the nearby homes on Lynn Lane and Leroy Avenue. The building materials include brick fiber cement panel, and metal paneling which are non-reflective materials.

The school site will provide on-site lighting within the parking areas and around the school building for safety and wayfinding. Lights have been designed to prevent light trespass on adjacent properties and dark sky fixtures have been utilized where applicable. The proposed parking lot lighting and pedestrian lighting coverage levels have been illustrated on the Land Use Site Plan – Lighting (Sheet EL0.81) included under Appendix E of this application.

The middle school currently utilizes Leroy Avenue for bus pick-up and drop-off. The new school configuration will provide on-site queueing for school buses, which will provide for a more safe environment for cars and pedestrians along Leroy Avenue and will move idling buses away from adjacent residential properties.

The school is not expected to generate adverse impacts relating to odor, vibration, smoke, or dust.

F. The proposal meets all existing conditions of approval for the site or use, as required by prior land use decision(s), as applicable.
Note: Compliance with other City codes and requirements, though not applicable land use criteria, may be required prior to issuance of building permits.

Finding: There are not existing conditions of approval for the site or use required by prior land use decisions. The requirements of this section are not applicable.

CHAPTER 17-4.7 ADJUSTMENTS AND VARIANCES
17-4.7.020Intent.

Adjustments are variances that are intended to provide relief from code standards in specific situations. Both procedures are intended to ensure that the resulting development is compatible with adjacent properties and is consistent with the intent of the Code.

A. Adjustments. Adjustments provide relief from specific code provisions when a code provision has the unintended effect of preventing reasonable development in conformance with all other code requirements. Adjustments are allowed in limited situations pursuant to Section 17-4.7.030.

B. Variances. Variances provide greater flexibility to code standards than adjustments, where the physical characteristics of a site or its surroundings prevent reasonable development in compliance with a code standard.

17-4.7.040 Variances.

A. Applicability. A Variance is similar to an Adjustment, but does not otherwise meet the criteria under Section 17-4.7.030.

Finding: The District is requesting four variances for the proposed development which do not meet the criteria under Section 17-4.7.030 for an adjustment.

Variance to Section 17-3.2.040.D.6

Section 17-3.2.040.D.6 which requires all street-facing elevations provides 60 percent transparent windows between the building base and a plane 72 inches above the sidewalk grade in order to create a storefront window effect.

The glazing area provided in the storefront area on the elevation facing Lynn Lane is 38 percent, or 63.4 percent the 60 percent glazing standard.

The glazing area provided in the storefront area on the elevation facing Leroy Avenue is 36 percent, or 60 percent of the required 60 percent glazing standard.

Variance to Section 17-3.2.040.D.9

Section 17-3.2.040.D.9 requires all side and rear elevations provide 30 percent transparency.

The total glazing area provided on the south elevation is 10 percent. The total glazing area on the west elevation is 21 percent.

Variance to Section 17-3.2.040.E.H

Section 17-3.2.040.E.H requires that all elevations that orient to a street or civic space have a break in wall plane for not less than one break every 30 feet of building length that has a minimum offset of 24 inches in depth.

Variance to Section 17-3.4.050,C.1.

Section 17-3.4.050.C.1 requires that all light poles not exceed a height of 20 feet.

The District is proposing 25-foot-high light poles within the parking areas.

B. Approval Criteria. The Planning Commission through a Type III procedure may approve a Variance upon finding that it meets all of the following criteria:

1. The Variance is necessary because the subject Code provision does not account for special or unique physical circumstances of the subject site, existing development patterns, or adjacent land uses. A legal lot determination may be sufficient evidence of a hardship for purposes of approving a variance;

Finding: The Building Orientation and Design Standards of Section 17-3.2.040 are primarily designed for commercial and office uses. The standards do not account for the unique needs of a school building.

Storefront Windows and Glazing Requirements:
The storefront window requirements of Section 17-3.2.040.D.6 and glazing requirements of Section 17-3.2.040.D.9 do not account for special circumstances which exist within a middle school building including the safety and security of the students, the programmatic uses of interior spaces such as gymnasiums and auditoriums which do not often have windows on lower levels, efficient heating and cooling of the interior spaces, and the structural needs of the building. Display windows meant to provide full visibility to interior spaces is not appropriate for the school use

The elevation facing Lynn Lane is comprised of classroom spaces. The elevation along Leroy Lane includes classroom spaces as well as a theater room and music room.

The south elevation includes the gymnasium, fitness rooms, outdoor storage areas, a food and consumer science (cooking) room and music practice room spaces. The west elevation includes classroom spaces and the gymnasium.

Glazing within the school has been strategically located based on the programmatic needs of each internal space. In order to meet the safety needs of the school the visibility of the interior space from the exterior of the building is limited to create safe areas within each classroom space. Glazing is limited in the gymnasium space based on the programmatic needs of the space.

The building envelope has been carefully designed to provide efficient heating and cooling of interior classroom spaces. Additionally, a series of shear walls have been utilized to provide structural stability to the school building, which requires the limitation of glazing along the façade of the building as demonstrated in Figure J below.

Figure J: Shear Walls

Articulation:
The elevation facing Lynn Lane has a break in wall plane of at least 24 inches with a maximum distance between breaks of 35 feet and a minimum distance of 7 feet. The average length of the wall plane is 23 feet.

The elevation facing Leroy Ave has a break in wall plane of at least 24 inches with a maximum distance between breaks of 139 feet and a minimum distance of 10 feet. The average length of the wall plane is 56 feet.

The areas which exceed the wall plane length of 30 feet include classroom spaces, administrative areas, the building entrance and the auditorium and band room areas. The proposed design meets the intent of the articulation requirement by providing plane changes and relief that creates visual interest along each façade, while addressing the programmatic needs of each internal classroom space.

Light Poles
The District is requesting a variance for the height of the parking lot light poles to allow for an additional five feet of height. Raising the height of the light poles allows for an overall reduction in the total number of poles required. This reduces the visual impact on the neighbors while providing good light distribution for safety and security across the site. The reduction of light poles further reduces the necessary maintenance for the District. The proposed lighting provides adequate light on the site, while not exceeding the light trespass requirement.

Each of the requested variances is necessary to meet the unique physical design requirements of a school building. This standard is met.

2. **The Variance is the minimum necessary to address the special or unique physical circumstances related to the subject site;**

Finding: **Storefront Windows and Glazing**
The glazing area provided in the storefront area on the elevation facing Lynn Lane is 38 percent, or 63.4 percent the 60 percent glazing standard.

The glazing area provided in the storefront area on the elevation facing Leroy Avenue is 36 percent, or 60 percent of the required 60 percent glazing standard.

The total glazing area provided on the south elevation is 10 percent. The total glazing area on the west elevation is 21 percent.

The total glazing area provided allows for windows in each classroom, learning space and administrative area at an appropriate scale for each of the interior spaces. Additional glazing area would compromise the ability to meet the security needs of the school.

Articulation:

The elevation facing Lynn Lane has a break in wall plane of at least 24 inches with a maximum distance between breaks of 35 feet and a minimum distance of 7 feet. The average length of the wall plane is 23 feet.

The elevation facing Lynn Lane has a break in wall plane of at least 24 inches with a maximum distance between breaks of 139 feet and a minimum distance of 10 feet. The average length of the wall plane is 56 feet.

The proposed variance to the articulation requirements is the minimum variance necessary to meet the interior programmatic requirements of each of the learning spaces which exceed the 30-foot articulation requirement. Classrooms have been sized to provide adequate interior space to meet student classroom capacity needs. The theater and music room have been designed to meet both capacity and acoustic requirements, with limitations to the number of wall plane breaks along the walls of the rooms. The proposed articulation variance is the minimum necessary to meet the needs of the school.

Lighting:
The District is proposing 23 light poles within the parking lot that exceed the minimum height requirement of 20 feet. All of the proposed light poles proposed have a maximum height of 25 feet. The proposed pole height allows for an overall reduction of light poles within the parking area while meeting the lighting requirements for parking and vehicle circulation areas while meeting the light trespass requirements at the property line. The proposed pole height is a 25 percent increase, which is the minimum increase necessary to result in fewer light poles while still achieving the lighting requirements.

3. **The need for the Variance is not self-imposed by the applicant or property owner. (For example, the Variance request does not arise as a result of a property line adjustment or land division approval previously granted to the applicant);**

Finding: The need for the requested variances is not self-imposed by the District and is a result of the specific needs of the proposed school building. This standard is met.

4. **The Variance does not conflict with other applicable City policies or other applicable regulations;**

Finding: The proposed variances do not conflict with other applicable City policies or regulations. This standard is met.

5. **The Variance will result in no foreseeable harm to adjacent property owners or the public; and**

Finding: The proposed variances are primarily aesthetic and will not result in foreseeable harm to adjacent property owners or the public.

6. **All applicable building code requirements and engineering design standards shall be met.**

Finding: The proposed variances do not have impact on the ability to meet all building code requirements and engineering design standards. All standards will be met.

SUMMARY AND CONCLUSION

Based upon the analysis and findings described above for the Type II Site Design Review and Type III Variance Application, Molalla River Middle School meets the requirements as described in the City of Molalla Development Code. The District respectfully requests approval from the City's Planning Department and Planning Commission.

opsis

MRSD MIDDLE SCHOOL REPLACEMENT

MOLALLA RIVER SCHOOL DISTRICT
318 LEROY AVE, MOLALLA, OR. 97038

LAND USE SUBMISSION

5/21/2025

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CIVIL

C0.00	COVER
C0.01	GENERAL NOTES
C0.50	DEMOLITION PLAN - NORTH
C0.51	DEMOLITION PLAN - SOUTH
C1.00	LAYOUT & PAVING PLAN - NORTH
C1.01	LAYOUT & PAVING PLAN - SOUTH
C2.00	GRADING PLAN - NORTH
C2.01	GRADING PLAN - SOUTH
C3.00	UTILITY PLAN - NORTH
C3.01	UTILITY PLAN - SOUTH
C4.00	N HEZZIE LANE PLAN & PROFILE
C4.01	LEROY AVE PLAN & PROFILE
C4.02	LYNN LANE PLAN & PROFILE
C4.03	WEST LANE PLAN & PROFILE
C4.04	STREET CROSS-SECTIONS
C5.00	PRIVATE SITE & UTILITY DETAILS
C5.01	PRIVATE UTILITY DETAILS
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C5.03	PUBLIC STORM DETAILS
C5.04	PUBLIC STREET & WATER DETAILS

LANDSCAPE

L0.00	KEY PLAN
L0.11	TREE PROTECTION AND REMOVAL PLAN - NORTHWEST
L0.12	TREE PROTECTION AND REMOVAL PLAN - NORTHEAST
L0.13	TREE PROTECTION AND REMOVAL PLAN - SOUTHWEST
L0.14	TREE PROTECTION AND REMOVAL PLAN - SOUTHEAST
L5.00	PLANTING NOTES AND SCHEDULE
L5.01	PLANTING PLAN - NORTHWEST
L5.02	PLANTING PLAN - NORTHEAST
L5.03	PLANTING PLAN - SOUTHWEST
L5.04	PLANTING PLAN - SOUTHEAST

ARCHITECTURAL

LU-01	ARCHITECTURAL SITE PLAN
LU-02	FLOOR PLAN LEVEL 01
LU-03	FLOOR PLAN LEVEL 02
LU-04	ROOF PLAN
LU-05	EXTERIOR ELEVATIONS
LU-06	EXTERIOR BUILDING MATERIALITY
LU-07	RENDERINGS AND SIGHT LINE DIAGRAMS

LIGHTING

EL0.81	LAND USE SITE PLAN - LIGHTING
EL0.82	LIGHTING SCHEDULE - LAND USE

ARCHITECT Opsis Architecture | **CIVIL ENGINEER** Standridge Design | **LANDSCAPE ARCHITECT** Mayer / Reed | **STRUCTURAL ENGINEER** Catena Engineers | **MECHANICAL / PLUMBING** Sazan Group | **ELECTRICAL ENGINEER** Landis Consulting | **LIGHTING ENGINEER** Biella Lighting Design | **THEATER CONSULTANT** PLA Designs | **FOOD SERVICE CONSULTANT** Halliday Associates | **ACOUSTIC AND AV CONSULTANT** ABD Engineering and Design

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

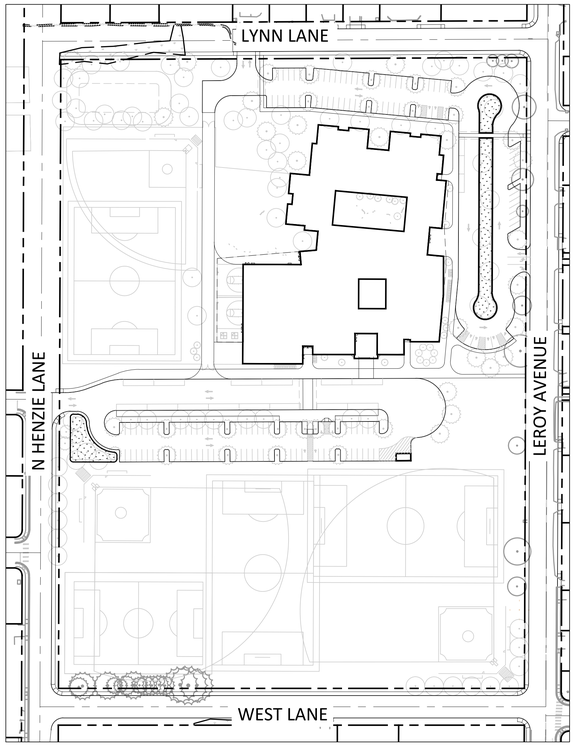
MRSD MIDDLE SCHOOL REPLACEMENT

LAND USE

318 LEROY AVENUE
MOLALLA, OREGON

SITE PLAN

SCALE:1"=100'



VICINITY MAP

NTS

ABBREVIATIONS

AC	ASPHALTIC CONCRETE	IE	INVERT ELEVATION
AD	AREA DRAIN	IRR	IRRIGATION
ASSY	ASSEMBLY	LT	LEFT
BO	BLOWOFF	L/S	LANDSCAPE
BOW	BACK OF WALK	MAX	MAXIMUM
BV	BUTTERFLY VALVE	MH	MANHOLE
CB	CATCH BASIN	MIN	MINIMUM
℄	CENTERLINE	NTS	NOT TO SCALE
CJ	CONSTRUCTION JOINT	NO	NUMBER
CONC	CONCRETE	OH	OVERHEAD
CONST	CONSTRUCT	OHW	OVERHEAD WIRE
CO	CLEAN OUT	PC	POINT OF CURVATURE
CP	CONTROL POINT	PIV	POST INDICATOR VALVE
DC	DOUBLE CHECK	PNT	POINT
DDC	DOUBLE DETECTOR CHECK	PRC	POINT OF REVERSE CURVATURE
DI	DITCH INLET	PT	POINT OF TANGENCY
DS	DOWNSPOUT	PVMT	PAVEMENT
D/W	DRIVEWAY	RD	ROOF DRAIN
DWG	DRAWING	RT	RIGHT
EJ	EXPANSION JOINT	ROW	RIGHT-OF-WAY
ELEV	ELEVATION	S=	SLOPE EQUALS
EP	EDGE OF PAVEMENT	SD	STORM DRAIN
ER	END OF RETURN	SHT	SHEET
EXIST	EXISTING	SS	SANITARY SEWER
FDC	FIRE DEPT. CONNECTION	ST	STREET
FDCL	FIRE DEPT. CONNECTION LINE	STD	STANDARD
FF	FINISHED FLOOR ELEV.	S/W	SIDEWALK
FG	FINISHED GRADE	TC	TOP OF CURB
FH	FIRE HYDRANT	TEL	TELEPHONE
FL	FLOW LINE	TEMP	TEMPORARY
FP	FIRE PROTECTION	TP	TOP OF PAVEMENT
FWL	FIRE WATER LINE	TV	OVERHEAD CABLE TELEVISION
G	GAS	TYP	TYPICAL
G=	GUTTER EQUALS	W	WATER
GB	GRADE BREAK	W/	WITH
GV	GATE VALVE	WV	WATER VALVE

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C5.04	PUBLIC STREET & WATER DETAILS

12OOC

EC-1.00	ESCP COVER SHEET
EC-2.00	ESCP EXISTING CONDITIONS
EC-3.00	ESCP DEMO, CLEARING, GRADING & EXCAVATING PLAN (PHASE 1)
EC-3.01	ESCP DEMO, CLEARING, GRADING & EXCAVATING PLAN (PHASE 2)
EC-4.00	ESCP UTILITIES
EC-5.00	ESCP PUBLIC ROADS
EC-6.00	ESCP FINAL LANDSCAPING AND STABILIZATION PLAN
EC-7.00	BMP DETAILS

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		STORMWATER CATCH BASIN
		STORMWATER MANHOLE
		CULVERT
		DITCH
		SANITARY SEWER CLEAN OUT
		SANITARY SEWER MANHOLE
		FIRE HYDRANT
		WATER METER
		WATER VALVE
W		WATER VAULT
		IRRIGATION VALVE
		WATER MANHOLE
		COMMUNICATION PEDESTAL
		COMMUNICATION JUNCTION BOX
		POWER JUNCTION BOX
		GAS METER
		FENCE
		SIGN
		UTILITY POLE
MB		MAILBOX
		CONIFEROUS TREE
		DECIDUOUS TREE
		PROPERTY LINE/LOT LINE
		CENTERLINE
		RIGHT OF WAY LINE
288	288	CONTOUR
		EDGE OF AC OR GRAVEL
		CURB
X" SD	SD	STORM DRAIN
X" W	W	WATER
	F	FIRE
X" SS	SS	SANITARY SEWER
COM	TELCOM	UNDERGROUND TELEPHONE
PWR		OVERHEAD POWER
OHP		OVERHEAD CABLE TELEVISION
X" GAS	GAS	GAS
UGP	POWER	UNDERGROUND POWER

Existing Building Footprint	
NE Corner Shed	3,675 SF
Main Building	69,925 SF
Outbuildings	21,454 SF
Proposed Building Footprint	85,106 SF
Proposed Building Footprint (Including Covered Areas)	95,238 SF
Impervious Surface (asphalt, concrete, turf, rubber tiles)	164,568 SF
Landscaping Area	
Planting Area	33,458 SF
Meadow	41,906 SF
Lawn Area	21,454 SF
Stormwater Area	26,938 SF
Total Parking Spaces	191

LU-1

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opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

STANDRIDGE
PLANNING | ENGINEERING | SURVEYING
WWW.STANDRIDGEINC.COM

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Revisions to Sheet

No.	Revision	Date
LU-1	LAND USE REV 1	07/25/2025

Status: **LAND-USE**

Date: **05/21/2025**

Sheet Title
COVER

Sheet No.
C0.00

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

CITY OF MOLALLA – STANDARD CONSTRUCTION NOTES FOR PLANS

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AS AMENDED BY THE CITY OF MOLALLA PUBLIC WORKS STANDARDS AND CONSTRUCTION REQUIREMENTS PER THE PUBLIC WORKS DIRECTOR. ALL WORK WITHIN THE PUBLIC RIGHT-OF WAY OR PUBLIC EASEMENTS REQUIRES A PUBLIC WORKS PERMIT
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROCUREMENT OF ALL APPLICABLE PERMITS, LICENSES AND CERTIFICATES RELATIVE TO THE TRADES TO COMPLETE THE PROJECT AND FOR THE USE OF SUCH WORK WHEN COMPLETED. COMPLIANCE SHALL BE AT ALL LEVELS, FEDERAL, STATE, COUNTY, AND LOCAL, RELATING TO THE PERFORMANCE OF WORK.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND ARRANGE FOR THE RELOCATION OF ANY IN CONFLICT WITH THE PROPOSED CONSTRUCTION. THE LOCATIONS, DEPTH, AND DESCRIPTION OF EXISTING UTILITIES SHOWN WERE COMPILED FROM AVAILABLE RECORDS AND-OR-FIELD SURVEYS. THE ENGINEER OR UTILITY COMPANIES DO NOT GUARANTEE THE ACCURACY OF THE COMPLETENESS OF SUCH RECORDS. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA.
4. OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 052-001-0010 THROUGH OAR 952-001-0000. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES FROM THE CENTER BY CALLING TOLL FREE TO (877)668-4001 OR BY ACCESSING THE INTERNET AT WWW.CALLBEFOREYOUDIG.ORG. THE CONTRACTOR MUST NOTIFY THE CENTER AT LEAST TWO (2) BUSINESS DAYS, BUT NOT MORE THAN TEN (10) BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL TOLL FREE TO (800)332-2344.
5. THE CONTRACTOR SHALL MAKE PROVISIONS TO KEEP ALL EXISTING UTILITIES (INCLUDING NON-LOCATABLE) IN SERVICE AND PROTECT THEM DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE NOTIFICATION OF DAMAGE TO UTILITIES AND THE REPAIR OR REPLACEMENT OF DAMAGED UTILITIES USING MATERIALS AND METHODS APPROVED BY THE UTILITY OWNER. NO SERVICE INTERRUPTIONS SHALL BE PERMITTED WITHOUT PRIOR WRITTEN AGREEMENT WITH THE UTILITY OWNER/PROVIDER.
6. THE CONTRACTOR SHALL NOTIFY PROJECT ENGINEER AND CITY OF MOLALLA PUBLIC WORKS INSPECTOR FORTY EIGHT (48) HOURS IN ADVANCE OF STARTING CONSTRUCTION AND TWENTY-FOUR (24) HOURS BEFORE RESUMING WORK AFTER SHUT DOWNS, EXCEPT FOR NORMAL RESUMPTION OF WORK FOLLOWING SATURDAYS, SUNDAYS OR HOLIDAYS.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREES, STUMPS, ROOTS, TOPSOIL, AND OTHER MATERIAL AND WHERE INDICATED ON THE PLANS. MATERIALS SHALL BE DISPOSED OF IN SUCH A MANNER AS TO MEET ALL APPLICABLE REGULATIONS. NO BURNING IS ALLOWED WITHIN CITY LIMITS
8. ALL CONSTRUCTION VEHICLES SHALL PARK ON THE CONSTRUCTION SITE OR AT A LOCATION(S) INDICATED ON THE APPROVED PLAN. HOURS OF CONSTRUCTION FOR PUBLIC IMPROVEMENTS SHALL BE 7:00 AM TO 8:00 PM, MONDAY THROUGH FRIDAY. NO WORK ON PUBLIC IMPROVEMENTS IS ALLOWED ON SATURDAY, SUNDAYS OR GOVERNMENT HOLIDAYS. CONSTRUCTION ACTIVITIES INCLUDE ALL FIELD MAINTENANCE OF EQUIPMENT, REFUELING, AND PICK-UP OR DELIVERY OF EQUIPMENT AS WELL AS THE ACTUAL CONSTRUCTION ACTIVITY.
9. THE CONTRACTOR SHALL KEEP AN APPROVED SET OF PLANS ON THE PROJECT SITE AT ALL TIMES.
10. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THIS PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS INCLUDING SUCH INCIDENTALS AS MAY BE NECESSARY TO MEET THE INTENT OF THE PROJECT CONTRACT DOCUMENTS AND APPLICABLE AGENCY REQUIREMENTS
11. THE CONTRACTOR SHALL MAINTAIN AND COORDINATE ACCESS SATISFACTORY WITH THE NEEDS OF EMERGENCY SERVICE AGENCIES AND ALL AFFECTED PROPERTIES
12. IF GROUND WATER SPRINGS OR TILED DRAINAGE SYSTEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL DIRECT THE CONTRACTOR TO TAKE MEASURES TO ENSURE THAT THE WATER IS NOT CONVEYED THROUGH UTILITY TRENCHES AND THE NATURAL FLOW PATH OF THE SPRING IS ALTERED AS LITTLE AS PRACTICABLE. THE PROJECT ENGINEER SHALL SUBMIT A REPORT SUMMARIZING THE FINDINGS TO THE CITY. IMPACTS AND MITIGATION SHALL BE ADDRESSED FOR CITY APPROVAL.
13. THE CONTRACTOR SHALL POTHOLE AND VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY FIELD MEASUREMENTS AND OTHERWISE VERIFY ALL DIMENSIONS AND EXISTING CONSTRUCTION CONDITIONS INDICATED AND OR SHOWN ON THE PLANS. SHOULD ANY ERROR OR INCONSISTENCY EXIST, THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK AFFECTED UNTIL REPORTED TO THE PROJECT ENGINEER FOR CLARIFICATION OR CORRECTION.
14. ANY INSPECTION BY THE CITY, COUNTY, STATE, FEDERAL AGENCY, OR PROJECT ENGINEER SHALL NOT, IN ANY WAY RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN COMPLIANCE WITH THE APPLICABLE CODES AND REGULATIONS, CITY STANDARDS, AND PROJECT DOCUMENTS.
15. THE CONTRACTOR SHALL VERIFY CENTERLINE AND TOP OF CURB ELEVATIONS PRIOR TO CONSTRUCTION TO INSURE COMPLIANCE WITH THE CONSTRUCTION DRAWINGS AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE PROJECT ENGINEER.
16. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO THE START OF THE CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS, CITY STANDARDS, AND THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL FLAGGERS SHALL BE CERTIFIED BY THE STATE OF OREGON.
17. THE CONTRACTOR SHALL PROVIDE THE CITY AND PROJECT ENGINEER A TWENTY-FOUR (24) HOUR CONTACT PERSON AND NUMBER.
18. THE CONTRACTOR SHALL VERIFY TEMPORARY CONSTRUCTION EASEMENTS PRIOR TO CONSTRUCTION.
19. THE CONTRACTOR SHALL RECORD ALL CHANGES TO THE CONSTRUCTION PLANS. CHANGES SHALL INCLUDE REFERENCE MEASUREMENTS, MATERIALS TYPE, AND UTILITIES NOT PREVIOUSLY SHOWN ON THE PLANS. INFORMATION SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR THE COMPLETION OF RECORD DRAWINGS.
20. ALL SURVEY MONUMENTS ON THE PROJECT'S SITE OR THAT MAY BE SUBJECT TO DISTURBANCE WITHIN THE CONSTRUCTION AREA, OR THE CONSTRUCTION OF ANY OFF-SITE IMPROVEMENTS SHALL BE ADEQUATELY REFERENCED AND PROTECTED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY. IF THE SURVEY MONUMENTS ARE DISTURBED, MOVED, RELOCATED, OR DESTROYED AS A RESULT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL, AT THEIR COST, RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF OREGON TO RESTORE THE MONUMENT TO ITS ORIGINAL CONDITION AND FILE THE NECESSARY SURVEYS AS REQUIRED BY OREGON STATE LAW. A COPY OF ANY RECORDED SURVEY SHALL BE SUBMITTED TO THE CITY PUBLIC WORKS DIRECTOR OR AUTHORIZED REPRESENTATIVE.
21. THE CONTRACTOR IS REQUIRED TO METER CONSTRUCTION WATER THROUGH A CITY BULK WATER METER. CONTACT MOLALLA UTILITY BILLING AT 503-829-6855 TO SET UP AN ACCOUNT.
22. ANY ROOTS ENCOUNTERED OVER 2 INCHES SHALL BE CUT WITH SAW PERPENDICULAR TO TRENCH. EROSION AND SEDIMENT CONTROL

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE EFFECTIVE EROSION CONTROL PROTECTION TO INCLUDE, BUT NOT LIMITED TO, GRADING, DITCHING, HAY BALES, SILT FENCING, AND SEDIMENT BARRIERS TO MINIMIZE EROSION AND IMPACT TO ADJACENT PROPERTY.
2. APPROVAL OF THE EROSION AND SEDIMENT CONTROL PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, STRUCTURES, CHANNELS, DETENTION FACILITIES, UTILITIES, ETC.)
3. THE EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE STORM DRAINAGE SYSTEM, STREETS, OR VIOLATE APPLICABLE WATER STANDARDS.
4. THE CONTRACTOR SHALL CALL FOR INITIAL AND FINAL EROSION AND SEDIMENT CONTROL INSPECTION. EROSION AND SEDIMENT CONTROL INSPECTION SHALL BE APPROVED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL REMOVE TRASH AND SEDIMENT DEPOSITS PRIOR TO FINAL PROJECT INSPECTION.
5. THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED DAILY BY THE APPLICANT/CONTRACTOR. INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 24 HOURS FOLLOWING A STORM EVENT.
6. GRAVEL CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS A WHEEL WASH, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT. WHEEL WASH BASINS SHALL BE PERIODICALLY (OR AS DIRECTED BY CITY INSPECTORS) DRAINED, CLEANED OF SEDIMENT, AND REFILLED WITH CLEAN WATER. AT NO TIME SHALL VEHICLES EXIT THE SITE WITHOUT USING WHEEL WASH STATION, INCLUDING DURING MAINTENANCE OF WHEEL WASH BASIN.
7. STORM DRAIN INLETS, BASINS, AND AREA DRAINS SHALL BE PROTECTED UNTIL THE COMPLETION OF THE PROJECT. SILT SACK INSERTS WITH BIO-BAGS ALONG CURB INLETS AND CATCH BASINS IS THE PREFERRED MEASURE FOR INLET PROTECTION WHERE APPLICABLE. CONTRACTOR SHALL PROVIDE AND MAINTAIN SILT SACK PROTECTION AT THE NEAREST CATCH BASIN INLET(S) DOWNSTREAM OF THE PROJECTS SITE. INSTALL INLET PROTECTION TO NEW INLETS AS INSTALLED.
8. AT NO TIME SHALL SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL SILT SACKS SHALL BE INSPECTED DAILY AND CLEANED OR REPLACED AS NECESSARY. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM STORM SYSTEM.
9. THE CONTRACTOR SHALL INSTALL, OPERATE AND MAINTAIN ADEQUATE EROSION CONTROL MEASURES IN CONFORMANCE WITH THE STANDARDS ADOPTED BY THE CITY OF MOLALLA DURING THE CONSTRUCTION OF ANY PUBLIC UTILITIES AND BUILDINGS IMPROVEMENTS UNTIL SUCH TIME AS APPROVED PERMANENT VEGETATIVE MATERIALS HAVE BEEN INSTALLED.
10. AT THE COMPLETION OF CONSTRUCTION, ALL EXPOSED SOILS MUST BE HYDROSEEDED AND/OR COVERED WITH STRAW AND TACIFIER. IF GROUND COVER IS NOT ESTABLISHED BY OCTOBER 15, THE OPEN AREAS SHALL BE PROTECTED THROUGH THE WINTER WITH MULCH, EROSION BLANKETS, OR OTHER METHOD(S) APPROVED BY THE CITY. SEEDING SHALL BE PERFORMED NO LATER THAN SEPTEMBER 31 FOR EACH PHASE OF CONSTRUCTION.
11. STOCKPILES OF SOIL OR OTHER EROSION PRONE MATERIALS FOR EXTENDED PERIODS MUST BE COVERED WITH TEMPORARY EROSION CONTROL MEASURES AND PROTECTED WITH SILT FENCING.
12. DURING ALL PHASES OF WORK THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ABATE ANY DUST NUISANCE. DUST SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE AND PREVENTION MEASURES SHALL BE CONTINUOUS UNTIL FINAL INSPECTION BY THE CITY.
13. NO PERSON SHALL CREATE PHYSICAL EROSION BY DRAGGING, DROPPING, TRACKING, OR OTHERWISE PLACING OR DEPOSITING, OR PERMITTING TO BE DEPOSITED, MUD, DIRT, ROCK, OR OTHER DEBRIS ON A PUBLIC STREET, OR INTO ANY PART OF THE PUBLIC STORM WATER SYSTEM AND SURFACE WATER SYSTEM, OR INTO ANY PART OF A PRIVATE STORM WATER OR SURFACE WATER SYSTEM THAT DRAINS OR CONNECTS TO THE PUBLIC STORM WATER AND SURFACE WATER SYSTEM. ANY SUCH DEPOSITED MATERIAL SHALL BE IMMEDIATELY REMOVED BY HAND LABOR OR MECHANICAL MEANS. NO MATERIAL SHALL BE WASHED OR FLUSHED INTO ANY PART OF THE STORM WATER OR SURFACE WATER SYSTEM UNTIL ALL MECHANICAL MEANS TO REMOVE THE DEBRIS ARE EXHAUSTED AND PREVENTATIVE SEDIMENT FILTRATION IS IN PLACE.
14. ALL SEDIMENT FENCE SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND COMPLY WITH THE RECENT EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AS AMENDED BY THE CITY OF MOLALLA PUBLIC WORKS STANDARDS AND CONSTRUCTION REQUIREMENTS PER THE PUBLIC WORKS DIRECTOR.

STREET NOTES:

1. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS, CITY STANDARDS, AND THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. APPROVAL OF PLAN REQUIRED PRIOR TO ANY WORK PERFORMED IN EXISTING PUBLIC RIGHT-OF-WAY. ALL FLAGGERS SHALL BE CERTIFIED BY THE STATE OF OREGON.
2. CONTRACTOR TO PROVIDE STATE CERTIFIED INDEPENDENT TESTING AGENCY FOR ALL TESTING OF SUB-GRADE, BASE ROCK, CONCRETE CURB AND DRIVEWAY, ASPHALT PAVEMENT, AND CONCRETE PAVEMENT. CITY RESERVES THE RIGHT TO DIRECT TESTING AGENCY ON FREQUENCY OF TESTING. TESTING AGENCY SHALL SUBMIT ONE COPY OF ALL TESTING REPORTS TO CITY'S AUTHORIZED REPRESENTATIVE.
3. NO FILLS ARE TO BE PLACED PRIOR TO CITY APPROVAL OF STRIPING. SUB-GRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY. AS DETERMINED BY AASHTO T-180. ALONG WITH TESTING USING A NUCLEAR DENSITY GAUGE, A PROOF-ROLL SHALL BE CONDUCTED BY THE CONTRACTOR AND ACCEPTED BY CITY. PRIOR TO PLACEMENT OF BASE ROCK. ALL SOFT AREAS SHALL BE OVER-EXCAVATED TO A DEPTH SATISFACTORY TO THE GEOTECHNICAL ENGINEER AND CITY REPRESENTATIVE, BACKFILLED WITH CRUSHED ¾"-0 AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY, AS DETERMINED BY AASHTO T-180.
4. BASE ROCK SHALL BE FROM AN APPROVED SOURCE. CITY MUST RECEIVE AND APPROVE A COPY OF STATE MIX DESIGN AT LEAST SEVEN (7) DAYS PRIOR TO THE PLACEMENT OF BASE ROCK. BASE ROCK SHALL CONFORM TO THE RECENT EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AS AMENDED BY THE CITY OF MOLALLA PUBLIC WORKS STANDARDS.
5. BASE ROCK SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY. AS DETERMINED BY AASHTO T-180. ALONG WITH TESTING USING A NUCLEAR DENSITY GAUGE, A PROOF ROLL SHALL BE CONDUCTED BY THE CONTRACTOR AND ACCEPTED BY THE CITY PRIOR TO PAVING.
6. NO PAVING SHALL TAKE PLACE UNTIL ALL TESTING OF UNDERGROUND UTILITIES (INCLUDING TONE TESTING BY CITY), SUB-GRADE, AND BASE ROCK IS COMPLETED AND APPROVED BY THE CITY.
7. ASPHALT PAVEMENT SHALL BE FROM AN APPROVED SOURCE. CITY MUST RECEIVE AND APPROVE A COPY OF A STATE MIX DESIGN AT LEAST SEVEN (7) DAYS PRIOR TO THE PLACEMENT OF PAVEMENT. PAVEMENT SHALL CONFORM TO THE RECENT EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AS AMENDED BY THE CITY OF MOLALLA PUBLIC WORKS STANDARDS AND CONSTRUCTION REQUIREMENTS PER THE PUBLIC WORKS DIRECTOR.
8. ASPHALT PAVEMENT SHALL BE COMPACTED TO A MINIMUM OF 92% OF RELATIVE DENSITY BASED ON RICE GRAVITY.
9. UTILITY CUTS ACROSS EXISTING STREETS SHALL BE T-CUT, CONFORMING TO CITY DETAIL.
10. ALL CONSTRUCTION STAKING OF PUBLIC STREETS SHALL BE PERFORMED BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF OREGON. STAKES SHALL, AT A MINIMUM, LOCATE ALL HORIZONTAL POINTS OF CURVATURE (BEGINNING, MIDPOINT, AND ENDING), VERTICAL POINTS OF CURVATURE (BEGINNING, LOW/HIGH POINT, AND ENDING), CURB RETURNS (BEGINNING, MIDPOINT, AND ENDING), AND CENTERLINE FOR OFFSET CROWNS. MAXIMUM SPACING FOR REFERENCE STAKES IS FIFTY (50) FEET. CONSTRUCTION SHALL NOT BE ALLOWED BEFORE STAKING IS PERFORMED.
11. NEWLY CONSTRUCTED CURBS SHALL BE STAMPED WITH THE CAPITAL LETTER "D" FOR STORM, "S" FOR SANITARY, AND "W" FOR WATER AT THE LOCATION OF EACH UNDERGROUND SERVICE CROSSING. LETTERS SHALL BE THREE (3) INCHES IN HEIGHT AND EMBOSSED A MINIMUM OF ONE-QUARTER (1/4) INCH DEEP. ALL WEEP HOLES SHALL BE INSTALLED DURING INITIAL CURB AND GUTTER POUR. INSTALLATION OF WEEP HOLES AFTER INITIAL POUR SHALL BE CORE DRILLED ONLY. USE OF SAW CUT AND KNOCK OUT BY HAMMER IS PROHIBITED.
12. ALL DRIVEWAY APRONS AND CURB AND GUTTER SHALL HAVE CYLINDER SAMPLES TAKEN BY A STATE CERTIFIED INDEPENDENT TESTING AGENCY. REPORT OF A BREAK RESULT SHALL BE PROVIDED TO THE CITY'S AUTHORIZED REPRESENTATIVE.
13. ALL STREET SIGNAGE, STRIPING, AND REFLECTORS SHALL BE INSTALLED BY APPLICANT/CONTRACTOR PRIOR TO PROJECT CORRECTION LIST WALK-THROUGH. ALL CROSSWALK STRIPING AND ROADWAY EMBLEMS SHALL BE THERMOPLASTIC. ALL SIGNAGE AND STRIPING SHALL COMPLY WITH CITY STANDARDS, AND THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
14. SEE NOTES FOR STREET LIGHTING, DRY UTILITIES, STREET TREES, LANDSCAPING, AND IRRIGATION.

STORM NOTES:

1. ALL STORM MANHOLE LIDS SHALL BE SIXTEEN (16) HOLE TYPE. MANHOLES IN PLANTER AREAS SHALL BE A MINIMUM OF SIX (6) INCHES ABOVE FINISHED GRADE.
2. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE DRILLED. USE OF CUT-OFF SAW AND KNOCK OUT BY HAMMER IS PROHIBITED. REVISIONS TO DESIGN WILL NOT CONSTITUTE A VARIANCE TO CORE DRILL REQUIREMENT AND MAY, AT CITY DISCRETION, REQUIRE MANUFACTURE AND INSTALLATION OF NEW MANHOLE MATCHING DESIGN REVISION.
3. STORM LATERALS SHALL BE A MINIMUM OF SIX (6) INCHES DIAMETER AND HAVE LOCATING WIRE (SOLID 12 GAUGE WHITE INSULATION) INSTALLED BESIDE THE PIPE AND PLASTIC CAUTION TAPE INSTALLED 1-FOOT ABOVE THE PIPE CROWN. SURFACE LOCATING WIRE AT RIGHT-OF-WAY CLEANOUTS; TAPE SHALL BE TIED OFF TO THE 2X4 MARKER PAINTED WHITE. TONE TESTING BY CITY TO PASS PRIOR TO PAVING.
4. NEWLY CONSTRUCTED CURBS OR REPLACED CURBS SHALL BE STAMPED WITH THE CAPITOL LETTER "D" AT THE LOCATION OF EACH UNDERGROUND STORM LATERAL CROSSING. LETTERS SHALL BE THREE (3) INCHES IN HEIGHT AND EMBOSSED A MINIMUM OF ONE-QUARTER (1/4) INCH DEEP.
5. ALL WEEP HOLES SHALL BE INSTALLED DURING INITIAL CURB AND GUTTER POUR. INSTALLATION OF WEEP HOLES AFTER INITIAL POUR SHALL BE CORE DRILLED ONLY. USE OF SAW CUT AND KNOCK OUT BY HAMMER IS PROHIBITED.
6. ALL STORM LINES SHALL BE FLUSHED AND CLEANED PRIOR TO TESTING. ALL STORM LINES SHALL BE VIDEO INSPECTED. IN ADDITION, STORM LINES CONSTRUCTED OF FLEXIBLE PIPE SHALL BE MANDREL TESTED AT FIVE PERCENT (5%). CONTRACTOR TO FURNISH ALL NECESSARY TEST EQUIPMENT AND PERFORM THE TESTS IN A MANNER SATISFACTORY TO THE CITY. CITY INSPECTOR SHALL BE PRESENT DURING TESTING (24-HOUR NOTIFICATION REQUIRED).
7. STORM WATER FACILITIES SHALL NOT BE ACTIVATED AND/OR CONNECTED TO PUBLIC STORM SYSTEMS OR WATERWAYS UNLESS FACILITY HAS BEEN TESTED AND APPROVED BY CITY STAFF.
8. CONTRACTOR TO PROVIDE INDEPENDENT TESTING AGENCY FOR ALL TESTING OF TRENCH BACKFILL. TESTING OF BACKFILL LIFTS SHALL NOT EXCEED THREE (3) FEET IN DEPTH AND TESTS OF LIFTS SHALL BE STAGGERED ALONG TRENCH LINE. CITY RESERVES THE RIGHT TO DIRECT TESTING AGENCY ON FREQUENCY OF TESTING. TESTING AGENCY SHALL SUBMIT ONE (1) COPY OF ALL TESTING REPORTS TO CITY'S AUTHORIZED REPRESENTATIVE.
9. ALL CONSTRUCTION TAKING OF PUBLIC STORM LINES SHALL BE PERFORMED BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF OREGON. STAKES SHALL, AT A MINIMUM, LOCATE ALL TEES, CLEANOUTS, MANHOLES, CATCH BASINS, DITCH INLETS, AND OUTFALLS. MAXIMUM SPACING FOR REFERENCE STAKES IS FIFTY (50) FEET. CONSTRUCTION SHALL NOT BE ALLOWED BEFORE STAKING IS PERFORMED.

SEWER NOTES:

1. ALL SANITARY MANHOLE LIDS SHALL BE TWO (2) HOLE TYPE UNLESS OTHERWISE SPECIFIED. MANHOLES IN PLANTER AREAS SHALL BE A MINIMUM OF SIX (6) INCHES ABOVE FINISHED GRADE.
2. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE DRILLED. USE OF CUT-OFF SAW AND KNOCK OUT BY HAMMER IS PROHIBITED. REVISIONS TO DESIGN WILL NOT CONSTITUTE A VARIANCE TO CORE DRILL REQUIREMENT AND MAY, AT CITY DISCRETION, REQUIRE MANUFACTURE AND INSTALLATIONS OF NEW MANHOLE MATCHING DESIGN REVISION.
3. SANITARY LATERALS SHALL BE A MINIMUM OF FOUR (4) INCHES IN DIAMETER, UNLESS MULTIFAMILY/COMMERCIAL/INDUSTRIAL ZONING, AND HAVE LOCATING WIRE (SOLID 12-GAUGE GREEN INSULATION) INSTALLED BESIDE THE PIPE AND PLASTIC CAUTION TAPE INSTALLED 1-FOOT ABOVE THE PIPE CROWN. SURFACE LOCATING WIRE AT RIGHT-OF-WAY CLEANOUTS; TAPE SHALL BE TIED OFF TO THE 2X4 MARKER PAINTED GREEN. TONE TESTING BY CITY TO PASS PRIOR TO PAVING.
4. NEWLY CONSTRUCTED CURBS OR REPLACED CURBS SHALL BE STAMPED WITH THE CAPITOL LETTER "S" AT THE LOCATION EACH SANITARY LATERAL CROSSING. LETTERS SHALL BE THREE (3) INCHES IN HEIGHT AND EMBOSSED A MINIMUM OF ONE-QUARTER (1/4) INCH DEEP.
5. ALL PUBLIC SEWER LINES SHALL BE FLUSHED AND CLEANED PRIOR TO TESTING. ALL PUBLIC SEWER LINES SHALL BE PRESSURE TESTED AND VIDEO INSPECTED. IN ADDITION, SEWERS CONSTRUCTED OF FLEXIBLE PIPE SHALL BE MANDREL TESTED TO FIVE PERCENT (5%). CONTRACTOR TO FURNISH ALL NECESSARY TEST EQUIPMENT AND PERFORM THE TESTS IN A MANNER SATISFACTORY TO THE CITY. CITY INSPECTOR SHALL BE PRESENT DURING TESTING (24-HOUR NOTIFICATION REQUIRED).
6. PUBLIC SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED AFTER THE STREET PAVING IS COMPLETED. CONTRACTOR TO FURNISH ALL NECESSARY TEST EQUIPMENT AND PERFORM THE TESTS IN A MANNER SATISFACTORY TO THE CITY. CITY INSPECTOR SHALL BE PRESENT DURING TESTING (24-HOUR NOTIFICATION REQUIRED).
7. FOR ALL PUBLIC SANITARY MANHOLES, THE CONTRACTOR SHALL SUPPLY THE CITY WITH MANHOLE COVER INSERTS. FOR PUBLIC MANHOLES LOCATED IN NATURAL OR LANDSCAPED AREAS OR IN RESIDENTIAL STREETS, THE CONTRACTOR SHALL SUPPLY MANHOLE COVER INSERTS MADE OF DURABLE PLASTIC. FOR PUBLIC MANHOLES LOCATED IN ARTERIAL AND COLLECTOR STREETS, THE CONTRACTOR SHALL SUPPLY MANHOLE COVER INSERTS MADE OF STAINLESS STEEL.
8. CONTRACTOR TO PROVIDE INDEPENDENT TESTING AGENCY FOR ALL TESTING OF TRENCH BACKFILL. TESTING OF BACKFILL LIFTS SHALL NOT EXCEED THREE (3) FEET IN DEPTH AND TESTS OF LIFTS SHALL BE STAGGERED ALONG TRENCH LINE. CITY RESERVES THE RIGHT TO DIRECT TESTING AGENCY ON FREQUENCY OF TESTING. TESTING AGENCY SHALL SUBMIT ONE COPY OF ALL TESTING REPORTS TO CITY'S AUTHORIZED REPRESENTATIVE.
9. ALL CONSTRUCTION STAKING OF PUBLIC SANITARY LINES SHALL BE PERFORMED BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF OREGON. STAKES SHALL, AT A MINIMUM, LOCATE ALL TEES, CLEAN-OUTS, MANHOLES, WATER LINE CROSSINGS, AND PUMP STATIONS. MAXIMUM SPACING FOR REFERENCE STAKES IS FIFTY (50) FEET. CONSTRUCTION SHALL NOT BE ALLOWED BEFORE STAKING IS PERFORMED.

WATER NOTES:

1. CITY WILL OPERATE ALL EXISTING VALVES TO ISOLATE WATERLINES FOR WORK REQUIRED AND FOR ALL FLUSHING AND FILLING ACTIVITIES. CONTACT THE PUBLIC WORKS MAINTENANCE DIVISION AT 503-829-5409 A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE.
2. CITY WILL PROVIDE NOTIFICATION TO AFFECTED WATER USERS FOR PLANNED SERVICE DISRUPTIONS. CONTACT THE PUBLIC WORKS MAINTENANCE DIVISION AT 503-829-5409 A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE.
3. PUBLIC WATER LINES SHALL CONFORM TO MATERIALS AND INSTALLATION REQUIREMENTS AS MAY BE REQUIRED BY THE CITY OF MOLALLA AND AMERICAN WATER WORKS ASSOCIATION.
4. ALL WATER LINE CROSSINGS SHALL BE IN CONFORMANCE WITH OAR CHAPTER 333. THE CITY MAY REQUIRE MORE STRINGENT STANDARDS.
5. ALL WATER LINES SHALL BE C-900 OR C-905. ALL FITTINGS SHALL BE PUSH-ON GASKETED UNLESS OTHERWISE SPECIFIED. TEES AND CROSSES SHALL BE FLANGED EXCEPT TEES TO FIRE HYDRANTS WHICH WILL BE MJ BY FLANGED. ALL VALVES JOINED TO TEES AND CROSSES SHALL BE FLANGED BY MECHANICAL JOINT.
6. ALL PUBLIC WATER LINES SHALL BE INSTALLED WITH LOCATING WIRE (SOLID 12-GAUGE BLUE INSULATION) INSTALLED BESIDE THE PIPE AND PLASTIC CAUTION TAPE INSTALLED 1-FOOT ABOUT THE PIPE CROWN. WIRE SHALL BE BROUGHT TO THE SURFACE AT ALL SERVICE METER STOPS, FIRE HYDRANTS, VALVE BOXES, AIR RELIEFS, AND BLOW-OFFS. TONE TESTING BY CITY TO PASS PRIOR TO PAVING.
7. ALL PUBLIC WATER LINES SHALL HAVE A MINIMUM OF 30 INCHES OF COVER.
8. SEE CITY OF MOLALLA DETAILS FOR THRUST BLOCKS AND FIRE HYDRANT ASSEMBLIES.
9. ALL WATER VALVES AND BOXES SHALL BE DESIGNED AND CONSTRUCTED A MINIMUM OF EIGHTEEN (18) INCHES FROM FACE OF CURB UNLESS OTHERWISE APPROVED BY CITY'S AUTHORIZED REPRESENTATIVE.
10. CONTRACTOR TO PROVIDE INDEPENDENT TESTING AGENCY FOR ALL TESTING OF TRENCH BACKFILL. TESTING OF BACKFILL LIFTS SHALL NOT EXCEED THREE (3) FEET IN DEPTH AND TESTS OF LIFTS SHALL BE STAGGERED ALONG TRENCH LINE. CITY RESERVES THE RIGHT TO DIRECT TESTING AGENCY ON FREQUENCY OF TESTING. TESTING AGENCY SHALL SUBMIT ONE COPY OF ALL TESTING REPORTS TO CITY'S AUTHORIZED REPRESENTATIVE.
11. ALL CONSTRUCTION STAKING OF PUBLIC WATER LINES SHALL BE PERFORMED BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF OREGON. STAKES SHALL, AT A MINIMUM, LOCATE ALL BENDS, TEES, CROSSES, FIRE HYDRANTS, BLOW-OFFS, ISOLATION VALVES, VAULTS, AND BOOSTER PUMP STATIONS. MAXIMUM SPACING FOR REFERENCE STAKES IS 50 FEET. CONSTRUCTION SHALL NOT BE ALLOWED BEFORE STAKING IS PERFORMED.
12. AFTER WATER VALVE CANS ARE ADJUSTED TO FINISH GRADE FOR ALL NEW AND EXISTING VALVES, WHERE THE DEPTH OF

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

PHASE 1 DEMOLITION LEGEND	
ITEM	DESCRIPTION
	REMOVE STRUCTURES, PAVEMENT, BALLFIELDS, GRAVEL & CURB
– – – – –	SAWCUT LINE
-/-/-/-/-	REMOVE EXISTING UTILITY LINE
X	REMOVE EXISTING UTILITY OR SITE STRUCTURE

PHASE 2 DEMOLITION LEGEND	
ITEM	DESCRIPTION
	REMOVE STRUCTURES, PAVEMENT, GRAVEL CURB AND UTILITES

LYNN LANE

PROTECT EXISTING WETLAND

PROPOSED STORM DRAIN LINE
SEE UTILITY PLAN

PROPOSED STORM POND

PROPOSED BUILDING OUTLINE

PROTECT ALL UTILITIES IN LYNN LANE ROW UNLESS OTHERWISE INDICATED

PROTECT EXISTING TREE, TYP SEE LANDSCAPE PLANS

SEE LANDSCAPE PLAN FOR TREE DEMOLTION

EX. GAS SERVICE TO BE REMOVED

EX. SEWER LATERAL TO BE ABANDONED

PROTECT ALL UTILITIES IN LEROY AVENUE ROW UNLESS OTHERWISE INDICATED

EX. WATER SERVICE TO BE ABANDONED OR USED FOR IRRIGATION

W HEINTZ STREET

PHASE 1 DEMO

LEROY AVENUE

SAWCUT

EX 6" STORM DRAIN LINE TO BE REROUTED DURING CONSTRUCTION. REMOVE EXISTING 6" STORM LINE WITHIN PHASE 1 ONCE TEMPORARY CONNECTION IS MADE

EX. UNDERGROUND COMMUNICATION LINE TO BE REROUTED DURING CONSTRUCTION. REMOVE LINE WITHIN PHASE 1 ONCE TEMPORARY CONNECTION IS MADE

TEMPORARY COMMUNICATION LINE REROUTE DURING CONSTRUCTION

TEMPORARILY CONNECT EX. 2" GAS LINE TO REROUTED GAS LINE ONCE CONSTRUCTED

TEMPORARILY CONNECT EX. 6" STORM DRAIN LINE TO PROPOSED STORM LINE ONCE CONSTRUCTED

TEMPORARY GAS LINE REROUTE DURING CONSTRUCTION

EX. 2" GAS LINE TO BE REROUTED DURING CONSTRUCTION. REMOVE GAS LINE WITHIN PHASE 1 ONCE TEMPORARY CONNECTION IS MADE

EXISTING GAS SERVICE TO BE RESUSED. COORDINATE WITH NNW.

SALVAGE SCHOOL SIGN

SKYE LANE

N VALLEY DRIVE

N HEZZIE LANE

PROTECT ALL UTILITIES IN N HEZZIE LANE ROW UNLESS OTHERWISE INDICATED

PROTECT EXISTING SD LINE DURING PHASE 1 DEMOLITION. LINE TO BE REMOVED WITH PHASE 2.

PROTECT EXISTING 8" SS LINE DURING PHASE 1 DEMOLITION. LINE TO BE REMOVED WITH PHASE 2.

PHASE 2 DEMO

DEMOLITION OF EXISTING SCHOOL TO TAKE PLACE AFTER CONSTRUCTION OF NEW SCHOOL. ALL EXISTING UTILITIES MUST REMAIN OPERATIONAL TO SERVE EXISTING SCHOOL

MATCH LINE

SEE SHEET C0.51

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

opsis

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NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

STANDRIDGE
PLANNING | ENGINEERING | SURVEYING
WWW.STANDRIDGEINC.COM

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

Date: **05/21/2025**

Sheet Title
SITE DEMOLITION PLAN - NORTH

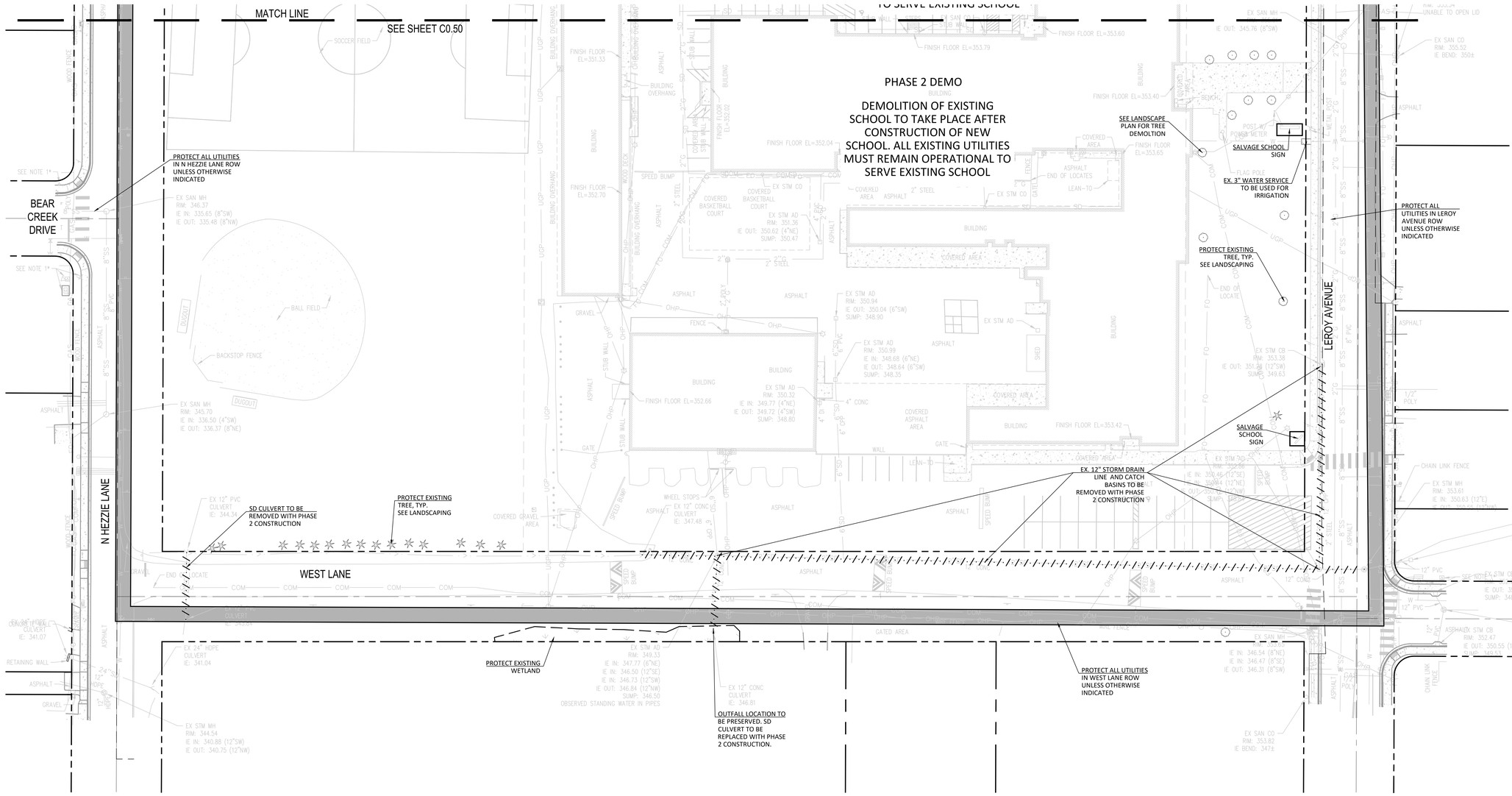
Sheet No.
C0.50

Job No.
4924-01

plotted: **May 21, 2025 - 3:51pm**
sheet size: 30" x 42"

PHASE 1 DEMOLITION LEGEND	
ITEM	DESCRIPTION
	REMOVE STRUCTURES, PAVEMENT, BALLFIELDS, GRAVEL & CURB
– – – – –	SAWCUT LINE
·/·/·/·/·	REMOVE EXISTING UTILITY LINE
×	REMOVE EXISTING UTILITY OR SITE STRUCTURE

PHASE 2 DEMOLITION LEGEND	
ITEM	DESCRIPTION
	REMOVE STRUCTURES, PAVEMENT, GRAVEL CURB AND UTILITES



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Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

Date: **05/21/2025**

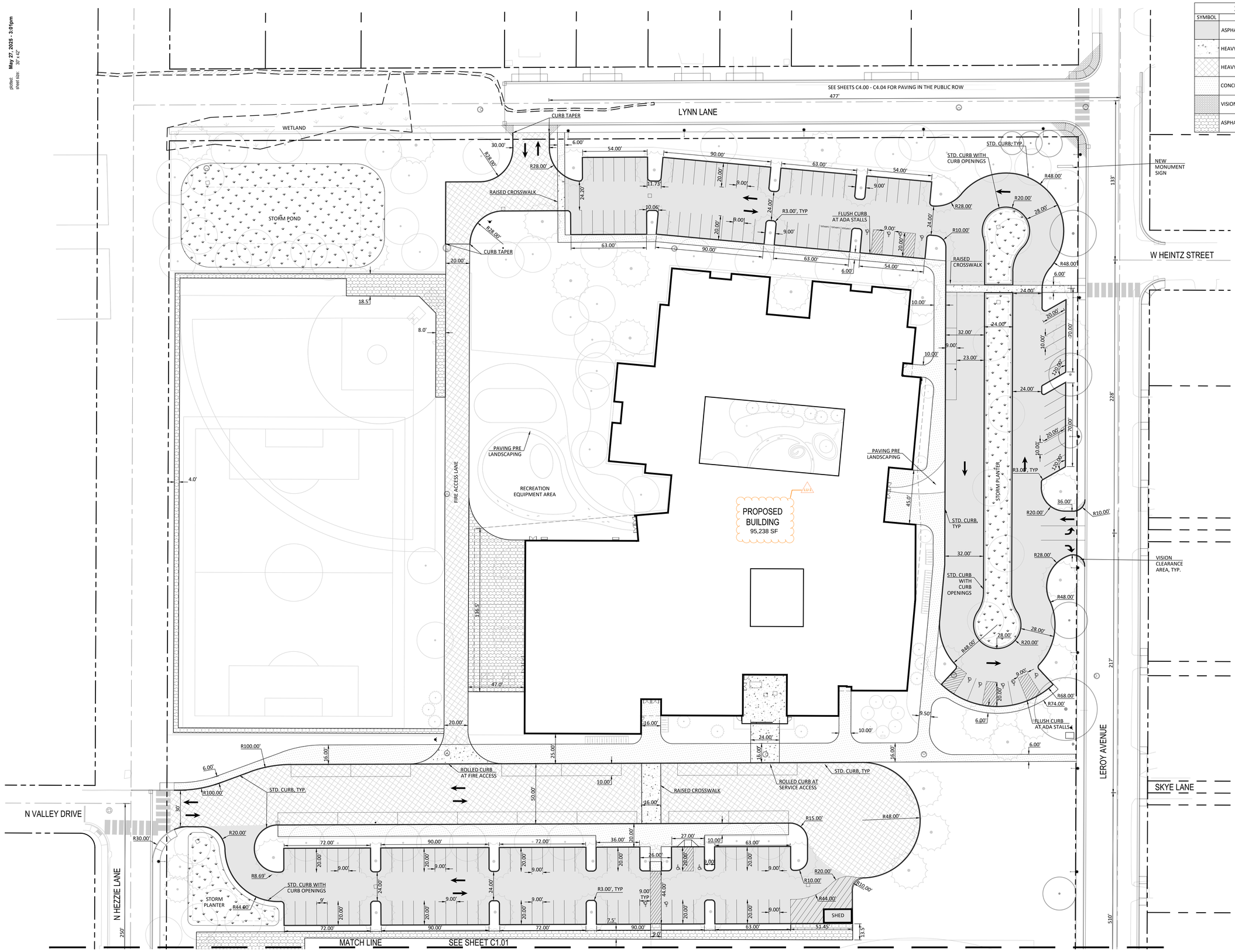
Sheet Title
SITE DEMOLITION PLAN - SOUTH

Sheet No.
C0.51

Job No.
4924-01

plotted: May 27, 2025 - 3:01pm
sheet size: 30" x 42"

SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	HEAVY CONCRETE PAVEMENT
	HEAVY ASPHALT PAVEMENT (BUS/FIRE)
	CONCRETE SIDEWALK
	VISION CLEARANCE AREA
	ASPHALT PEDESTRIAN PAVEMENT



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Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

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Revisions to Sheet

No.	Revision	Date
LU-1	LAND USE REV 1	07/25/2025

Status: **LAND-USE**

Date: **05/21/2025**

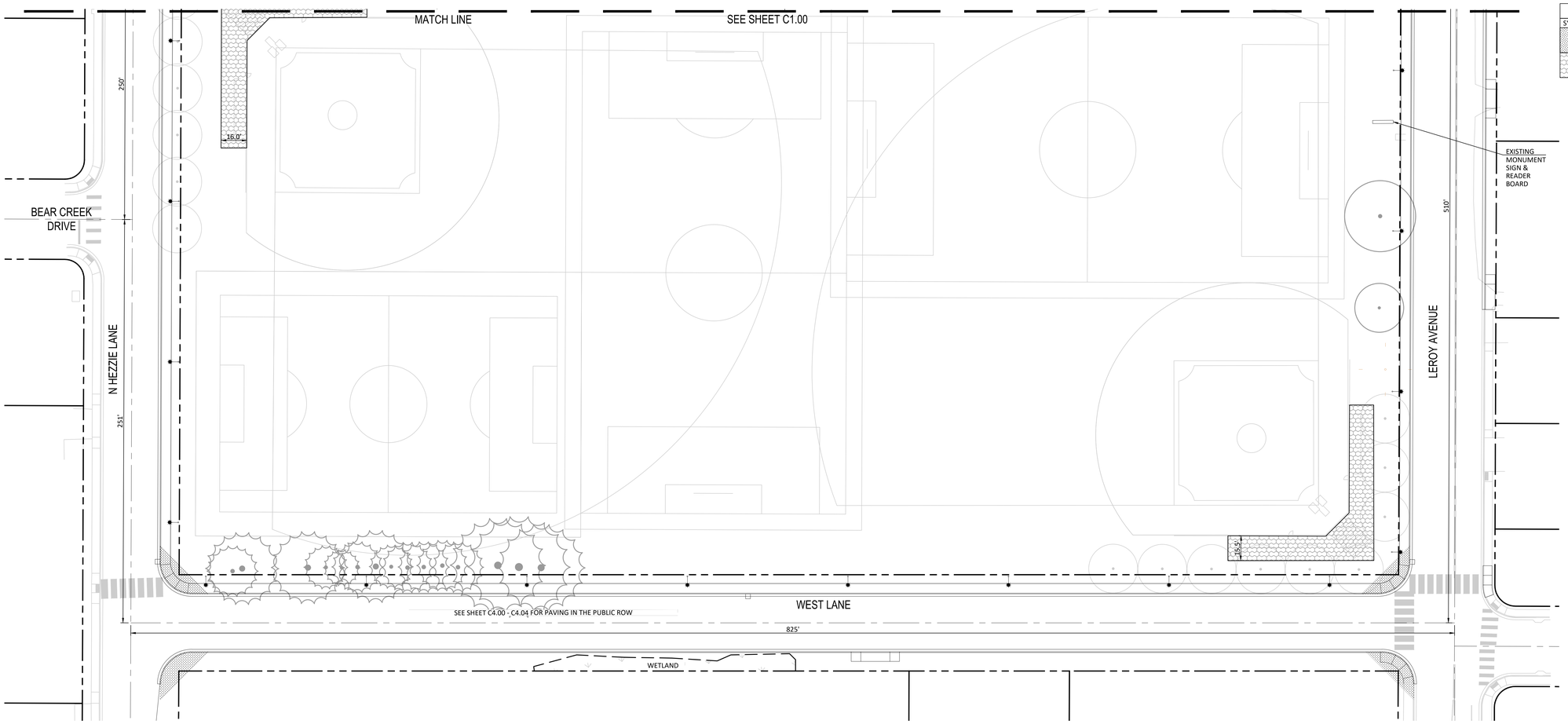
Sheet Title
PAVING PLAN - NORTH

Sheet No.
C1.00

Job No.
4924-01

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

plotted: May 27, 2025 - 2:52pm
sheet size: 30" x 42"



SHEET LEGEND	
SYMBOL	DESCRIPTION
	VISION CLEARANCE AREA
	ASPHALT PEDESTRIAN PAVEMENT

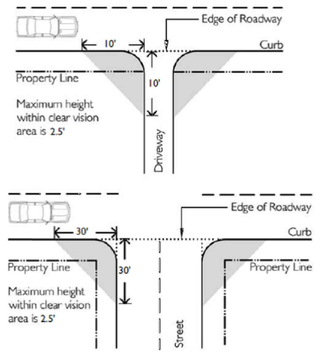
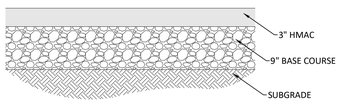


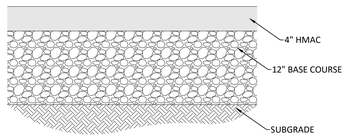
Figure 17-3.3-2 Vision Clearance

5 VISION CLEARANCE DETAIL
NTS



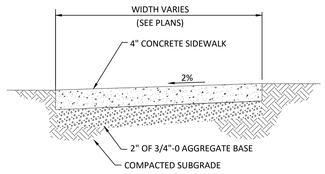
NOTES:
1. THE AC SHOULD CONSIST OF 1/2-INCH HOT MIX ASPHALT CONCRETE (HMAC).
2. MAXIMUM LIFT THICKNESS IS 3".
3. AGGREGATE BASE SHALL BE COMPACTED TO 91% OF THE MAXIMUM RICE DENSITY DETERMINED IN ACCORDANCE WITH ASTM D2041.

1 ASPHALT PAVEMENT SECTION
NTS



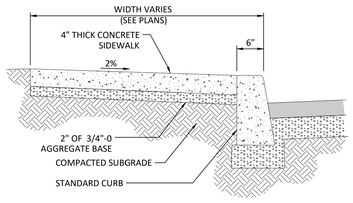
NOTES:
1. THE AC SHOULD CONSIST OF 1/2-INCH HOT MIX ASPHALT CONCRETE (HMAC).
2. MAXIMUM LIFT THICKNESS IS 3".
3. AGGREGATE BASE SHALL BE COMPACTED TO 91% OF THE MAXIMUM RICE DENSITY DETERMINED IN ACCORDANCE WITH ASTM D2041.

2 HEAVY ASPHALT PAVEMENT SECTION
NTS



NOTE:
1. CONCRETE SHALL BE 3000 PSI, SLUMP RANGE 3" TO 5".

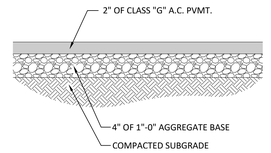
IN LANDSCAPE



NOTES:
1. CONCRETE SHALL BE 3000 PSI, SLUMP RANGE 3" TO 5".

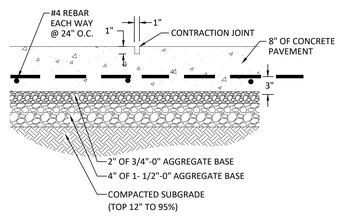
AT STANDARD 6" CURB

3 CONCRETE SIDEWALK
NTS



NOTES:
1. AGGREGATE BASE AND THE UPPER 12" OF THE SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557.
2. AC PAVEMENT SHALL BE COMPACTED TO 91% OF THE RICE DENSITY OF THE MIX (ASTM D2041).

6 ASPHALT PEDESTRIAN PAVEMENT SECTION
NTS



NOTES:
1. CONCRETE SHALL BE 4000 PSI, SLUMP RANGE 3" TO 5".
2. INSTALL CONTRACTION JOINTS AT 10' O.C. BOTH DIRECTION.
3. REBAR TO HAVE A TENSILE YIELD STRENGTH OF 60,000 PSI.
4. AGGREGATE BASE AND THE UPPER 12" OF THE SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557.

4 HEAVY CONCRETE PAVEMENT SECTION
NTS

N

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

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Status: **LAND-USE**

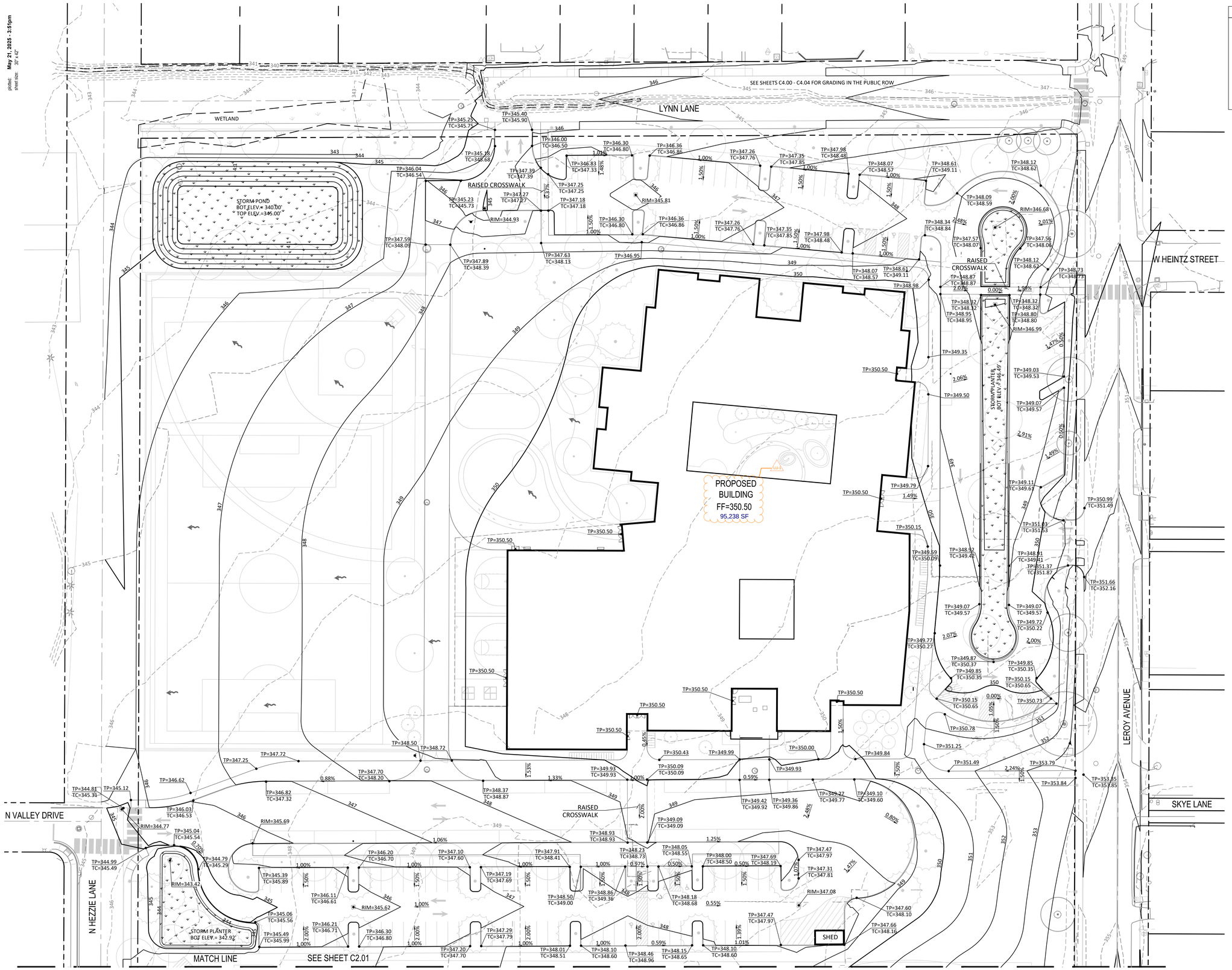
Date: **05/21/2025**

Sheet Title
PAVING PLAN - SOUTH

Sheet No.
C1.01

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



GRADING LEGEND

290 / 289	EXISTING CONTOUR
290 / 289	PROPOSED CONTOUR
	DRAINAGE ARROW
TC=XXX.XX	TOP OF CURB
TP=XXX.XX	TOP OF PAVEMENT
FG=XXX.XX	FINISHED GROUND
RIM=XXX.XX	TOP OF MANHOLE

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

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Revisions to Sheet

No.	Revision	Date
LU-1	LAND USE REV 1	07/25/2025

Status: **LAND-USE**

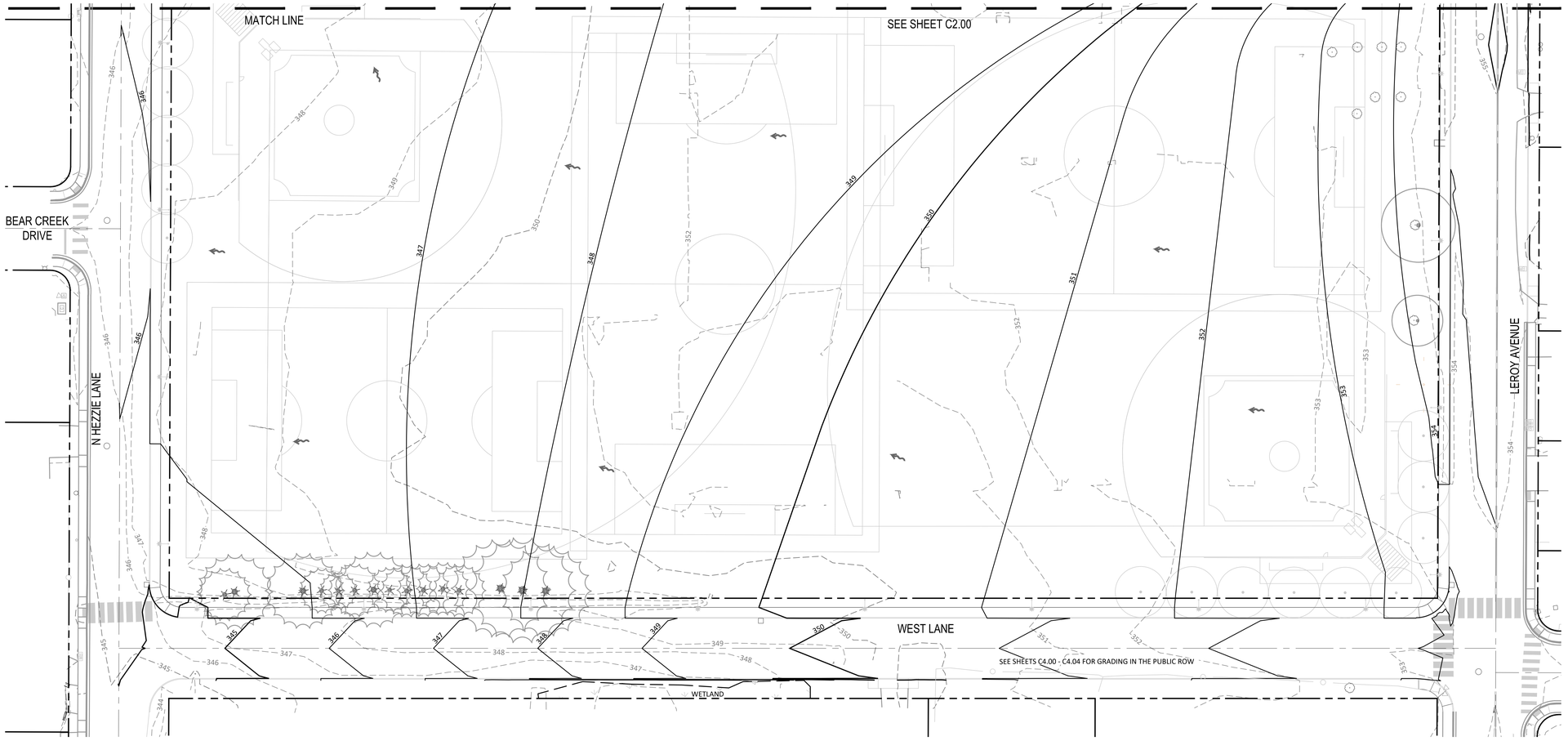
Date: **05/21/2025**

Sheet Title
GRADING PLAN - NORTH

Sheet No.
C2.00

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



GRADING LEGEND

290 / 289	EXISTING CONTOUR
290 / 289	PROPOSED CONTOUR
	DRAINAGE ARROW
TC=XXX.XX	TOP OF CURB
TP=XXX.XX	TOP OF PAVEMENT
FG=XXX.XX	FINISHED GROUND

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

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Status: **LAND-USE**

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Sheet Title
GRADING PLAN - SOUTH

Sheet No.
C2.01

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

PROPOSED LEZA ESTATES SUBDIVISION
LOCATION OF OUTFALLS TO BE COORDINATED WITH ADJACENT SUBDIVISION

OUTFALL TO NEW STORM DRAIN LINE
IE=339.50

OUTFALL TO NEW STORM DRAIN LINE

SAN AND STORM CROSSING
SAN IE (15"): 332.92
STORM IE (18"): 339.61

SD CB 2
RIM=345.28
8" OUT (S)=343.09

SAN AND STORM CROSSING
SAN IE (15"): 332.68
STORM IE (8"): 343.03

SD MH 3

SEE SHEETS C4.00 - C4.04 FOR UTILITIES IN THE PUBLIC ROW

24" PVC SD

SD MH 1

STORM AND STORM CROSSING
STORM IE (8"): 343.00
STORM IE (24"): 340.22

33-LF 8" C900 SD
S=0.0050

24" RCP SD

LYNN LANE

24" PVC SD

SD FILTER CB 17

SD FILTER CB 18

EX. WATER SERVICE
TO BE ABANDONED OR
USED FOR IRRIGATION
INSTALL BACKFLOW

EX. SS MH
RIM=349.78
8" IN (SE)=337.62
8" IN (SW)=337.53
8" OUT (NE)=337.46

W HEINTZ STREET

SD FILTER CB 20

EX. SD MH

EX. FIRE HYDRANT

SD FLOW CONTROL MH
RIM=345.75
18" IN (S)=340.00
18" OUT (N)=340.00

80-LF 18" PVC SD
S=0.0063

WETLAND

12-LF 18" PVC SD
S=0.0000

SD DI
RIM=344.00
18" OUT (N)=340.00

EMERGENCY
OVERFLOW
SPILLWAY

4.5'

WETPOND
BTM AREA = (6,090 SF)

OUTFALL
IE=340.17'

BERM
ELEV=340.66

OUTFALL
IE=340.17'

BTM ELEV = 340.00

136.0'

TOP ELEV = 345.00

S=0.0104
73-LF 18" PVC SD

S=0.0050
134-LF 12" PVC SD

SD CB 1
RIM=345.21
8" IN (N)=342.92
12" OUT (W)=340.84

SD MH 2
RIM=347.34
8" IN (S)=341.27
24" IN (E)=341.27
24" OUT (W)=341.17

105-LF 8" PVC SD
S=0.0100

SD CB 9
RIM=346.68
8" IN (S)=342.32
8" OUT (N)=342.32

FIRE
HYDRANT

SD CB 3
RIM=344.93
6" OUT (S)=341.59

SD CB 4
12" OUT=342.57

SD MH 8
RIM=347.79
12" IN (E)=342.08
6" IN (S)=344.55
12" IN (N)=342.08
12" OUT (W)=341.98

SD CO 2
RIM=348.73
12" IN (E)=342.66
6" IN (S)=342.66
12" OUT (W)=342.66

SD CO 3
RIM=349.46
12" IN (E)=343.08
6" IN (S)=343.08
12" OUT (W)=343.08

17-LF 12" PVC SD
S=0.0202

SD CO 4
RIM=349.05
6" IN (S)=343.20
12" OUT (W)=343.42

83-LF 12" PVC SD
S=0.0100

83-LF 8" PERF SD
S=0.0100

66 LF 6" F

33-LF 6" PVC SD
S=0.0100

180 LF 6" F

S=0.0050
47-LF 12" PVC SD

S=0.0050
143-LF 12" PVC SD

246 LF 6" F

S=0.0050
117-LF 12" PVC SD

16-LF 6" PVC SD

16-LF 6" PVC SD
47-LF 6" PVC SD

S=0.0050
83-LF 12" PVC SD

SD WQ MH
RIM=347.63
12" IN (S)=341.03
12" IN (E)=341.03
18" OUT (W)=340.93

SD CO 1
RIM=347.75
12" IN (E)=341.26
6" IN (N)=341.26
12" OUT (W)=341.26

347.00' IE 6" DS

16-LF 6" PVC SD
347.00' IE 6" DS

347.00' IE 6" DS

17-LF 6" PVC SD

347.00' IE 6" DS

345.56' IE 6" DS

81-LF 6" PVC SD

10.02'

10-LF 6" PVC SD
346.00' IE 6" DS

36-LF 4" PVC SS
S=0.0200

SD CB 8
RIM=346.99
4" IN (S)=342.95
8" OUT (N)=342.95

4" PERF FOUNDATION DRAIN, TYP.
CONNECT TO ROOF DRAIN WITH
BACKFLOW PREVENTOR

4" SANITARY CONNECTION
TO BUILDING
347.50' IE 4"

19-LF 6" PVC SD

347.00' IE 6" DS

346.00' IE 6" DS
12-LF 6" PVC SD

SS CO
RIM=348.62
4" IN (W)=346.78
4" OUT (S)=346.78

206-LF 12" PVC SD
S=0.0050

424 LF 6" F

393-LF 6" PVC SD

347.00' IE 6" DS

26-LF 6" PVC SD

SD CO 9
6" STORM DRAIN
CONNECTION TO
BUILDING

347.00' IE 6" DS

85-LF 6" PVC SD

38-LF 6" PVC SD

SD CO 10

26-LF 6" PVC SD

38-LF 6" PVC SD

347.00' IE 6" DS

347.00' IE 6" DS

SAN AND STORM CROSSING
SAN IE (4"): 347.33
STORM IE (6"): 345.70

282-LF 4" PERF SD
S=0.0050

10-LF 6" PVC SD

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 12"

186-LF 12" PVC SD

SD MH 4
RIM=349.23
12" IN (S)=342.16
12" IN (E)=342.16
12" OUT (E)=342.25
12" OUT (N)=342.06

PROPOSED
BUILDING
FF=350.50
95,238 SF

LU-5

BUILDING OVERHANG

347.00' IE 6" DS
31-LF 6" PVC SD

SD CO 8
RIM=350.41
6" IN (W)=346.18
8" OUT (S)=346.18

403 LF 6" F

256-LF 4" PVC SS
S=0.0200

STORM PLANTER 1
BTM AREA = (6,255 SF)

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 6"

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 6" DS

7-LF 6" PVC SD

129-LF 8" PVC SD
S=0.0050

SS MH 2
RIM=349.98
4" IN (N)=341.67
4" IN (W)=341.67
6" OUT (E)=341.47

SS MH 1
RIM=353.06
6" IN (W)=339.08
EX. 8" IN (S)=338.88
EX. 8" OUT (N)=338.88

01
C3.01

165-LF 12" PVC SD
S=0.0050

28-LF 6" PVC SD
347.00' IE 6" DS

SD CO 5
RIM=349.53
12" IN (S)=342.98
6" IN (E)=342.98
12" OUT (N)=342.98

65-LF 6" PVC SD

347.00' IE 6" DS

51-LF 12" PVC SD
S=0.0050

347.00' IE 6" DS
16-LF 6" PVC SD

119-LF 6" PVC SS
S=0.0200

SAN AND STORM CROSSING
SAN IE (4"): 343.66
STORM IE (8"): 346.18

4" WATER
METER VAULT

EX. GAS SERVICE
TO BE REUSED.
COORDINATE
WITH NNW.

FIRE
HYDRANT

277 LF 4" W (PRIVATE)

TELECOM

EX. SS MH
RIM=353.61
10" IN (NW)=342.52
8" IN (NW)=339.23
8" IN (SW)=339.21
8" OUT (NE)=339.11
6" INSIDE DROP (SE)=345.12
INSIDE DROP VERTICAL=340.02

SKYE LANE

FIRE
HYDRANT

20 LF 6" F

557 LF 6" F

S=0.0050
178-LF 12" PVC SD

EX. SD MH
EX. RIM=344.90
EX. 12" IN (S)=339.03
12" IN (NE)=339.03
6" IN (SE)=339.03
EX. 12" OUT (W)=338.72

SD FILTER CB 14

SD CB 12
RIM=347.18
8" OUT (E)=344.99

SD CO 11
RIM=346.46
8" IN (W)=344.17
8" IN (S)=344.17
8" OUT (NE)=344.17

83-LF 8" PVC SD
S=0.0100

SD MH 5
RIM=348.47
8" IN (SW)=343.34
12" IN (E)=343.34
12" OUT (N)=343.24

SD CO 6
RIM=350.20
12" IN (E)=344.23
6" IN (N)=344.23
12" OUT (W)=344.23

SD MH 6
RIM=349.82
8" IN (E)=344.77
6" IN (N)=344.77
8" IN (S)=344.77
12" OUT (W)=344.67

115-LF 8" PVC SD

SD MH 7
RIM=350.92
8" IN (N)=345.53
8" OUT (W)=345.43

POWER

N VALLEY DRIVE

S=0.0100
178-LF 6" PVC SD

SD CB 5
RIM=343.42
6" OUT (NW)=339.81

EX. FIRE HYDRANT

82-LF 8" PVC SD
S=0.0100

53-LF 8" PVC SD
S=0.0100

SD CB 13
RIM=346.90
8" OUT (N)=344.71

STORM
PLANTER 2
BTM AREA =
(2,250 SF)

146 LF 4" W (PRIVATE)

SD CB 7
RIM=347.54
8" OUT (N)=345.35

SHED

PGE SWITCH
VAULT (BY
OTHERS)

POWER

LEROY AVENUE

N HEZZIE LANE

MATCH LINE

SEE SHEET C3.01

N

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

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Revisions to Sheet

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LU-1	LAND USE REV 1	07/25/2025

Status: **LAND-USE**

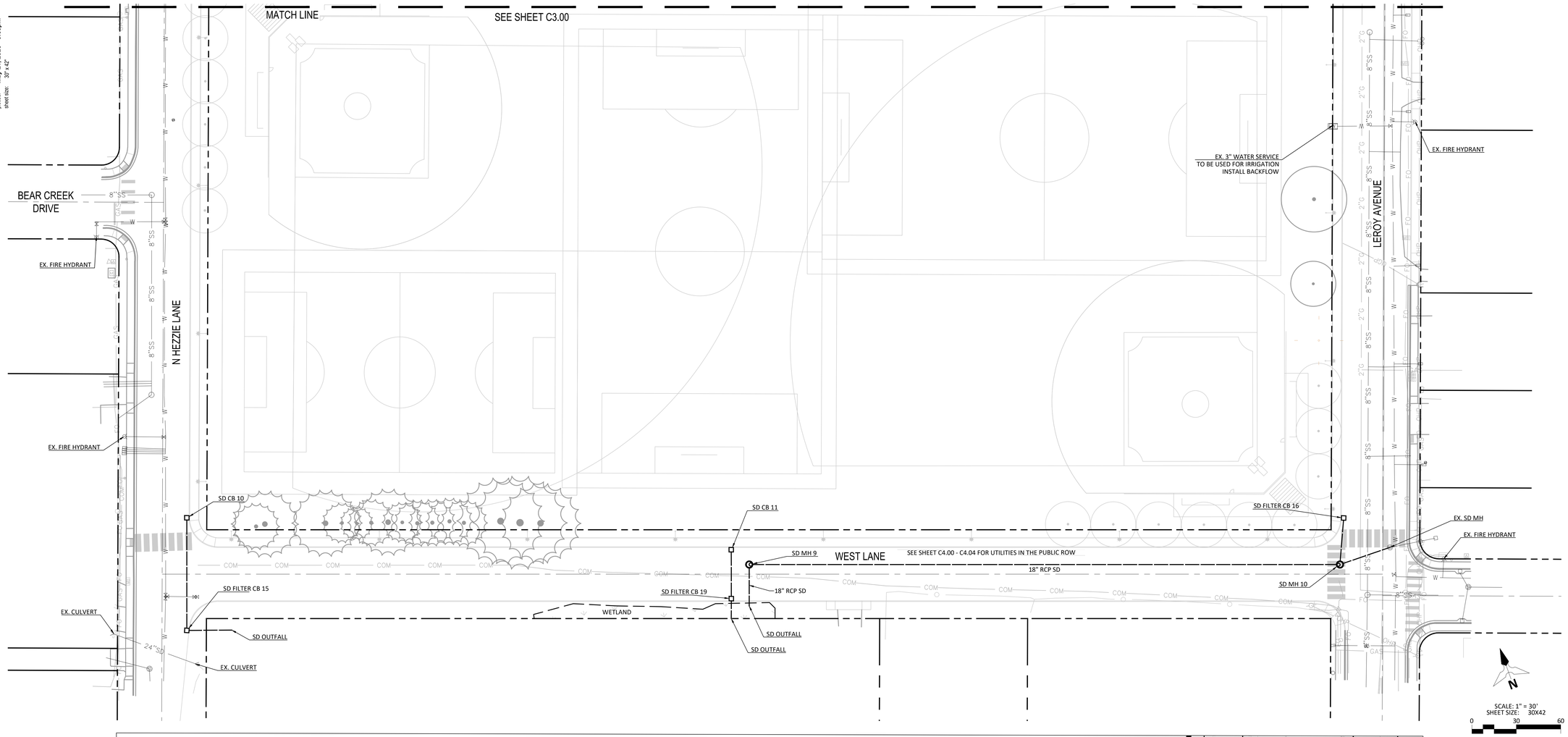
Date: **05/21/2025**

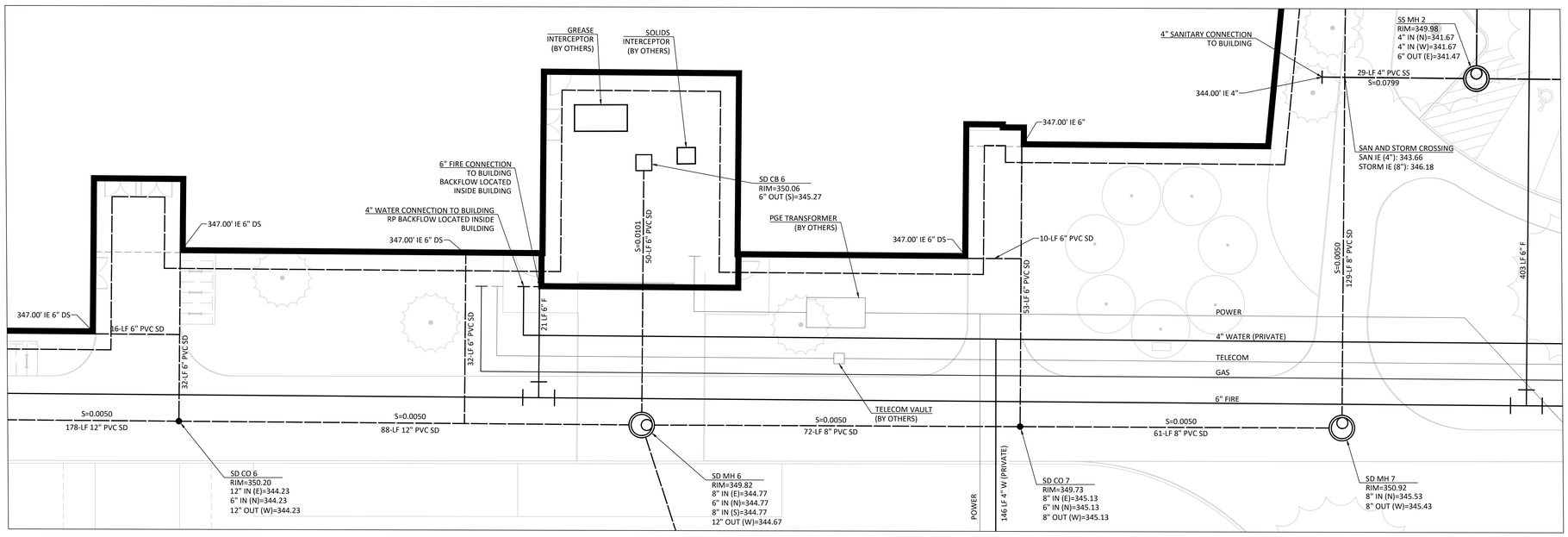
Sheet Title
UTILITY PLAN - NORTH

Sheet No.
C3.00

Job No.
4924-01

plotted: May 21, 2025 - 3:59pm
sheet size: 30" x 42"





1 BUILDING UTILITY CONNECTIONS ENLARGED PLAN
SCALE:1"=10'

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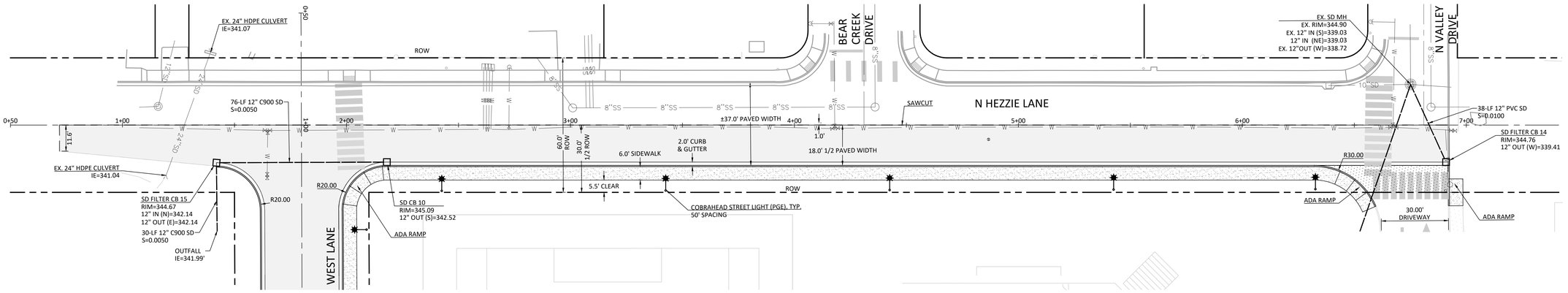
C3.01

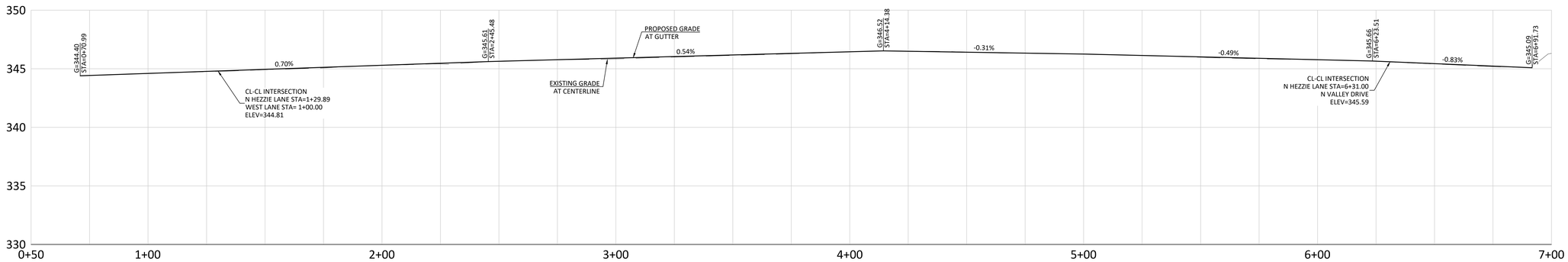
Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CONCRETE DRIVEWAY

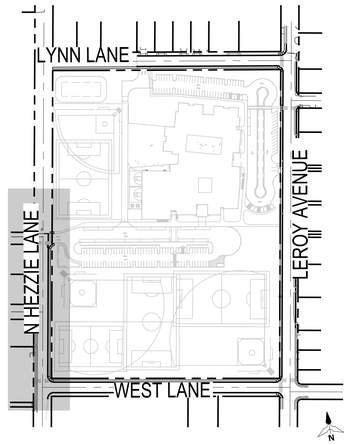


N HEZZIE LANE - PLAN
SCALE: 1"=20



N HEZZIE LANE - PROFILE
SCALE: 1"=20

Minor Collector/Neighborhood Route (50-foot ROW, 36-foot Paved Width)
(N HEZZIE LANE)



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NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

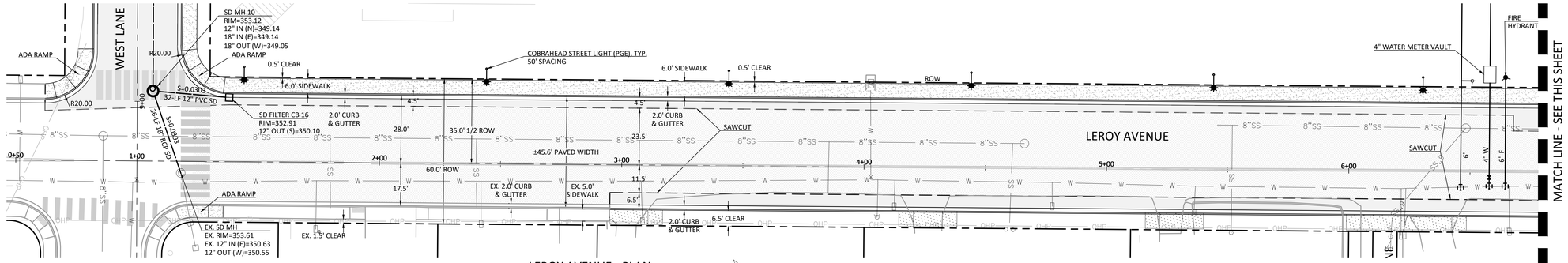
Date: **05/21/2025**

Sheet Title
N HEZZIE LANE PLAN & PROFILE

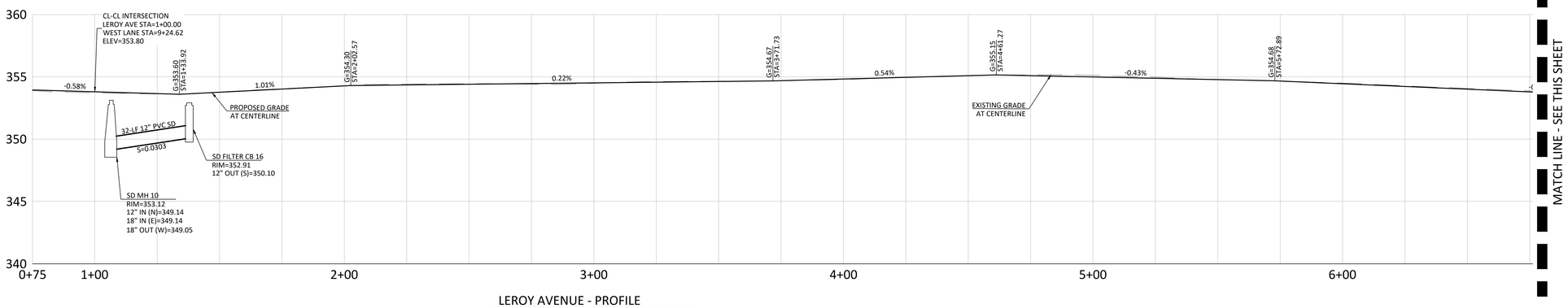
Sheet No.
C4.00

Job No.
4924-01

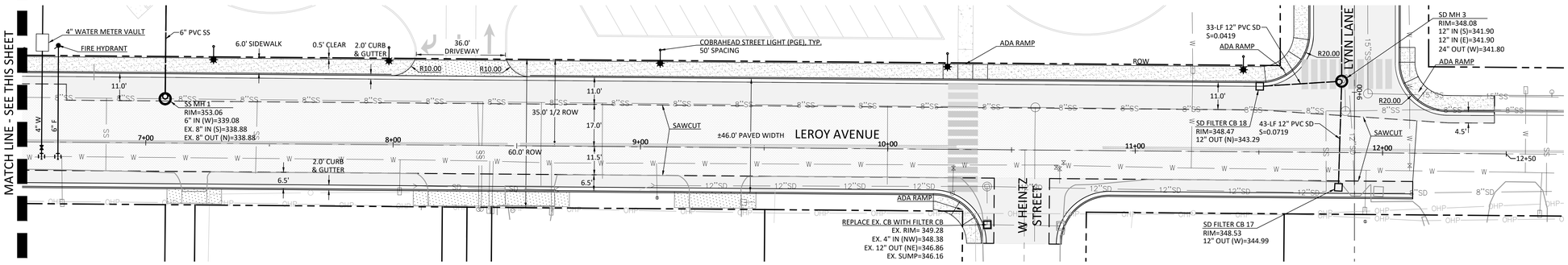
plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



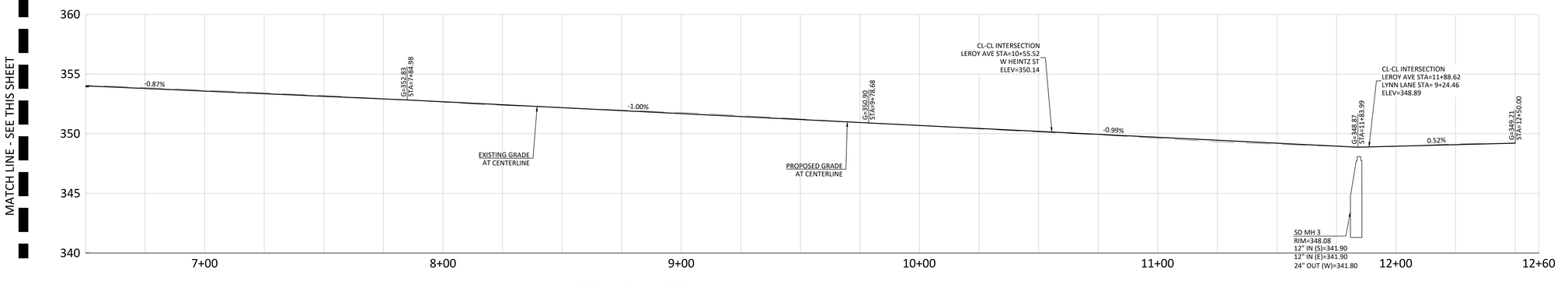
LEROY AVENUE - PLAN
SCALE: 1"=20



LEROY AVENUE - PROFILE
SCALE: 1"=20

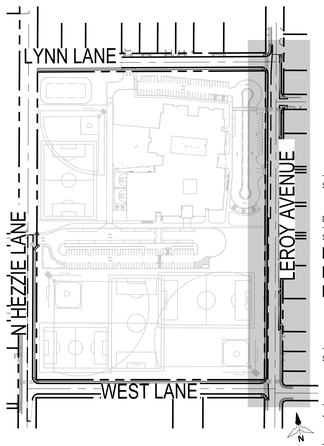


LEROY AVENUE - PLAN
SCALE: 1"=20



LEROY AVENUE - PROFILE
SCALE: 1"=20

Major Collector – Intersection Treatment (60-foot ROW, 46-foot Paved Width)
(LEROY AVENUE)



SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CONCRETE DRIVEWAY
	ASPHALT GRIND AND INLAY

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

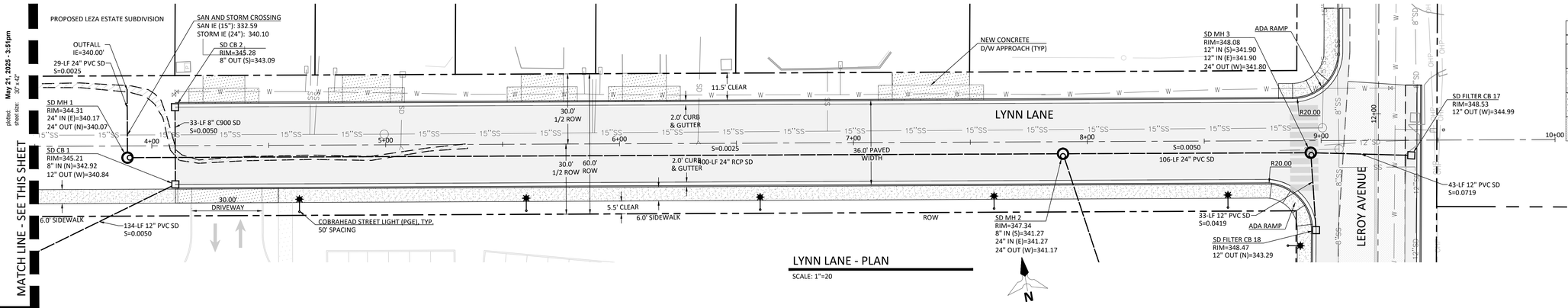
Date: **05/21/2025**

Sheet Title
LEROY AVE PLAN & PROFILE

Sheet No.
C4.01

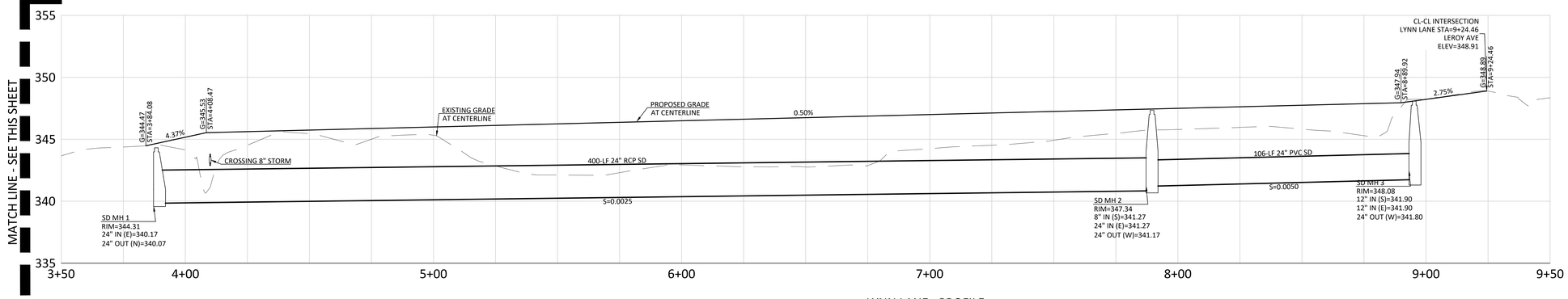
Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



LYNN LANE - PLAN

SCALE: 1"=20



LYNN LANE - PROFILE

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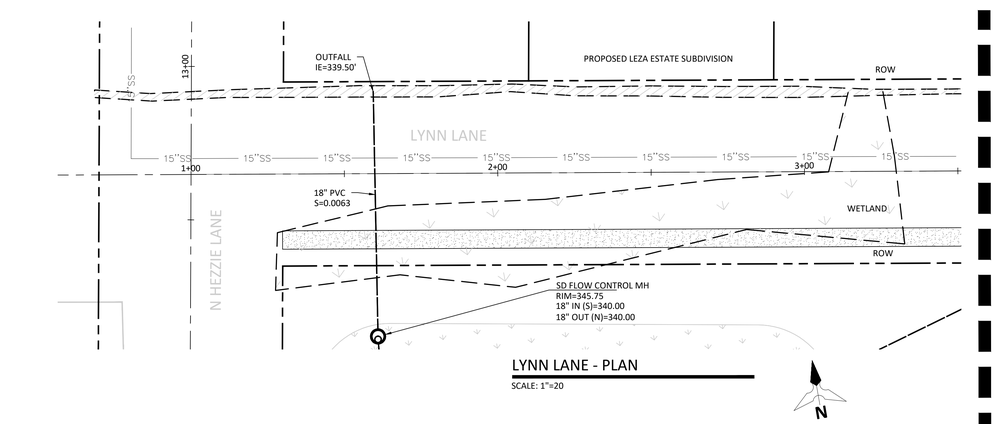

LYNN LANE - PLAN

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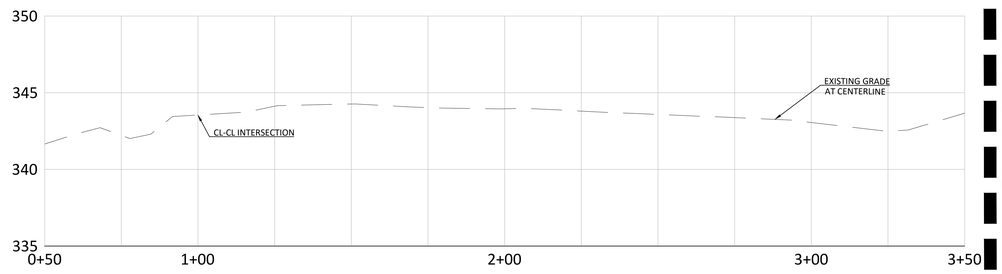

LYNN LANE - PROFILE

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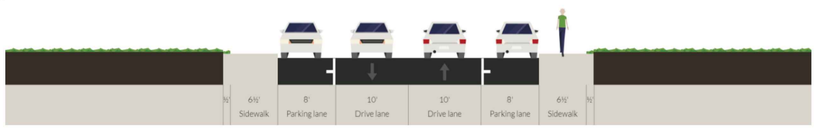
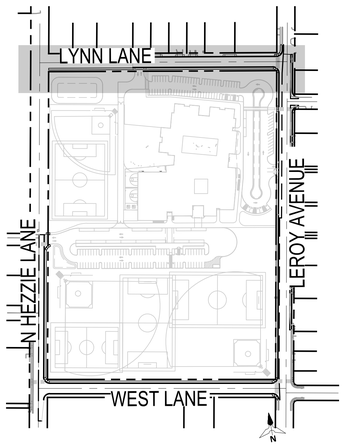


Local Street (50-foot ROW, 36*foot Paved Width)
(LYNN LANE)



SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CONCRETE DRIVEWAY
	ASPHALT GRIND AND INLAY

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

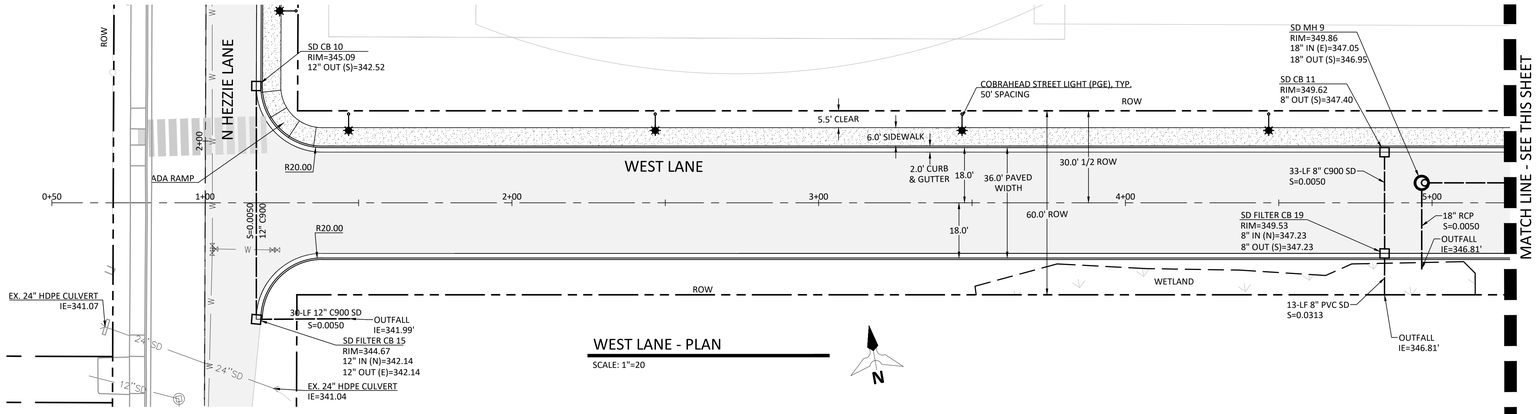
Date: **05/21/2025**

Sheet Title
LYNN LANE PLAN & PROFILE

Sheet No.
C4.02

Job No.
4924-01

plotted: **May 21, 2025 - 3:51pm**
sheet size: 30" x 42"



WEST LANE - PLAN
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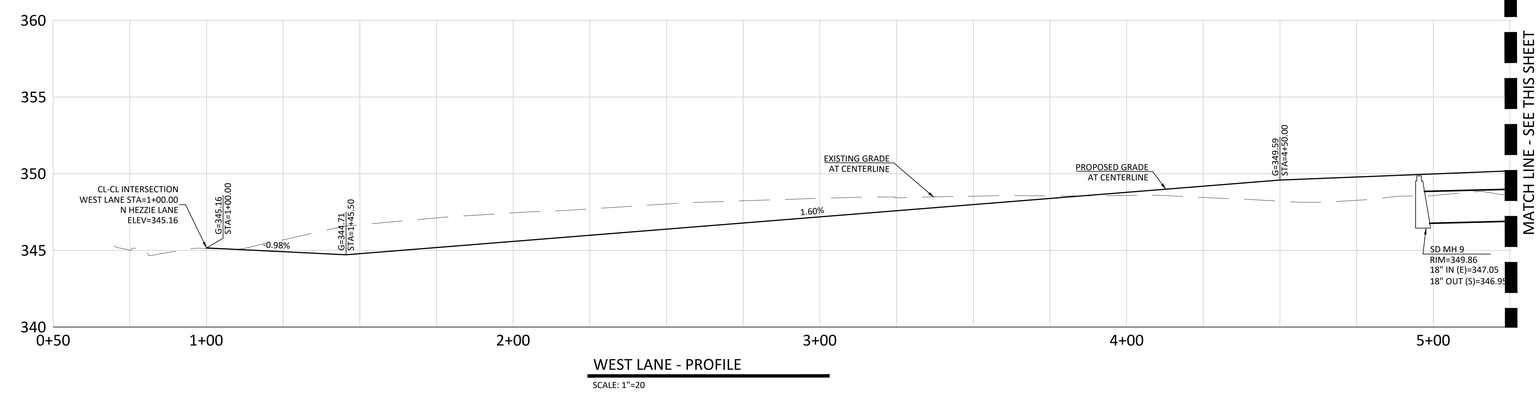

WEST LANE - PROFILE
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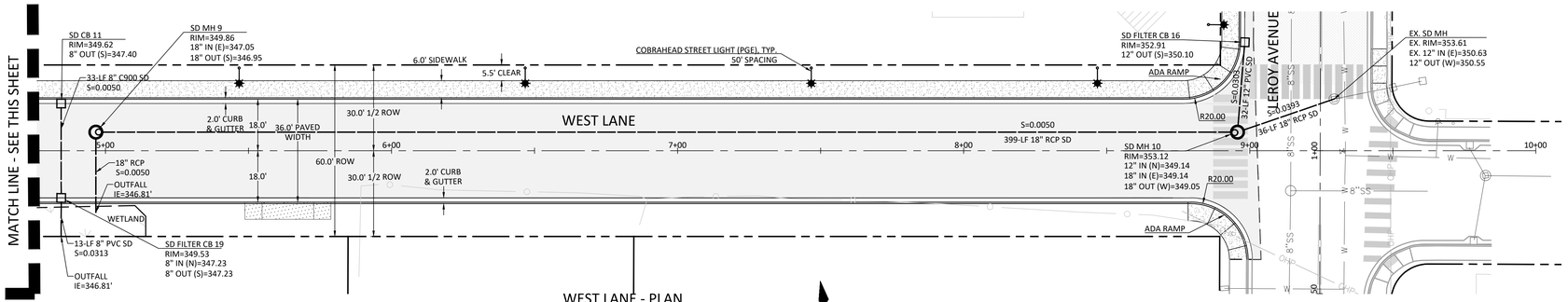

WEST LANE - PLAN
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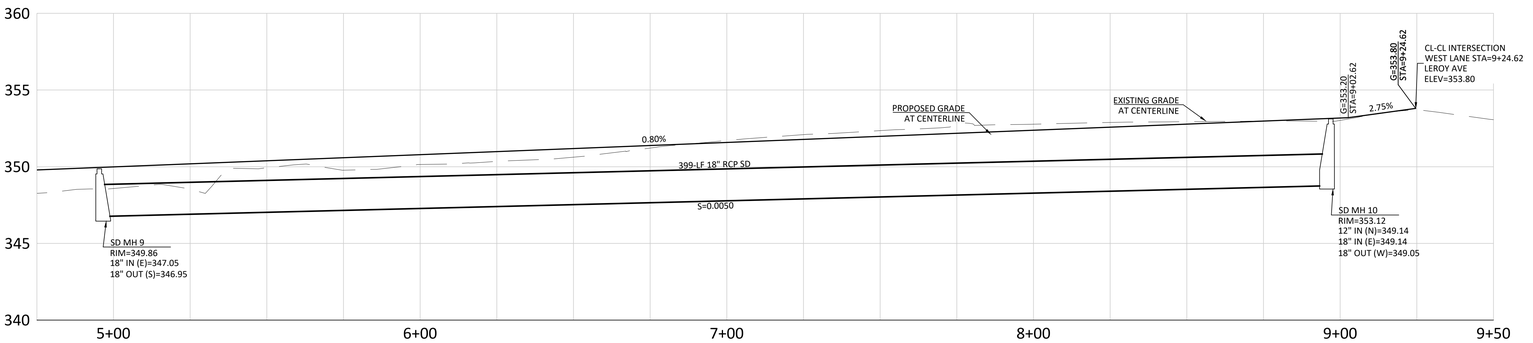
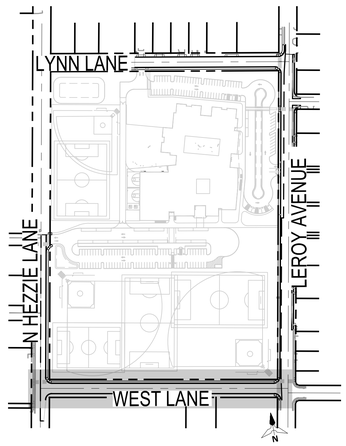


WEST LANE - PROFILE
SCALE: 1"=20

Local Street (50-foot ROW, 36* foot Paved Width)
(WEST LANE)



SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	CONCRETE DRIVEWAY

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

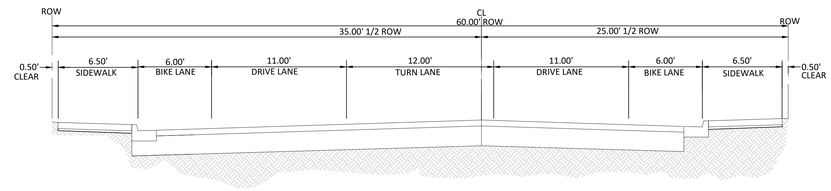
Date: **05/21/2025**

Sheet Title
WEST LANE PLAN & PROFILE

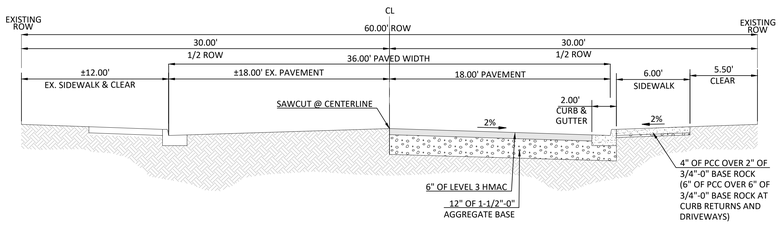
Sheet No.
C4.03

Job No.
4924-01

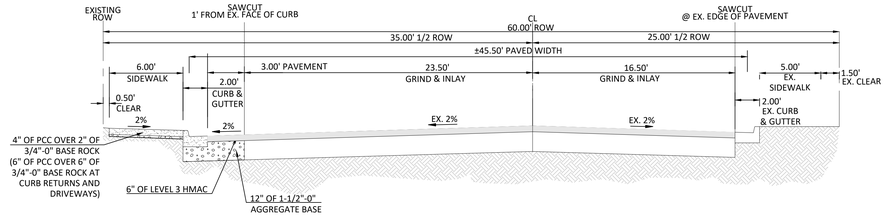
plotted: **May 21, 2025 - 3:51pm**
sheet size: 30" x 42"



LEROY AVE - LANE WIDTHS, TYP
SCALE: NTS



N HEZZIE LANE - TYPICAL SECTION
SCALE: NTS STA: 1.29.89 TO 6+31.00



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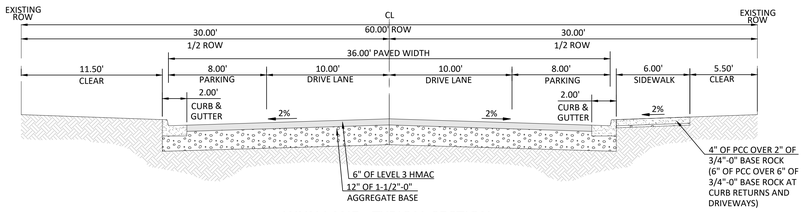

LYNN LANE - TYPICAL SECTION
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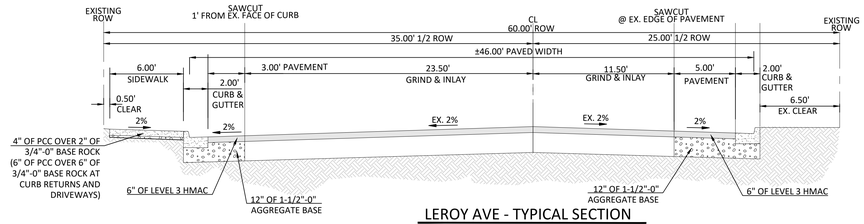

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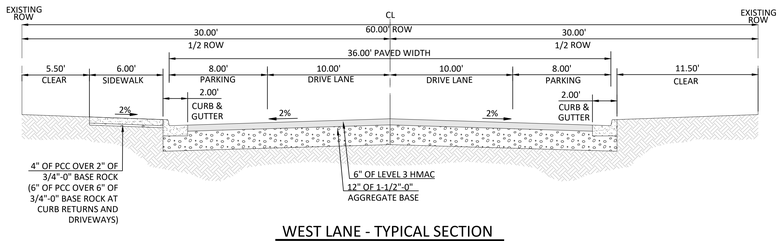

WEST LANE - TYPICAL SECTION
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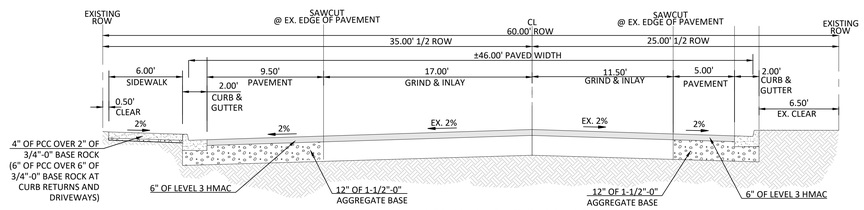

LEROY AVE - TYPICAL SECTION
SCALE: NTS STA: 6+67.86 to 12+49.78

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

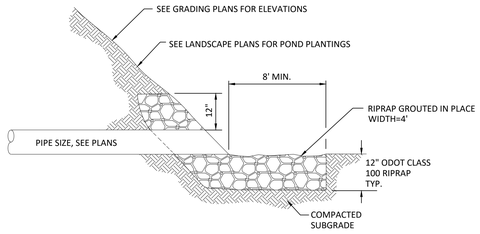
Date: **05/21/2025**

Sheet Title
STREET CROSS-SECTIONS

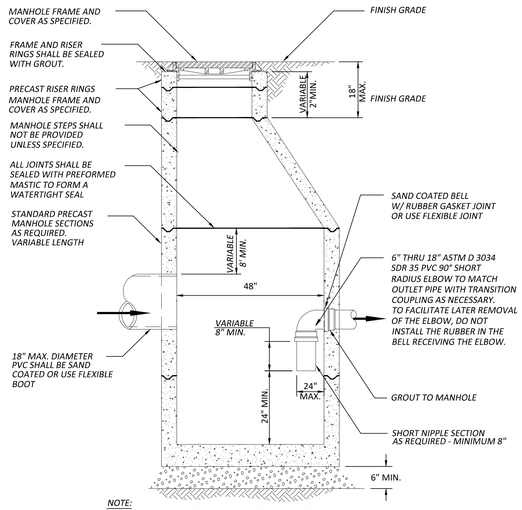
Sheet No.
C4.04

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

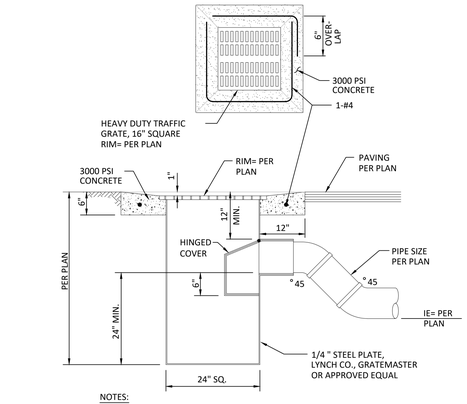


11 STORM OUTFALL
SCALE: NTS



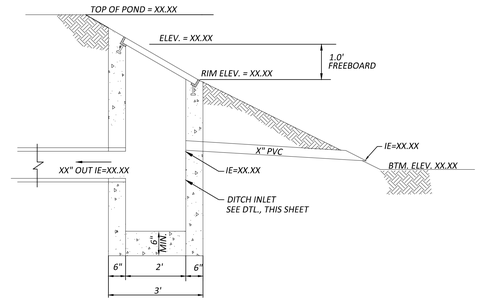
NOTE:
1. STANDARD PRECAST MANHOLE SECTION DIAMETER MAY BE 42" IF DIRECTED BY ENGINEER.
2. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C 478.
3. ALL CONNECTING PIPE SHALL HAVE A FLEXIBLE JOINT WITHIN 18" OF MANHOLE WALL.

10 WATER QAULITY MANHOLE
SCALE: NTS

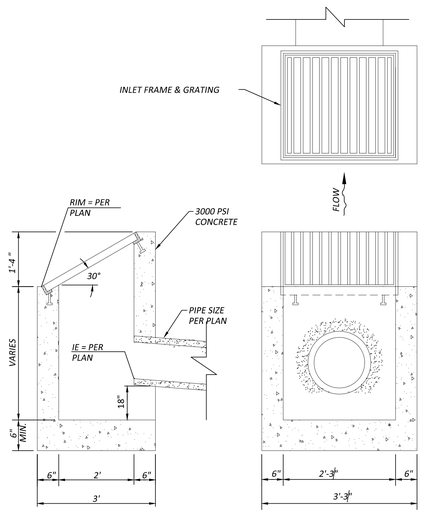


NOTES:
1. ALL STEEL WELDED CONSTRUCTION.
2. COATED INSIDE AND OUT WITH ASPHALTUM PAINT.
3. TRAP TO INCLUDE CLEANOUT.

8 TRAPPED CATCH BASIN
SCALE: NTS



13 DITCH INLET - PIPE OUTFALL
SCALE: NTS



12 DITCH INLET
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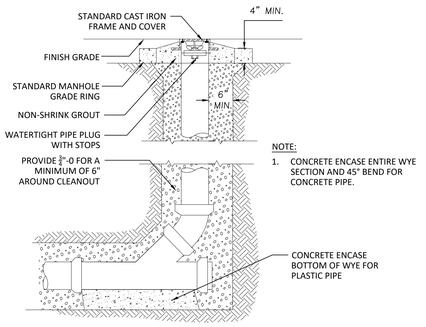
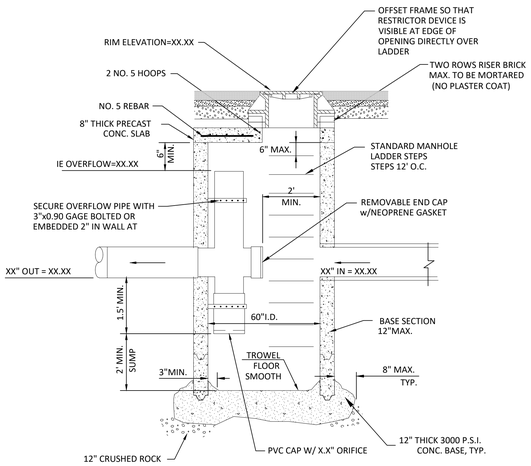
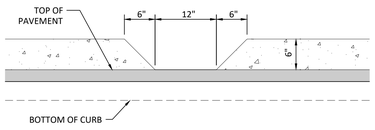


NOTE:
1. CONCRETE ENCASE ENTIRE WYE SECTION AND 45° BEND FOR CONCRETE PIPE.

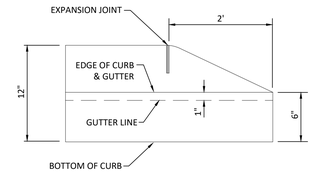
7 CLEAN OUT
SCALE: NTS



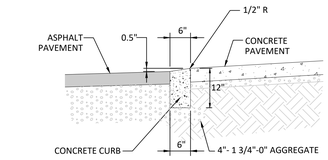
6 FLOW CONTROL MANHOLE
NTS



5 CURB OPENING
SCALE: NTS

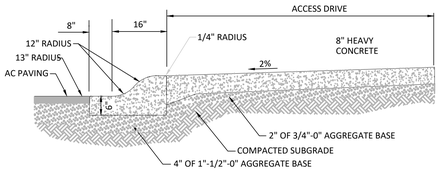


4 CURB TAPER
NTS

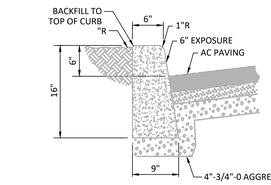


NOTES:
1. SET ADJACENT SURFACES FLUSH WITH CURB.
2. CONCRETE SHALL ATTAIN 3000 PSI COMPRESSION STRENGTH IN 28 DAYS.
3. CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL POINTS OF CURVATURE AND AT MAXIMUM INTERVALS OF 15 FEET.

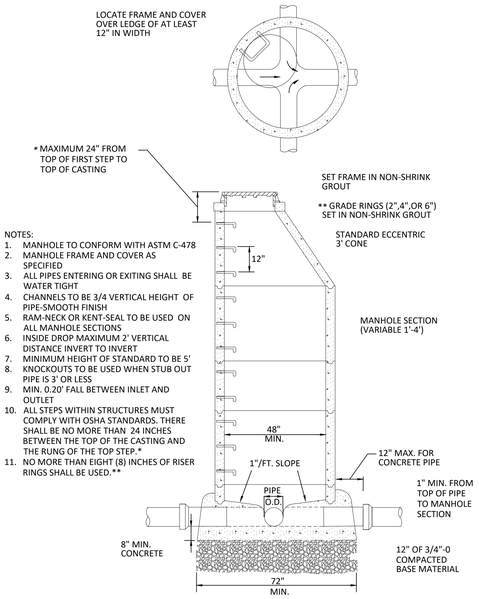
3 FLUSH CURB
NTS



2 ROLLED CURB
SCALE: NTS



1 STANDARD CONCRETE CURB
SCALE: NTS



NOTES:
1. MANHOLE TO CONFORM WITH ASTM C-478
2. MANHOLE FRAME AND COVER AS SPECIFIED
3. ALL PIPES ENTERING OR EXITING SHALL BE WATER TIGHT
4. CHANNELS TO BE 3/4 VERTICAL HEIGHT OF PIPE-SMOOTH FINISH
5. RAM-NECK OR KENT-SEAL TO BE USED ON ALL MANHOLE SECTIONS
6. INSIDE DROP MAXIMUM 2' VERTICAL DISTANCE INVERT TO INVERT
7. MINIMUM HEIGHT OF STANDARD TO BE 5'
8. KNOCKOUTS TO BE USED WHEN STUB OUT PIPE IS 3' OR LESS
9. MIN. 0.20' FALL BETWEEN INLET AND OUTLET
10. ALL STEPS WITHIN STRUCTURES MUST COMPLY WITH OSHA STANDARDS. THERE SHALL BE NO MORE THAN 24 INCHES BETWEEN THE TOP OF THE CASTING AND THE RUNG OF THE TOP STEP.*
11. NO MORE THAN EIGHT (8) INCHES OF RISER RINGS SHALL BE USED.**

9 STANDARD MANHOLE
SCALE: NTS

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MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

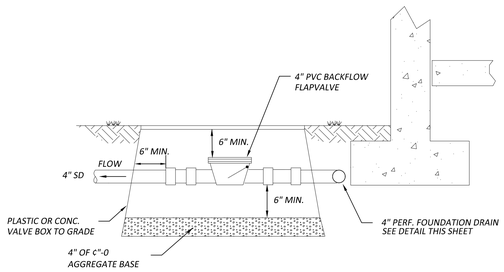
Date: **05/21/2025**

Sheet Title
PRIVATE SITE & UTILITY DETAILS

Sheet No.
C5.00

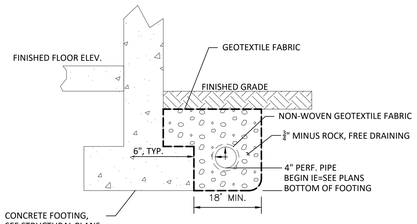
Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



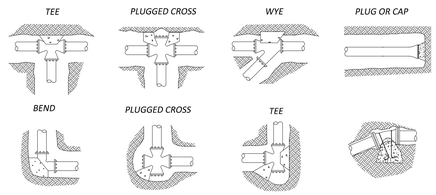
NOTE:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING OF UTILITY VAULTS TO ACCOMMODATE THE VALVE EQUIPMENT THE CONTRACTOR SELECTS. VAULT SIZE AS NOTED FOR REFERENCE ONLY AND IS NOT GUARANTEED TO MEET REQUIREMENTS.

5 BACKWATER VAULT
SCALE: NTS



NOTES:
1. FOUNDATION DRAINAGE MAY BE INSTALLED FLAT TO FOLLOW GRADE OF FOOTING.
2. CONNECT FOUNDATION DRAINAGE TO SOLID PIPE. INSTALL CLEAN CHECK BACKFLOW PREVENTOR PRIOR TO CONNECTION.

4 FOUNDATION DRAIN
SCALE: NTS



CONCRETE THRUST BLOCK SCHEDULE
(BEARING AREA OF THRUST BLOCKS IN SQUARE FEET)

FITTING SIZE (INCHES)	TEE, WYE, PLUG OR CAP	90° BEND OR PLUGGED CROSS	TEE PLUGGED ON RUN BEND A1	TEE PLUGGED ON RUN BEND A2	45° BEND	22 1/2° BEND	11 1/4° BEND
04	1.3	1.9	2.5	1.9	1.3	-	-
06	2.8	4.0	5.7	4.0	2.1	1.3	-
08	5.1	7.1	10.1	7.1	3.9	2.0	1.3
10	7.9	11.2	15.7	11.2	6.1	3.2	1.6
12	11.3	16.0	22.7	16.0	8.8	4.5	2.3
14	15.3	21.7	30.7	21.7	11.9	6.1	3.1
16	20.0	28.4	40.0	28.4	15.5	8.0	4.0
18	25.3	36.0	50.7	36.0	19.5	10.1	5.1
20	31.3	44.4	62.7	44.4	24.1	12.5	6.3
24	45.3	64.0	90.7	64.0	34.9	18.1	9.1

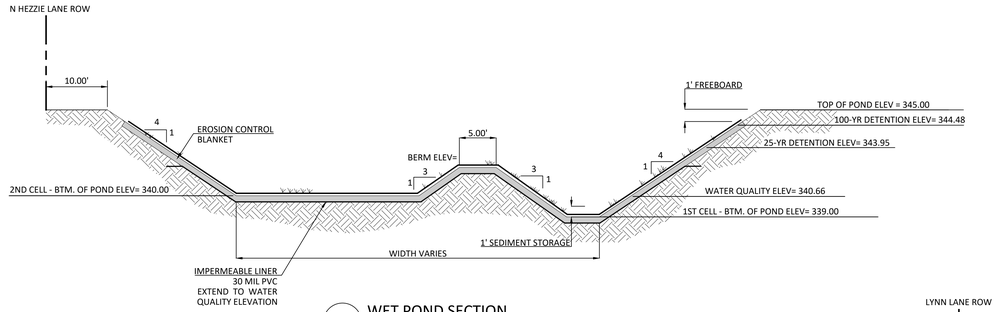
VERTICAL VOLUME OF THRUST BLOCK IN CUBIC YARDS			
FITTING SIZE	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1.1	0.4	0.2
6"	2.7	1.0	0.4
8"	4.0	1.5	0.6
12"	8.5	3.2	1.3
16"	14.8	5.6	2.3

VERTICAL BEND		
FITTING SIZE	ROD SIZE	EMBEDMENT BEND
4"-12"	#6	30
14"-16"	#8	36

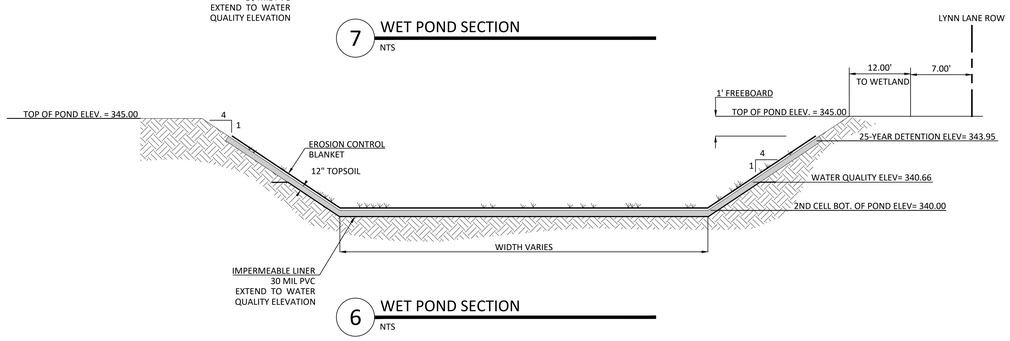
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRENGTH OF 1500 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
BEARING AREA = (TEST PRESSURE/150) x (1500/SOIL BEARING STRESS) x (TABLE VALUE)

NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLANS: E.G. 15 INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL. BEARING AREA OF THRUST BLOCKS IS IN SQUARE FEET.
6. VERTICAL CHANGES IN DIRECTION REQUIRE SPECIFIC DESIGNS FOR THRUST BLOCKS.

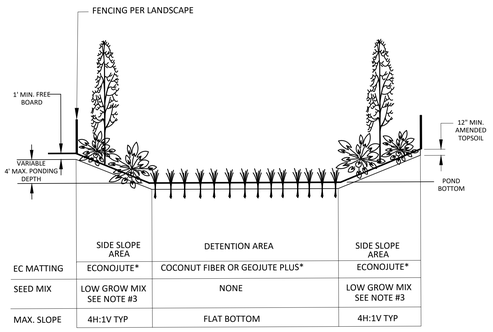
3 THRUST BLOCK
SCALE: NTS



7 WET POND SECTION
NTS



6 WET POND SECTION
NTS

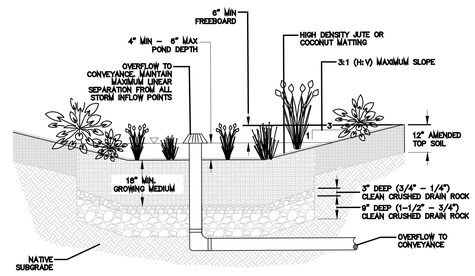


	SIDE SLOPE AREA	DETENTION AREA	SIDE SLOPE AREA
EC MATTING	ECONOJUTE*	COCONUT FIBER OR GEOJUTE PLUS*	ECONOJUTE*
SEED MIX	LOW GROW MIX SEE NOTE #3	NONE	LOW GROW MIX SEE NOTE #3
MAX. SLOPE	4H:1V TYP	FLAT BOTTOM	4H:1V TYP

* OR AS APPROVED

NOTES:
1. JUTE MATTING- GEOJUTE PLUS IN DETENTION AREA, ECONOJUTE FOR ALL OTHER AREAS, OR SIMILIAR FABRICS. COCONUT FIBER IS ALSO ACCEPTABLE.
2. 12 INCHES OF AMENDED TOPSOIL SHALL BE PLACED THROUGHOUT THE WATER QUANTITY FACILITY.
3. SIDE SLOPE AREA SEED MIX, DWARF TALL FESCUE 40%, DWARF PERENNIAL RYE 30%, CREEPING RED FESCUE 25%, COLONIAL BENT GRASS 5%. APPLY AT A RATE OF 120# / ACRE.

1 WET POND
SCALE: NTS



NOTES:
1. PROVIDE OVERFLOW CONVEYANCE SYSTEM, OVERFLOW CONVEYANCE HEIGHT TO ALLOW 4" MINIMUM – 6" MAXIMUM PONDING, PIPING TO A MINIMUM OF THE PLUMBING CODE OR CONVEY THE 25 YEAR STORM.
2. IF USING THE NATIVE SOIL INFILTRATION FOR SIZING, THE RATE SHALL BE DETERMINED BY ASTM STANDARD TESTING METHODS.
3. FLOW DISSIPATERS SHOULD BE USED IF ENTRY SLOPE TO THE BASIN IS GREATER THAN 3:1. FLOW DISSIPATERS SHALL BE CONSTRUCTED OUT OF ROCK OR GRAVEL PER DESIGN FLOW VELOCITY AT ENTRY OF THE FACILITY.
4. TREATMENT AREA SHALL HAVE HIGH DENSITY JUTE OR COCONUT MATTING OVER 18" MINIMUM OF GROWING MEDIUM OR BASE STABILIZATION METHOD AS APPROVED BY THE CITY.

2 STORM PLANTER
SCALE: NTS

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

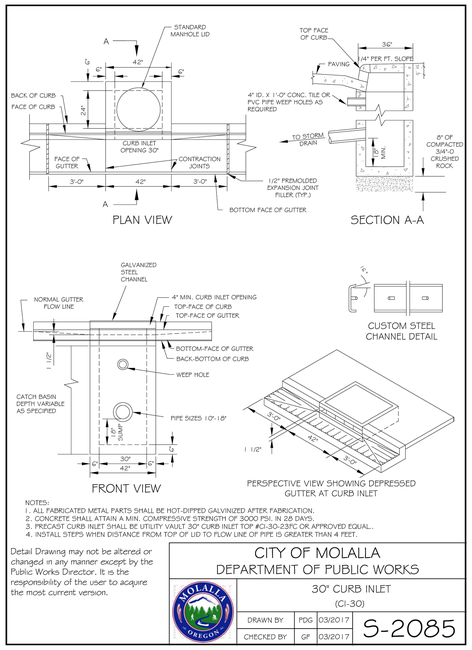
Date: **05/21/2025**

Sheet Title
PRIVATE UTILITY DETAILS

Sheet No.
C5.01

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



NOTES:
1. ALL FABRICATED METAL PARTS SHALL BE HOT-DIPPED GALVINIZED AFTER FABRICATION.
2. CONCRETE SHALL ATTAIN A MIN. COMPRESSIVE STRENGTH OF 3000 PSI. IN 28 DAYS.
3. PRECAST CURB INLET SHALL BE UTILITY VAULT 30" CURB INLET TOP #CI-30-23FC OR APPROVED EQUAL..
4. INSTALL STEPS WHEN DISTANCE FROM TOP OF LID TO FLOW LINE OF PIPE IS GREATER THAN 4 FEET.

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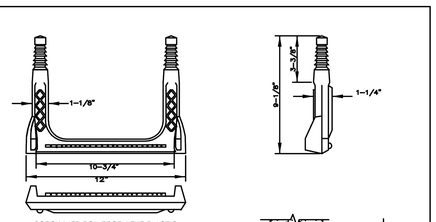
30" CURB INLET
(CI-30)

DRAWN BY	PDG	03/2017	S-2085
CHECKED BY	GF	03/2017	



NOTE:
STEPS IN PREFABRICATED MANHOLE SECTIONS MUST BE TIGHT AND FIRMLY EMBEDDED. THEY MUST ALSO MEET THE ASTM TEST FOR WITHSTANDING PULL-OUT.
TOP STEP SHALL BE NO GREATER THAN 27" FROM TOP OF CASTING.

MATERIALS:

PLASTIC:

MUST CONFORM WITH ASTM C-478. STEEL REINFORCING BAR MINIMUM 1/2" GRADE 60. MEETING REQUIREMENTS OF ASTM A615 ENCAPSULATED WITH INJECTION MOLDED COPOLYMER POLYPROPYLENE WITH SERRATED SURFACES.

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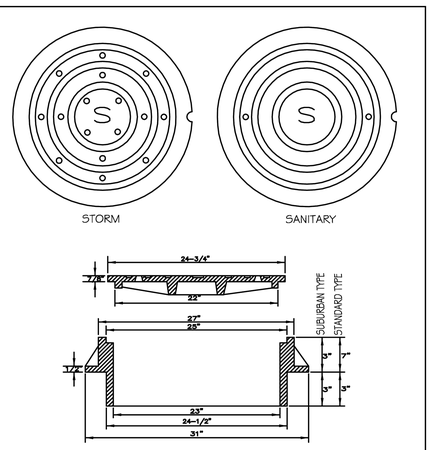
MANHOLE STEP DETAIL

DRAWN BY	PDG	01/2016	S-2080
CHECKED BY	JC	01/2016	



NOTES:
1. SUBURBAN TYPE NOT FOR USE IN PCC STREETS.
2. COVER AND FRAME SHALL BE GRAY CAST IRON ASTM A-48 CLASS 30.
3. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
4. NOTCH LID FOR LIFTING HOOK.

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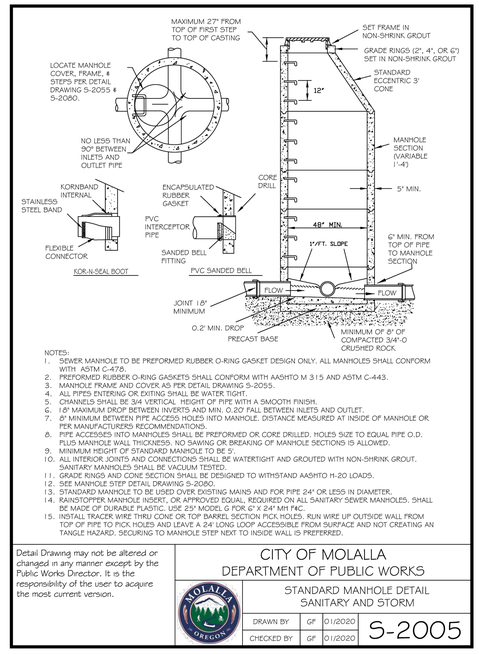
MANHOLE FRAME & COVER DETAIL

DRAWN BY	PDG	01/2016	S-2055
CHECKED BY	JC	01/2016	



NOTES:
1. SEWER MANHOLE TO BE PREFORMED RUBBER O-RING GASKET DESIGN ONLY. ALL MANHOLES SHALL CONFORM WITH ASTM C-476.
2. PREFORMED RUBBER O-RING GASKETS SHALL CONFORM WITH AASHTO M 315 AND ASTM C-443.
3. MANHOLE FRAME AND COVER AS PER DETAIL DRAWING S-2055.
4. ALL PIPES ENTERING OR EXITING SHALL BE WATER TIGHT.
5. CHANNELS SHALL BE 3/4 VERTICAL HEIGHT OF PIPE WITH A SMOOTH FINISH.
6. 1.8' MAXIMUM DROP BETWEEN INVERTS AND MIN. 0.20' FALL BETWEEN INLETS AND OUTLET.
7. 6" MINIMUM BETWEEN PIPE ACCESS HOLES INTO MANHOLE. DISTANCE MEASURED AT INSIDE OF MANHOLE OR PER MANUFACTURERS RECOMMENDATIONS.
8. PIPE ACCESSES INTO MANHOLES SHALL BE PREFORMED OR CORE DRILLED. HOLES SIZE TO EQUAL PIPE O.D. PLUS MANHOLE WALL THICKNESS. NO SAWING OR BREAKING OF MANHOLE SECTIONS IS ALLOWED.
9. MINIMUM HEIGHT OF STANDARD MANHOLE TO BE 5'.
10. ALL INTERIOR JOINTS AND CONNECTIONS SHALL BE WATERTIGHT AND GROUTED WITH NON-SHRINK GROUT. SANITARY MANHOLES SHALL BE VACUUM TESTED.
11. GRADE RINGS AND CONE SECTION SHALL BE DESIGNED TO WITHSTAND AASHTO H-20 LOADS.
12. SEE MANHOLE STEP DETAIL DRAWING S-2080.
13. STANDARD MANHOLE TO BE USED OVER EXISTING MAINS AND FOR PIPE 24" OR LESS IN DIAMETER.
14. RAINSTOPPER MANHOLE INSERT, OR APPROVED EQUAL, REQUIRED ON ALL SANITARY SEWER MANHOLES. SHALL BE MADE OF DURABLE PLASTIC. USE 25" MODEL G FOR 6" X 24" MH PIC.
15. INSTALL TRACER WIRE THRU CONE OR TOP BARREL SECTION PICK HOLES. RUN WIRE UP OUTSIDE WALL FROM TOP OF PIPE TO PICK HOLES AND LEAVE A 24" LONG LOOP ACCESSIBLE FROM SURFACE AND NOT CREATING AN TANGLE HAZARD. SECURING TO MANHOLE STEP NEXT TO INSIDE WALL IS PREFERRED.

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STANDARD MANHOLE DETAIL
SANITARY AND STORM

DRAWN BY	GF	01/2020	S-2005
CHECKED BY	GF	01/2020	

TABLE A

"A"	4"	6"	8"	10"	12"	15"	18"	21"	24"	30"	36"	42"	48"	54"	60"	66"	72"		
"B"	6"	6"	6"	6"	6"	D/2	D/2	D/2	D/2	D/2	D/2	D/2	D/2	24"	24"	24"	24"	24"	24"

BACKFILL IN STREET AREAS
1. FILL ROCK TO BACK OF S/W.
2. FILL ROCK 2' FROM FINISHED GRADE IN PLANTER AREAS.
3. ASPHALT SPECIFICATIONS AND DEPTH PER PUBLIC WORKS STANDARDS AND STREET CLASSIFICATION.
4. CONCRETE PANEL REPLACEMENT PER DESIGN AND DOWELED TO SURROUNDING PANELS OR CURB.
5. BACKFILL IN ODOT ROADWAYS PER ODOT STANDARDS.
6. WHEN PIPE COVER IS 2 FEET OR LESS, BACKFILL WITH CLSM PER PROJECT SPECIFICATIONS OR PER ODOT STANDARD SPECIFICATION 00442 WHEN PROJECT IS SILENT ON REQUIREMENTS.

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STANDARD TRENCH DETAIL

DRAWN BY	PW	01/2020	S-2140
CHECKED BY	GF	01/2020	

NOTE: FOR PLAN AND ELEVATION SEE DRAWINGS NO. S-2095

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CATCH BASIN REBAR REINFORCEMENT
Type G-2

DRAWN BY	PDG	04/2016	S-2096
CHECKED BY	JC	04/2016	

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FRAME AND GRATE

DRAWN BY	GF	01/2019	S-2100
CHECKED BY	GF	01/2019	

NOTES:
1. CATCH BASIN TO BE USED ONLY IN AREAS WHERE CURB INLET CONFLICTS WITH UNDERGROUND UTILITIES AND WITH THE APPROVAL OF THE CITY'S AUTHORIZED REPRESENTATIVE.
2. CONCRETE SHALL ATTAIN A MIN. COMPRESSIVE STRENGTH OF 3000 PSI. IN 28 DAYS.
3. BATTER OF 1/4" TO 1" TO FACILITATE FORM REMOVAL WILL BE ALLOWED.
4. BOTTOM OF WEEP HOLE SHALL BE LOCATED AT BOTTOM OF ROADWAY BASE ROCK.
5. SEE DETAIL S-2096 FOR REBAR SPACING AND HOOK BAR DETAIL.

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CATCH BASIN
Type G-2

DRAWN BY	PDG	04/2016	S-2095
CHECKED BY	JC	04/2016	

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

Date: **05/21/2025**

Sheet Title
PUBLIC STORM DETAILS

Sheet No.
C5.02

Job No.
4924-01

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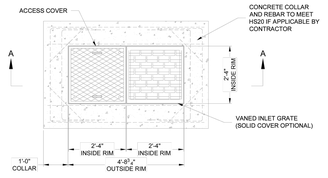
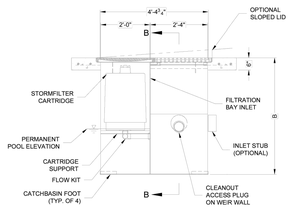
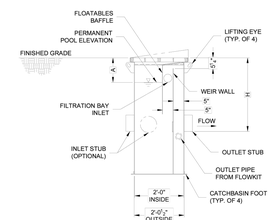


PLAN VIEW



SECTION A-A



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 1 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF ONE CARTRIDGE. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY		1.0			1.0			2.25	
INLET PERMANENT POOL LEVEL (A)		1'-0"			1'-0"			2'-0"	
OVERALL STRUCTURE HEIGHT (B)		4'-9"			3'-9"			4'-9"	

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB™ (PSORB) MEDIA ONLY

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

1-CARTRIDGE CATCHBASIN STORMFILTER DATA

STRUCTURE ID	XXX
WATER QUALITY FLOW RATE (cfs)	X.XX
PEAK FLOW RATE (<1 cfs)	X.XX
RETURN PERIOD OF PEAK FLOW (yrs)	XXX
CARTRIDGE HEIGHT (27", 18", 18" DEEP)	XX
CARTRIDGE FLOW RATE (gpm)	XX
MEDIA TYPE (PERLITE, ZPG, PSORB)	XXXXX
RIM ELEVATION	XXX.XX

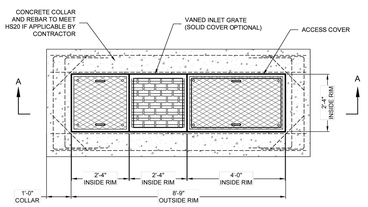
PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"

CONFIGURATION: OUTLET / INLET; OUTLET / INLET; INLET; INLET

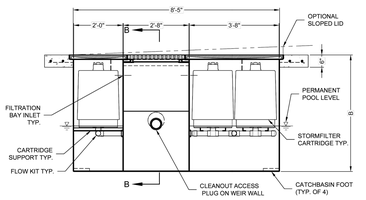
SLOPED LID	YES/NO
SOLID COVER	YES/NO
NOTES/SPECIAL REQUIREMENTS:	

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-526-3999 513-645-7000 513-645-7993 FAX

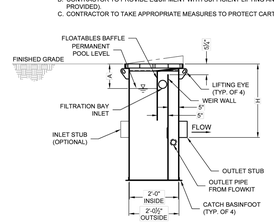
1 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL



PLAN VIEW



SECTION A-A



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 3 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF THREE CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY		1.0			1.0			2.25	
INLET PERMANENT POOL LEVEL (A)		1'-0"			1'-0"			2'-0"	
OVERALL STRUCTURE HEIGHT (B)		4'-9"			3'-9"			4'-9"	

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB™ (PSORB) MEDIA ONLY

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ANGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

3-CARTRIDGE CATCHBASIN STORMFILTER DATA

STRUCTURE ID	XXX
WATER QUALITY FLOW RATE (cfs)	X.XX
PEAK FLOW RATE (<1 cfs)	X.XX
RETURN PERIOD OF PEAK FLOW (yrs)	XXX
CARTRIDGE FLOW RATE (gpm)	XX
MEDIA TYPE (PERLITE, ZPG, PSORB)	XXXXX
RIM ELEVATION	XXX.XX

PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"

CONFIGURATION: OUTLET / INLET; OUTLET / INLET

SLOPED LID	YES/NO
SOLID COVER	YES/NO
NOTES/SPECIAL REQUIREMENTS:	

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800-526-3999 513-645-7000 513-645-7993 FAX

3 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL

CONTECH STORMFILTER CATCH BASIN

CB. NO.	LOCATION	PROVIDED WQ FLOW (CFS)	REQUIRED WQ FLOW (CFS)	CARTRIDGE SIZE
14	HEZZIE/N VALLEY	0.03	0.03	(1) 18"
15	HEZZIE/WEST	0.10	0.09	(3) 18"
16	LEROY/WEST	0.03	0.02	(1) 18"
17	LEROY(E)/LYNN	0.03	0.01	(1) 18"
18	LEROY(W)/LYNN	0.05	0.04	(1) 27"
19	WEST	0.10	0.08	(3) 18"
20	LEROY/HEINTZ	0.03	0.02	(1) 18"

STANDRIDGE
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WWW.STANDRIDGEINC.COM

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

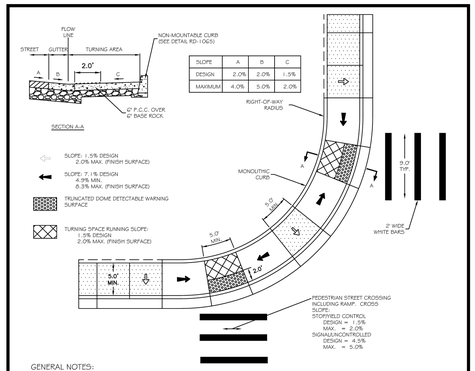
Date: **05/21/2025**

Sheet Title
PUBLIC STORM DETAILS

Sheet No.
C5.03

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



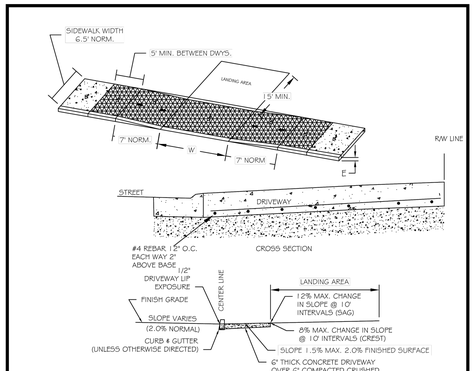
GENERAL NOTES:
1. PARALLEL RAMPS ARE A SPECIAL APPLICATION AND MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), JULY 2011 EDITION.
3. SIDEWALK RAMPS SHALL BE LOCATED TO MINIMIZE OUT-OF-DIRECTION TRAVEL WHILE MAINTAINING PEDESTRIAN VISIBILITY AND MINIMIZING STREET CROSSING DISTANCES.
4. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3300 PSI AT 28 DAYS.
5. BASE ROCK SHALL CONSIST OF 3/4"-0 CRUSHED ROCK COMPACTED TO 95% OF AASHTO T-180.
6. BASE ROCK SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 60 DEGREES OR GREATER.
7. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE TURNING AREA AND CONSIST OF (BLACK) MASCO CAST-IN-TACT 4 CAST-IN-TACT III OR APPROVED EQUAL.
8. ON STEEP SLOPES, SIDEWALK RAMPS SHALL HAVE A MAXIMUM SLOPE OF 8.3% OR MAXIMUM LENGTH OF 15 FEET CONSTRUCTED AT CONSTANT SLOPE.
9. TURNING SPACES SHALL HAVE A MINIMUM WIDTH OF 5 FEET AND MINIMUM DEPTH OF 5 FEET. WHERE SIDEWALK RAMPS ARE USED TO PROVIDE BICYCLE ACCESS, THE MINIMUM TURNING SPACE WIDTH SHALL BE 8 FEET.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

CURB TIGHT SIDEWALK RAMP INTERSECTION

DRAWN BY	PW	07/2020	R-1115
CHECKED BY	GF	07/2020	



NOTES:
1. CONCRETE SHALL HAVE A MINIMUM BREAKING STRENGTH OF 3000 PSI. AFTER 28 DAYS, 6 SACK MIX.
2. CURB JOINT SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS ALONG THE BACK OF CURB.
3. CONTRACTION JOINT SPACING SHALL NOT EXCEED 10 FEET AND SHALL BE CONSTRUCTED FLUSH.
4. USE EXISTING CURB EXPANSION JOINT OR SAW CUT AND PLACE COLD JOINT.
5. SIDEWALK THICKNESS SHALL BE 6 INCHES MINIMUM AND EXTEND TO AT LEAST ONE SIDEWALK PANEL BEYOND DRIVEWAY APRON.
6. COMMERCIAL: 30'-40', ONE DRIVEWAY PER PARCEL OR DEVELOPMENT.
   INDUSTRIAL: 30'-40', ONE DRIVEWAY PER PARCEL OR DEVELOPMENT.
7. LANDING AREA SHALL BE CONCRETE OR HMAC.

SIDEWALK
DRIVEWAY PAY LIMIT (IF MONOLITHIC, INCLUDE ADJACENT CURB)
SLOPE 1.5% MAX. (MAX. 2.0% FINISHED SURFACE SLOPE) (NORMAL SIDEWALK CROSS SLOPE)
SLOPE 7.5% MAX. (MAX 8.3% FINISHED SURFACE SLOPE) (RAMP LENGTH 15' MAX., MEASURED ALONG FINISHED SURFACE SLOPE)
W WIDTH OF DRIVEWAY
CURB EXPOSURE

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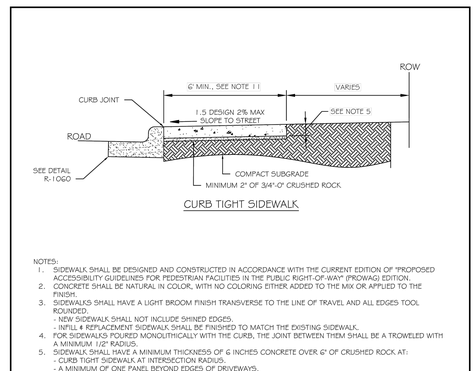
CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

COMMERCIAL DRIVEWAY

DRAWN BY	PW	08/2020	R-1095
CHECKED BY	GF	08/2020	



CURB TIGHT SIDEWALK

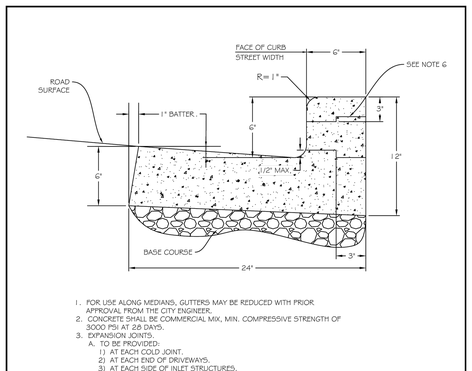
NOTES:
1. SIDEWALK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG) EDITION.
2. CONCRETE SHALL BE NATURAL IN COLOR, WITH NO COLORING EITHER ADDED TO THE MIX OR APPLIED TO THE FINISH.
3. SIDEWALKS SHALL HAVE A LIGHT BROOM FINISH TRANSVERSE TO THE LINE OF TRAVEL AND ALL EDGES TOOL ROUNDED.
   - NEW SIDEWALK SHALL NOT INCLUDE SHINED EDGES.
   - INFILL 4 REPLACEMENT SIDEWALK SHALL BE FINISHED TO MATCH THE EXISTING SIDEWALK.
4. FOR SIDEWALKS POURED MONOLITHICALLY WITH THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED WITH A MINIMUM 1/2" RADIUS.
5. SIDEWALK SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES CONCRETE OVER 6" OF CRUSHED ROCK AT:
   - CURB TIGHT SIDEWALK AT INTERSECTION RADIUS.
   - A MINIMUM OF ONE PANEL BEYOND EDGES OF DRIVEWAYS.
   - OTHERWISE SIDEWALK SHALL HAVE A MINIMUM THICKNESS OF 4" CONCRETE OVER 2" CRUSHED ROCK.
6. DRAIN BLOCK-OUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. PLASTIC PIPE AT 1% SLOPE. CONSTRUCTION JOINT TO BE PLACED OVER PIPE.
7. BASE ROCK SHALL BE COMPACTED TO PROVIDE A FIRM BASE FOR CONCRETE.
8. SIDEWALK PANELS SHOULD BE SQUARE AND OF CONSISTENT DIMENSION ALONG A BLOCK FACE. THE LENGTH OF A SIDEWALK PANEL SHALL BE ADJUSTED AS NECESSARY TO ALIGN WITH CURB JOINTS, RAMPS, AND DRIVEWAYS.
9. WIDE SIDEWALKS SHALL BE SCORED PER CITY AUTHORIZED REPRESENTATIVE.
10. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 60 DEGREES OR GREATER.
11. SIDEWALK WIDTHS FOR COMMERCIALLY ZONED PROPERTIES OR ARTERIAL STREETS WILL BE AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK DETAIL

DRAWN BY	GF	01/2019	R-1075
CHECKED BY	GF	01/2019	



1. FOR USE ALONG MEDIANS, GUTTERS MAY BE REDUCED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. EXPANSION JOINTS.
   A. TO BE PROVIDED:
      1) AT EACH COLD JOINT.
      2) AT EACH END OF DRIVEWAYS.
      3) AT EACH SIDE OF INLET STRUCTURES.
      4) AT EACH POINT OF TANGENCY OF THE CURB.
      5) AT EACH END OF WHEELCHAIR RAMP WING.
      6) AT EVERY 4TH CONSTRUCTION JOINT.
   B. MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2 INCH.
4. CONSTRUCTION JOINTS.
   A. SPACING TO BE NOT MORE THAN 12 FEET.
   B. THE DEPTH OF THE JOINT SHALL BE AT LEAST 2 INCHES.
5. BASE ROCK TO BE 3/4"-0 COMPACTED TO 95% OF AASHTO T-180 AND SHALL BE TO SUB GRADE, STREET STRUCTURE, OR 4" IN DEPTH, WHICHEVER IS GREATER.
6. DRAINAGE BLOCK OUT
   A. 3" I.D. PLASTIC PIPE WITH COUPLING.
   B. DRAINAGE ACCESS THRU EXISTING CURB SHALL BE CORE DRILLED.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

CURB AND GUTTER DETAIL

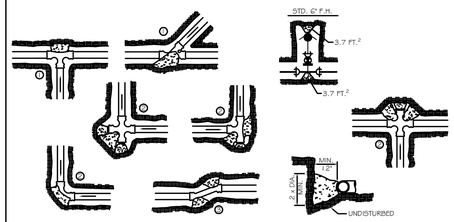
DRAWN BY	GF	03/2021	R-1060
CHECKED BY	GF	03/2021	

FITTING SIZE (inches)	TEE, WYE, & HYDRANTS (1)	90° BEND PLUGGED CROSS TEE PLUGGED-RUNS (1)	45° BEND (1)	22 1/2° BEND (1)	11 1/4° BEND (1)
2	*	*	*	*	*
4	1.7	2.4	1.3	*	*
6	3.7	5.3	2.9	1.5	*
8	6.7	9.5	5.1	2.7	1.3
10	10.5	14.8	8	4.1	2
12	15.1	21.3	11.6	5.9	2.9
18	33.9	47.9	25.9	12.8	6.2
LARGER	* *	* *	* *	* *	* *

BEARING AREA OF THRUST BLOCKS (SQ. FT.)

1. THRUST BLOCKS SHALL BE PROVIDED AT FIRE HYDRANTS, WET TAPS, AND ALL UN-RESTRAINED WATER SYSTEM APPURTENANCES ONLY, UNLESS OTHERWISE DIRECTED BY THE CITY'S AUTHORIZED REPRESENTATIVE.
2. ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS:
   - AVG. PRESSURE = 100 PSI X 2 (SAFETY FACTOR)
   - 1500 PSF SOIL BEARING CAPACITY
3. ALL FITTINGS SHALL BE WRAPPED IN PLASTIC (8 MIL. MINIMUM) PRIOR TO PLACEMENT OF CONCRETE.
4. BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL.
5. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
6. ALL PIPE ZONES SHALL BE GRAVEL FILLED AND COMPACTED.
7. THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.

* BLOCK TO UNDISTURBED TRENCH WALLS
** THRUST BLOCKS WILL BE INDIVIDUALLY DESIGNED AND STAMPED BY THE ENGINEER.



Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
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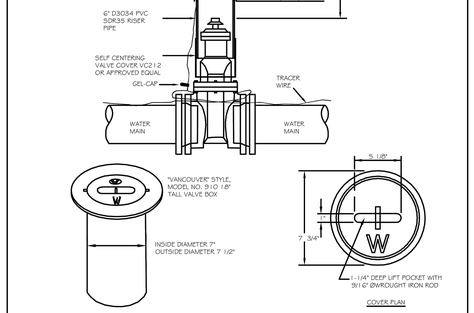
HORIZONTAL THRUST BLOCK DETAIL

DRAWN BY	PDG	01/2016	W-3000
CHECKED BY	JC	01/2016	



NOTES:
1. VALVE BOXES SHALL BE CENTERED DIRECTLY OVER THE VALVE NUT IN A VERTICAL POSITION.
2. VALVE BOX TOP SHALL BE ADJUSTED TO MEET FINISHED GRADE.
3. PVC RISER SHALL BE ONE CONTINUOUS PIECE - NO BELLS OR COUPLERS.
4. WHERE DEPTH OF OPERATING NUT IS GREATER THAN 3 FEET PROVIDE OPERATING EXTENSION TO A POINT 18" BELOW FINISH GRADE.
5. VALVE BOXES SHALL BE MANUFACTURED USING DOMESTIC CAST IRON ONLY.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

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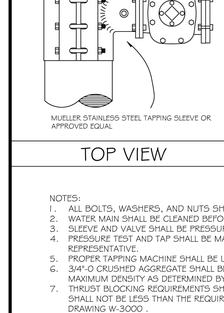
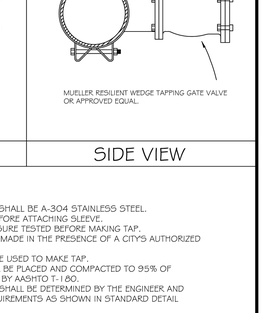
WATER VALVE BOX & LID DETAIL

DRAWN BY	PDG	01/2016	W-3020
CHECKED BY	JC	01/2016	





TOP VIEW | SIDE VIEW

NOTES:
1. ALL BOLTS, WASHERS, AND NUTS SHALL BE A-304 STAINLESS STEEL.
2. WATER MAIN SHALL BE CLEANED BEFORE ATTACHING SLEEVE.
3. SLEEVE AND VALVE SHALL BE PRESSURE TESTED BEFORE MAKING TAP.
4. PRESSURE TEST AND TAP SHALL BE MADE IN THE PRESENCE OF A CITY'S AUTHORIZED REPRESENTATIVE.
5. PROPER TAPPING MACHINE SHALL BE USED TO MAKE TAP.
6. 3/4"-0 CRUSHED AGGREGATE SHALL BE PLACED AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. THRUST BLOCKING REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER AND SHALL NOT BE LESS THAN THE REQUIREMENTS AS SHOWN IN STANDARD DETAIL DRAWING W-3000.
8. TAP SHALL BE MADE NO CLOSER THAN 18 INCHES FROM THE OUTSIDE EDGE OF THE SLEEVE TO THE BEGINNING OF THE BELL FLARE OR END OF THE MJ FITTING.
9. SLEEVE AND VALVE SHALL BE WRAPPED WITH PLASTIC (8 MIL. MINIMUM) PRIOR TO INSTALLATION OF THRUST BLOCK AND BACKFILL.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

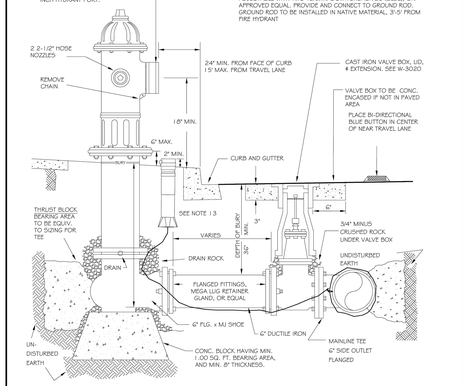
WATERLINE HOT TAP

DRAWN BY	PW	11/2019	W-3025
CHECKED BY	GF	11/2019	

NOTES:
1. APPROVED FIRE HYDRANTS: MUELLER SUPER CENTURION 250
2. HYDRANT COLOR TO BE MILLER PAINT, SAFETY YELLOW ENAMEL, NO. 2523.
3. ALL FITTINGS IN CONTACT WITH CONCRETE SHALL BE WRAPPED IN PLASTIC (8 MIL. MINIMUM). HYDRANT DRAIN HOLES TO REMAIN OPEN TO DRAIN ROCK AND OPERATIONAL.
4. MIN. 4 CU. FT. OF 1 1/2"-3/4" CLEAN DRAIN ROCK SHALL BE PLACED AROUND SHOE UP TO A MIN. OF 6" ABOVE DRAIN OUTLETS.
5. WHERE PLANTER STRIP EXISTS, HYDRANT SHALL BE PLACED 50 FRONT PORT IS A MINIMUM OF 24" BEHIND FACE OF CURB.

INSTALL 4" STORZ PERMANENT HYDRANT ADAPTER. (HPHA50-4SNH) ON THE 4-1/2" INCH HYDRANT PORT.

6. WHERE INTEGRAL SW 4 CURB EXISTS, HYD. SHALL BE PLACED 18" BACK OF SIDEWALK OR AS DIRECTED BY ENGINEER.
7. BURY OF HYDRANT SHALL BE MEASURED FROM FINISHED GRADE TO BOTTOM OF CONNECTING PIPE.
8. THRUST BLOCK AT FIRE HYDRANT TEE SHALL HAVE A MIN. 3.7 SQ. FT. BEARING AREA.
9. HYDRANT VALVE SHALL BE MUELLER RESILIENT WEDGE GATE VALVE #A-2360-16 ONLY.
10. PROTECTIVE POST IS TO BE PROVIDED AND INSTALLED, PER UFC STANDARDS, IF HYDRANT IS SUBJECT TO VEHICULAR DAMAGE.
11. NO OBSTRUCTION ARE ALLOWED WITHIN 3' OF HYDRANT.
12. PARALLEL PARKING STALLS SHALL BE A MIN. OF 10' FROM HYDRANT. 20' CURB SECTION, CENTERED AT FIRE HYDRANT TO BE PAINTED RED WITH "NO PARKING" IN WHITE
13. TRACER WIRE ACCESS POINT. COPPERHEAD SNAKEPIT LITE DUTY XL ADJUSTABLE WITH TWO-TERMINAL SWITCHBACK LID (BLUE), OR APPROVED EQUAL. PROVIDE AND CONNECT TO GROUND ROD. GROUND ROD TO BE INSTALLED IN NATIVE MATERIAL, 3'-5' FROM FIRE HYDRANT



Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF MOLALLA
DEPARTMENT OF PUBLIC WORKS

FIRE HYDRANT DETAIL

DRAWN BY	DYER	12/2022	W-3040
CHECKED BY	RQ	12/2022	

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NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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PLANNING | ENGINEERING | SURVEYING
WWW.STANDRIDGEINC.COM

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

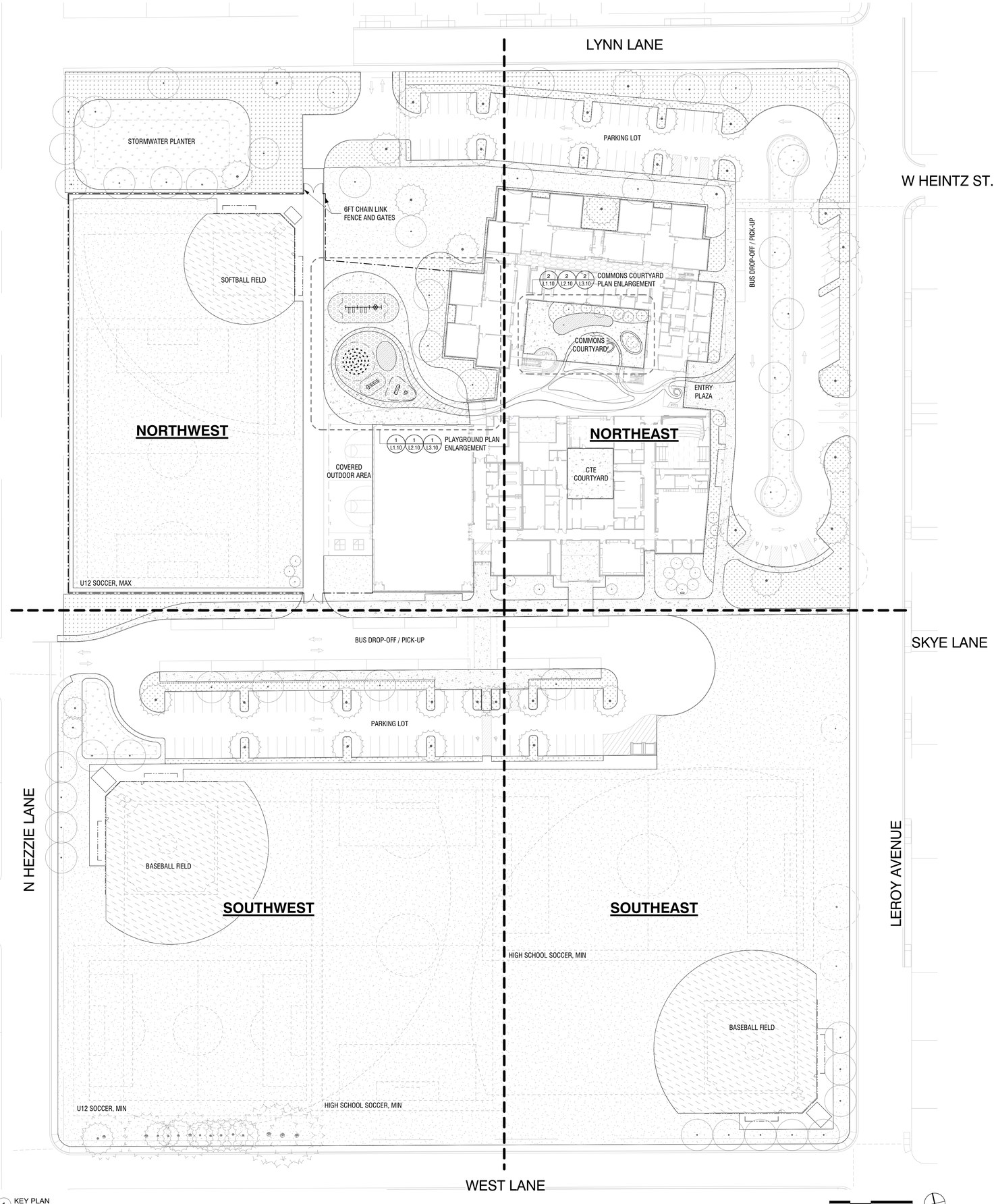
Date: **05/21/2025**

Sheet Title
PUBLIC STREET & WATER DETAILS

Sheet No.
C5.04

Job No.
4924-01

plotted: 5/27/2025 12:13:44 PM
sheet size: 30" x 42"



1 KEY PLAN
SCALE: 1" = 40'-0"

0' 20' 40' 80'

GENERAL NOTES

1. LANDSCAPE DOCUMENTS ARE BASED ON A SURVEY BY AKS DATED 11.06.2024. NOTIFY OWNERS REPRESENTATIVE OF ANY DISCREPANCIES IDENTIFIED ON SITE RELATED TO SURVEY INFORMAITON PRIOR TO INSTALLATION.
2. REFERENCE CIVIL DRAWINGS FOR SITE GRADING.
3. REFERENCE LANDSCAPE DRAWINGS FOR PLAYGROUND AND COMMONS COURTYARD GRADING.
4. REFERERENCE ELECTRICAL DRAWINGS FOR LIGHTING.
5. REFERENCE ARCHITECTURAL DRAWINGS FOR BUILDING.
6. REFERENCE DEMOLITION PLANS FOR SITE REMOVALS.

GENERAL LEGEND

- PROPERTY LINE
- FENCE - 6FT
- FENCE - 4FT
- BASEBALL FENCE
- TWO-RAIL WOOD FENCE
- EXISTING TREE TO REMAIN
- PROPOSED TREE, SEE PLANTING PLANS

ABBREVIATIONS

&	AND	MIN	MINIMUM
@	AT	NOM	NORMINAL
ARCH	ARCHITECTURE	NTS	NOT TO SCALE
AVE	AVENUE	OC	ON CENTER
B&B	BALLED AND BERLAPPED	OD	OUTSIDE DIAMETER
BLDG	BUILDING	PA	PLANTING AREA
CAL	CALIPER	PED	PEDESTRIAN
CIP	CAST-IN-PLACE	POB	POINT OF BEGINNING
CL	CENTERLINE	POC	POINT OF CONNECTION
CLR	CLEAR	QTY	QUANTITY
CONC	CONCRETE	R	RADIUS
CONT	CONTINUOUS	REF	REFERENCE
DBH	DIAMETER AT BREST HEIGHT	ROW	RIGHT-OF-WAY
DIA	DIAMETER	SF	SQUARE FEET
DWG	DRAWING	SIM	SIMILAR
ELEV	ELEVATION	SPEC	SPECIFICATIONS
EQ	EQUAL	SS	STAINLESS STEEL
EX	EXISTING	STRUCT	STRUCTURAL
FG	FINISH GRADE (LANDSCAPE/SOIL)	SYMM	SYMMETRICAL
FS	FINISH SURFACE (HARDSCAPE)	TB	TOP OF BENCH
GALV	GALVANIZED	TC	TOP OF CURB
HT	HEIGHT	TF	TOP OF FOOTING
ID	INSIDE DIAMETER	TS	TOP OF STEP
IE	INVERT	TW	TOP OF WALL
JNTS	JOINTS	TYP	TYPICAL
MAX	MAXIMUM	W	WIDE OR WIDTH

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **05/21/2025**

Sheet Title
KEY PLAN

Sheet No.
L0.00

Job No.
4924-01

plotted: 5/21/2025 1:05:55 PM
sheet size: 30" x 42"

S80° 17'45"E 759.46'

MATCHLINE, REF. 1/L0.12

NO EXISTING TREES ON THIS SHEET

MATCHLINE, REF. 1/L0.13

1 TREE REMOVALS & PROTECTION PLAN - NORTHWEST
SCALE: 1" = 20'-0"

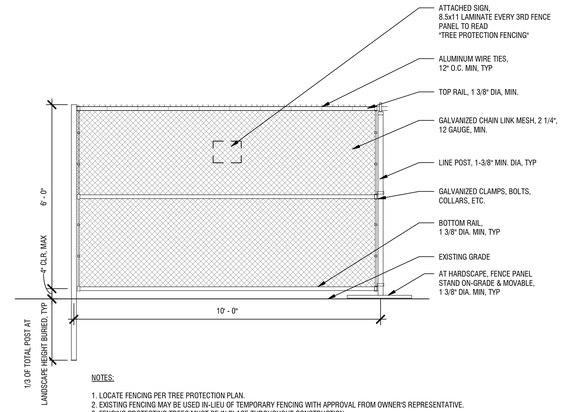
0' 10' 20' 40'

TREE REMOVAL NOTES

1. PROTECT ALL TREES INDICATED TO REMAIN, INCLUDING BARK AND ROOT ZONES. INSTALL PROTECTIVE FENCING WHERE INDICATED ON THE TREE PROTECTION PLAN. PROTECTIVE BARRIERS SHALL BE PLACED BEFORE PHYSICAL DEVELOPMENT STARTS AND SHALL STAY IN PLACE UNTIL AFTER PLANNING OFFICIAL AUTHORIZES THEIR REMOVAL OR A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED, WHICHEVER OCCURS FIRST.
2. TREE PROTECTION FENCING SHALL BE CHAIN LINK, MINIMUM OF 6' HEIGHT, SECURED WITH STEEL POSTS, INSTALLED 5' BEYOND THE EDGE OF THE ROOT ZONE OR AS INDICATED ON THE TREE REMOVAL AND PROTECTION PLAN.
3. EXCAVATION WITHIN THE TREE PROTECTION ZONE WILL BE PERFORMED USING ONLY NON-MOTORIZED HANDHELD TOOLS AND SHALL BE THE MINIMUM NECESSARY TO ACCOMPLISH THE PURPOSE FOR THE EXCAVATION AND TO ENSURE LONG-TERM SURVIVAL OF THE TREE.
4. TREE PROTECTION FENCING SHALL BE FLUSH WITH THE INITIAL UNDISTURBED GRADE.
5. APPROVED SIGNS SHALL BE ATTACHED TO PROTECTION FENCING, AND VISIBLY STATING THAT INSIDE THE FENCING IS A TREE PROTECTION ZONE, NOT TO BE DISTURBED UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE COUNTY MANAGER.
6. NO CONSTRUCTION ACTIVITY SHALL OCCUR WITHIN THE TREE PROTECTION ZONE, INCLUDING, BUT NOT LIMITED TO DUMPING OR STORAGE OF MATERIALS SUCH AS BUILDING SUPPLIES, SOIL, WASTE ITEMS, OR PARKED VEHICLES AND EQUIPMENT.
7. THE TREE PROTECTION ZONE SHALL REMAIN FREE OF CHEMICALLY INJURIOUS MATERIALS AND LIQUIDS SUCH AS PAINTS, THINNERS, CLEANING SOLUTIONS, PETROLEUM PRODUCTS, AND CONCRETE OR DRY WALL EXCESS, CONSTRUCTION DEBRIS, OR RUNOFF.
8. NO EXCAVATION, TRENCHING, GRADING, ROOT PRUNING OR OTHER ACTIVITY SHALL OCCUR WITHIN THE TREE PROTECTION ZONE UNLESS DIRECTED BY AN ARBORIST PRESENT ON SITE AND APPROVED BY THE CITY MANAGER.
9. NO FILL OR COMPACTION SHALL OCCUR WITHIN THE CRITICAL ROOT ZONES OF ANY OF THE TREES. IF FILL OR COMPACTION IS UNAVOIDABLE, MEASURES SHALL BE TAKEN AS RECOMMENDED BY A CERTIFIED ARBORIST TO REDUCE OR MITIGATE THE IMPACT OF THE FILL OR COMPACTION.
10. CONTRACTOR TO GIVE OWNER 30 DAYS NOTICE PRIOR TO REMOVAL OF PLANTS TO BE RELOCATED.

TREE PROTECTION AND REMOVAL LEGEND

- TREE PROTECTION FENCING
- PROPERTY LINE
- EXISTING TREE
- XXXXX — TREE NUMBER
- TREE TO BE REMOVED



NOTES:

1. LOCATE FENCING PER TREE PROTECTION PLAN.
2. EXISTING FENCING MAY BE USED IN-LIEU OF TEMPORARY FENCING WITH APPROVAL FROM OWNER'S REPRESENTATIVE.
3. FENCING PROTECTING TREES MUST BE IN PLACE THROUGHOUT CONSTRUCTION.

2 TREE PROTECTION FENCING - SECTION
SCALE: 1/2" = 1'-0"

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Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Address:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

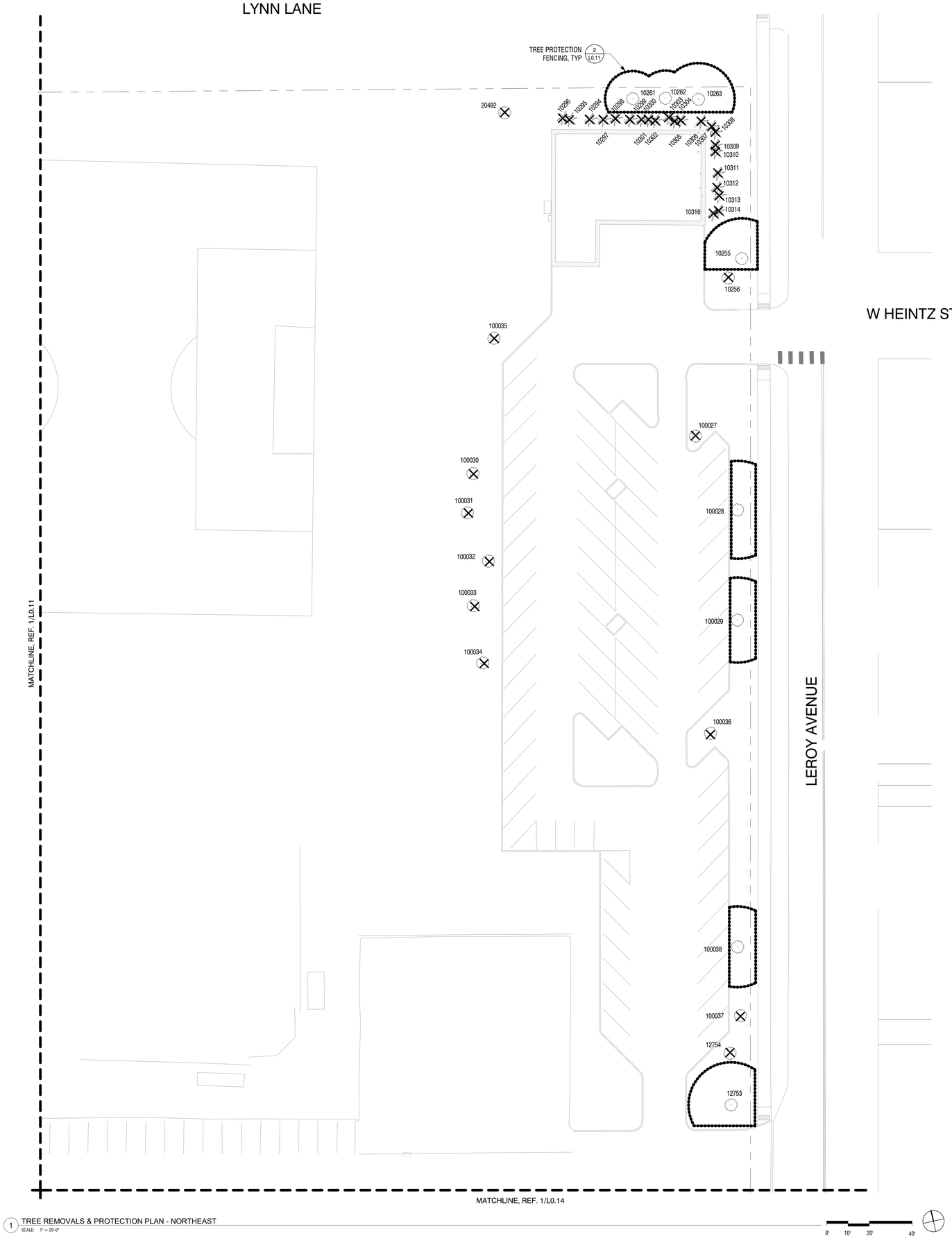
Date: **05/21/2025**

Sheet Title
TREE PROTECTION AND REMOVAL PLAN - NORTHWEST

Sheet No.
L0.11

Job No.
4924-01

plotted: 5/21/2025 1:05:56 PM
sheet size: 30" x 42"



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TREE PROTECTION AND REMOVAL LEGEND

- TREE PROTECTION FENCING
- PROPERTY LINE
- EXISTING TREE
- XXXXX — TREE NUMBER
- TREE TO BE REMOVED

1 TREE REMOVALS & PROTECTION PLAN - NORTHEAST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

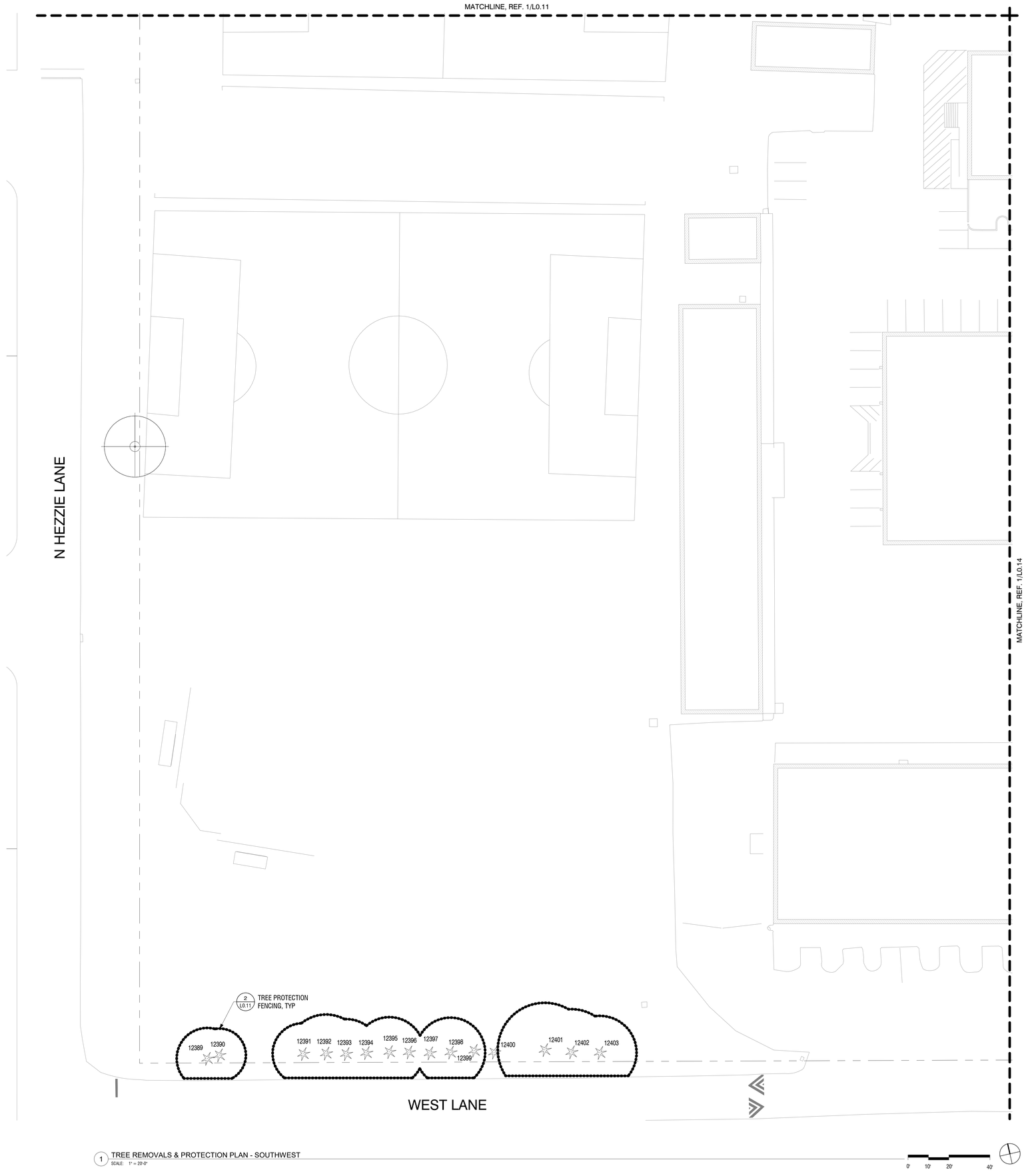
Date: **05/21/2025**

Sheet Title
TREE PROTECTION AND REMOVAL PLAN - NORTHEAST

Sheet No.
L0.12

Job No.
4924-01

plotted: 5/21/2025 1:05:57 PM
sheet size: 30" x 42"



1 TREE REMOVALS & PROTECTION PLAN - SOUTHWEST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

TREE REMOVAL NOTES

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- XXXXX — TREE NUMBER
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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

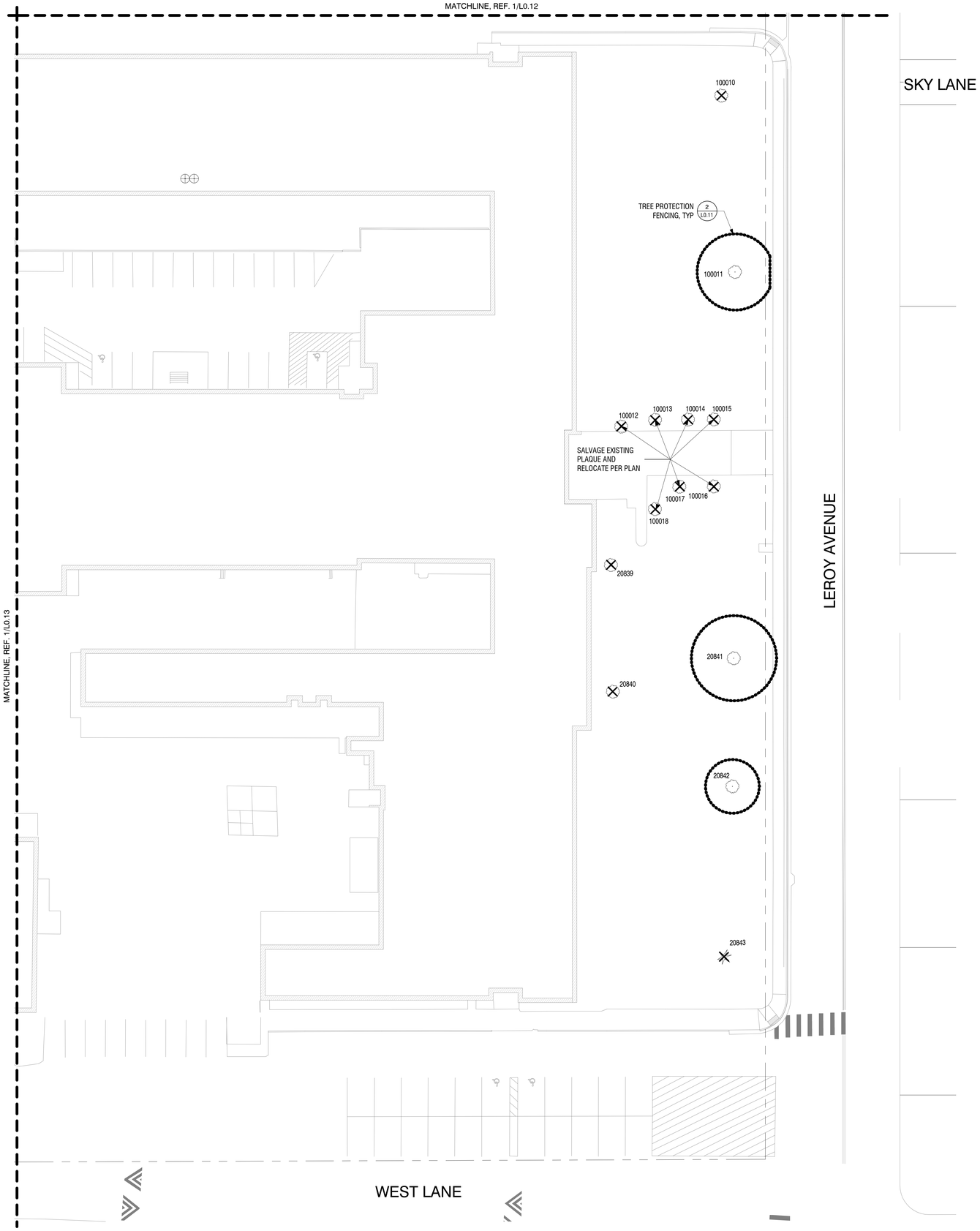
Date: **05/21/2025**

Sheet Title
TREE PROTECTION AND REMOVAL PLAN - SOUTHWEST

Sheet No.
L0.13

Job No.
4924-01

plotted: 5/21/2025 1:05:58 PM
sheet size: 30" x 42"



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0' 10' 20' 40'

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Detailed Tree Inventory for Molalla River School District Middle School Replacement

AKS Job No. [11540] - Evaluation Date: 02/20/2025 - Evaluated by: BRK

Tree #	DBH (in.)	Avg. Crown Radius (ft)	Tree Species Common Name (*Scientific name*)	Comments	Health Rating*	Structure Rating**
10255	19	19	Red Maple (*Acer rubrum*)	Topped leaders; Decay	2	2
10256	12	20	Sweetgum (*Liquidambar styraciflua*)	Broken limbs with decay	2	2
10261	10	13	Sweetgum (*Liquidambar styraciflua*)	Good condition	1	1
10262	10	13	Sweetgum (*Liquidambar styraciflua*)	Good condition	1	1
10263	12	17	Sweetgum (*Liquidambar styraciflua*)	Good condition	1	1
10294	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10295	8	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10296	8	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10297	6,6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10298	7,6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10299	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10300	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10301	7	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10302	7	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10303	6,6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10304	9	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10305	8	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10306	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10307	12	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10308	6,6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10309	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10310	8	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10311	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10312	7	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10313	6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10314	13	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
10316	7,6,6	3	Arborvitae (*Thuja occidentalis*)	Hedgerow; Good condition	1	1
12389	15	15	Douglas-fir (*Pseudotsuga menziesii*)	Self corrected lean (S); Significant dieback in upper canopy; In decline	3	2
12390	21	13	Douglas-fir (*Pseudotsuga menziesii*)	Dead top half; Broken top; In decline	3	3
12391	21	15	Lodgepole Pine (*Pinus contorta*)	Pitch moth; Pruning wounds with sap flow; Codominant top with included bark	2	2
12392	15,8	19	Douglas-fir (*Pseudotsuga menziesii*)	Dead top; Codominant top; Sap flow; In decline	3	2
12393	10	17	Douglas-fir (*Pseudotsuga menziesii*)	Dead top half; In decline	3	3
12394	15	0	Douglas-fir (*Pseudotsuga menziesii*)	Dead	3	3
12395	20	17	Douglas-fir (*Pseudotsuga menziesii*)	Dead top; Significant dieback; In decline	3	3
12396	11	0	Douglas-fir (*Pseudotsuga menziesii*)	Dead	3	3
12397	15	0	Douglas-fir (*Pseudotsuga menziesii*)	Dead	3	3
12398	16	17	Douglas-fir (*Pseudotsuga menziesii*)	Dead top; Poor wound wood around pruning wounds; In decline	3	2
12399	15	0	Douglas-fir (*Pseudotsuga menziesii*)	Dead	3	3
12400	15	0	Douglas-fir (*Pseudotsuga menziesii*)	Dead	3	3
12401	31	23	Douglas-fir (*Pseudotsuga menziesii*)	Dead top half; In decline	3	3
12402	28	21	Douglas-fir (*Pseudotsuga menziesii*)	Exposed roots (N) with mower damage and decay; Poor wound wood	2	2
12403	25	18	Douglas-fir (*Pseudotsuga menziesii*)	Exposed roots (N) with mower damage and decay; Dead top; In decline	3	3
12753	24	20	Norway Maple (*Acer platanoides*)	2 pruned leaders; Abnormal form	1	2
12754	13	18	Norway Maple (*Acer platanoides*)	Some abnormal dead limbs	2	1
20492	17	22	Red Maple (*Acer rubrum*)	Many epicormic sprouts at base; Bulges at base; Some topped limbs with decay	2	2
20839	9	13	Bradford Pear (*Pyrus calleryana*)	Asymmetrical canopy (E); Good condition	1	1
20840	14	15	Cherry (*Prunus spp.*)	Exposed roots all around; Good condition	1	1
20841	22	19	European White Birch (*Betula pendula*)	Broken limbs in upper canopy; Some dead limbs	2	1
20842	16	12	European White Birch (*Betula pendula*)	Crooked bole; Dead top; In decline	3	2
20843	28	11	White Fir (*Abies concolor*)	Codominant top with multiple leaders	1	2
100011	14	17	Paper Birch (*Betula papyrifera*)	Large dead limbs	2	1
100012	5,5,5	10	Japanese Maple (*Acer palmatum*)	Good condition; Exposed buttress root (S)	1	1
100013	6,5,5	11	Japanese Maple (*Acer palmatum*)	Good condition	1	1
100014	7	10	Japanese Maple (*Acer palmatum*)	Good condition	1	1
100015	6,5,5	11	Japanese Maple (*Acer palmatum*)	Good condition	1	1
100016	6,6	12	Japanese Maple (*Acer palmatum*)	Good condition; Exposed buttress root (W)	1	1
100017	5,5,5	11	Japanese Maple (*Acer palmatum*)	Good condition	1	1
100018	5,5,5,5	10	Japanese Maple (*Acer palmatum*)	Good condition	1	1
100027	13,2,2	23	Sweetgum (*Liquidambar styraciflua*)	Topped leaders; Decay	2	2
100028	21	23	Red Maple (*Acer rubrum*)	Exposed roots (N); Good condition	1	1
100029	18	20	Sweetgum (*Liquidambar styraciflua*)	Primary stem topped; Decay; Asymmetrical canopy (W) due to pruning; Roots lifting adjacent asphalt	2	3
100030	13	20	Sweetgum (*Liquidambar styraciflua*)	Topped halfway up; Decay; Many epicormic stems; In decline	3	3
100031	11	19	Sweetgum (*Liquidambar styraciflua*)	Exposed roots all around; Broken limbs with decay	2	2
100032	11	10	Sweetgum (*Liquidambar styraciflua*)	Good condition	1	1
100033	13	16	Sweetgum (*Liquidambar styraciflua*)	Failed codominant leader in upper canopy; Asymmetrical canopy (W)	2	2
100034	13	14	Sweetgum (*Liquidambar styraciflua*)	Topped leaders; Decay	2	2
100035	23	17	Deodar Cedar (*Cedrus deodara*)	Slight self corrected lean (W); Good condition	1	1
100036	22	23	Sweetgum (*Liquidambar styraciflua*)	Many pruned limbs; Some abnormal dead branches; Exposed roots (W)	2	1
100037	19	17	Sweetgum (*Liquidambar styraciflua*)	Topped; Decay; Roots lifting adjacent asphalt	2	3
100038	19	19	Sweetgum (*Liquidambar styraciflua*)	Codominant top; All leaders topped; Broken limbs with decay; Roots lifting adjacent asphalt	2	2

TOTAL # OF EXISTING TREES INVENTORIED: 70

*** HEALTH RATING:**
1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality.
2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment.
3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

*** STRUCTURE RATING:**
1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system.
2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.
3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

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NOT FOR CONSTRUCTION

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Project Name:
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Project Address:
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Key Plan

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Portland, Oregon 97204
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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **05/21/2025**

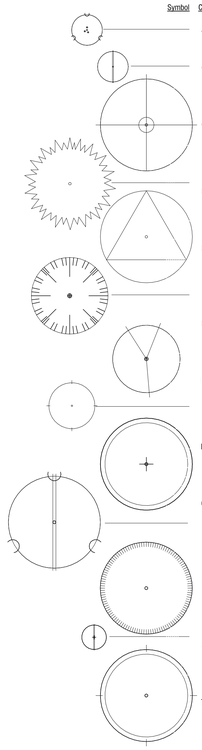
Sheet Title
TREE PROTECTION AND REMOVAL PLAN - SOUTHEAST

Sheet No.
L0.14

Job No.
4924-01

plotted: 5/21/2025 1:06:51 PM
sheet size: 30" x 42"

PLANTING SCHEDULE - TREES



Symbol	Code	Botanical Name	Common Name	Size / Container	Spacing	Comments
	AC	*ACER CIRCINATUM*	VINE MAPLE	MULTI STEM/ B&B	AS SHOWN	
	CC	*CERCIS CANADENSIS 'FOREST PANSY'*	EASTERN REDBUD	3" CAL. / B&B	AS SHOWN	
	OV	*OSTRYA VIRGINIANA*	AMERICAN HOPHORNBEAM	2" CAL. / B&B	AS SHOWN	STREET TREE
	PC	*PINUS CONTORTA*	LODGEPOLE PINE	8-10'H / B&B	AS SHOWN	
	PN	*PINUS NIGRA*	BLACK PINE	2" CAL. / B&B	AS SHOWN	
	PP	*PINUS PONDEROSA*	PONDEROSA PINE	8-10'H / B&B	AS SHOWN	
	PT	*POPULUS TREMULOIDES*	QUAKING ASPEN	2" CAL. / B&B	AS SHOWN	
	PM	*PSEUDOTSUGA MENZIESII*	DOUGLAS FIR	8-10'H / B&B	AS SHOWN	
	QG	*QUERCUS GARRYANA*	OREGON WHITE OAK	1-1/2" CAL. / B&B	AS SHOWN	
	QI	*QUERCUS ILEX*	HOLLY OAK	2" CAL. / B&B	AS SHOWN	STREET TREE
	SS	*SEQUOIADENDRON SEMPERVIRENS*	COAST REDWOOD	10'-12'H X 5'-6'W / B&B	AS SHOWN	
	TM	*TSUGA MERTENSIANA*	MOUNTAIN HEMLOCK	8-10'H / B&B	AS SHOWN	
	ZS	*ZELKOVA SERRATA 'WIRELESS'*	WIRELESS JAPANESE ZELKOVA	2" CAL. / B&B	AS SHOWN	STREET TREE

TREE MITIGATION

1:1 TREE REPLACEMENT
44 TREES REQUIRED

PLANTING SCHEDULE - SHRUBS

Symbol	Code	Botanical Name	Common Name	Size / Container	Spacing	Comments
SHRUBS						
	CAF	*CAREX FLACCA*	BLUE WILDRYE	#1 CONT.	12" OC	
	COS	*CORNUS SERICEA 'KELSEYI'*	DWARF REDTWIG DOGWOOD	#2 CONT.	30" OC	
	MAR	*MAHONIA REPENS*	CREEPING OREGON GRAPE	#2 CONT.	30" OC	
	POM	*POLYSTICHUM MUNITUM*	WESTERN SWORD FERN	#2 CONT.	24" OC	
	RIS	*RIBES SANGUINEUM*	FLOWERING CURRANT	#5 CONT.	36" OC	
	SAH	*SARCOCOCCA HOOKERIANNA VAR. HUMILIS*	HIMALAYAN SWEET BOX	#5 CONT.	36" OC	
	SYA	*SYMPHORICARPUS ALBUS*	COMMON SNOWBERRY	#2 CONT.	36" OC	
	VAO	*VACCINIUM OVATUM*	EVERGREEN HUCKLEBERRY	#5 CONT.	48" OC	
GROUNDCOVER						
	CEPR	*CEANOTHUS GLORIOSUS 'POINT REYES'*	POINT REYES CEANOTHUS	#1 CONT.	36" OC	
	HEME	*HEMEROCALLIS 'STELLA DE ORO'*	DAYLILY	#1 CONT.	12" OC	
	RURO	*RUBUS ROLFEI*	TAIWAN BRAMBLE	#2 CONT.	30" OC	
MISC.						
	LAWN					SEE SPECS FOR LAWN MIX

PLANTING SCHEDULE - STORMWATER

Symbol	Code	Botanical Name	Common Name	Size / Container	Spacing	Comments
	CAQU	*CAMASSIA QUAMASH*	COMMON CAMAS	PLUGS	12" OC	
	CAOB	*CAREX OBNUPTA*	SLOUGH SEDGE	PLUGS	12" OC	
	JUEF	*JUNCUS EFFUSUS*	SOFT RUSH	PLUGS	12" OC	
	MAR	*MAHONIA REPENS*	CREEPING ORGEON GRAPE	#2 CONT.	30" OC	
	SPD	*SPIREA DOUGLASII*	DOUGLAS SPIREA	#2 CONT.	48" OC	

PLANTING SCHEDULE - NATIVE MEADOW

Symbol	Code	Botanical Name	Common Name	Comments
	AQFO	*AQUILEGIA FORMOSA*	WESTERN COLUMBINE	SEED
	BRCA	*BROMUS CARINATUS*	CALIFORNIA BROME	SEED
	CAQU	*CAMASSIA QUAMASH*	COMMON CAMAS	SEED
	ELG	*ELYMUS GLAUCUS*	BLUE WILDRYE	SEED
	FERU	*FESTUCA RUBRA*	RED FESCUS	SEED
	LUP	*LUPINUS POLYPHYLLUS*	LARGE-LEAVED LUPINE	SEED

GENERAL NOTES

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2. REFERENCE CIVIL DRAWINGS FOR SITE GRADING.
3. REFERENCE LANDSCAPE DRAWINGS FOR PLAYGROUND AND COMMONS COURTYARD GRADING.
4. REFERERENCE ELECTRICAL DRAWINGS FOR LIGHTING.
5. REFERENCE ARCHITECTURAL DRAWINGS FOR BUILDING.
6. REFERENCE DEMOLITION PLANS FOR SITE REMOVALS.

PLANTING NOTES

1. DO NOT BEGIN PLANTING UNTIL IRRIGATION SYSTEM IS INSTALLED, TESTED AND APPROVED.
2. DO NOT BEGIN PLANTING UNTIL SOIL PREPARATION IS COMPLETE AND APPROVED.
3. LOCATE PLANTS AS DIMENSIONED ON THE PLANS AND AS SHOWN IN THE PLANT SCHEDULE. PLANT SPACING IS MEASURED CENTER TO CENTER. PLANT LOCATIONS MAY BE ADJUSTED BY THE LANDSCAPE ARCHITECT TO MEET FIELD CONDITIONS.
4. VERIFY ALL QUANTITIES AND VARIETIES SHOWN ON THE DRAWINGS PRIOR TO ORDERING. OWNER MUST APPROVE ANY NECESSARY SUBSTITUTIONS DURING SUBMITTALS PROCESS. REVIEW PROCESS TO BE ESTABLISHED AT PRE-CONSTRUCTION MEETING.
5. THOROUGHLY WATER IN ALL PLANTS WITHIN 6 HOURS OF PLANTING.
6. APPLY SPECIFIED MULCH OVER PLANTING AREAS WITHIN TWO DAYS OF INSTALLING PLANTS, UNLESS OTHERWISE NOTED.
7. ALL PLANTS ARE REQUIRED TO MEET AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2014.
8. TO CALCULATE THE QUANTITY OF PLANTS PER AREA, USE THE FOLLOWING SPACING MULTIPLIERS:

TRIANGULAR SPACING	9"	12"	15"	18"	24"	30"	36"	48"
SQUARE FT MULTIPLIER	2.053	1.155	0.739	0.513	0.289	0.185	0.128	0.072

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

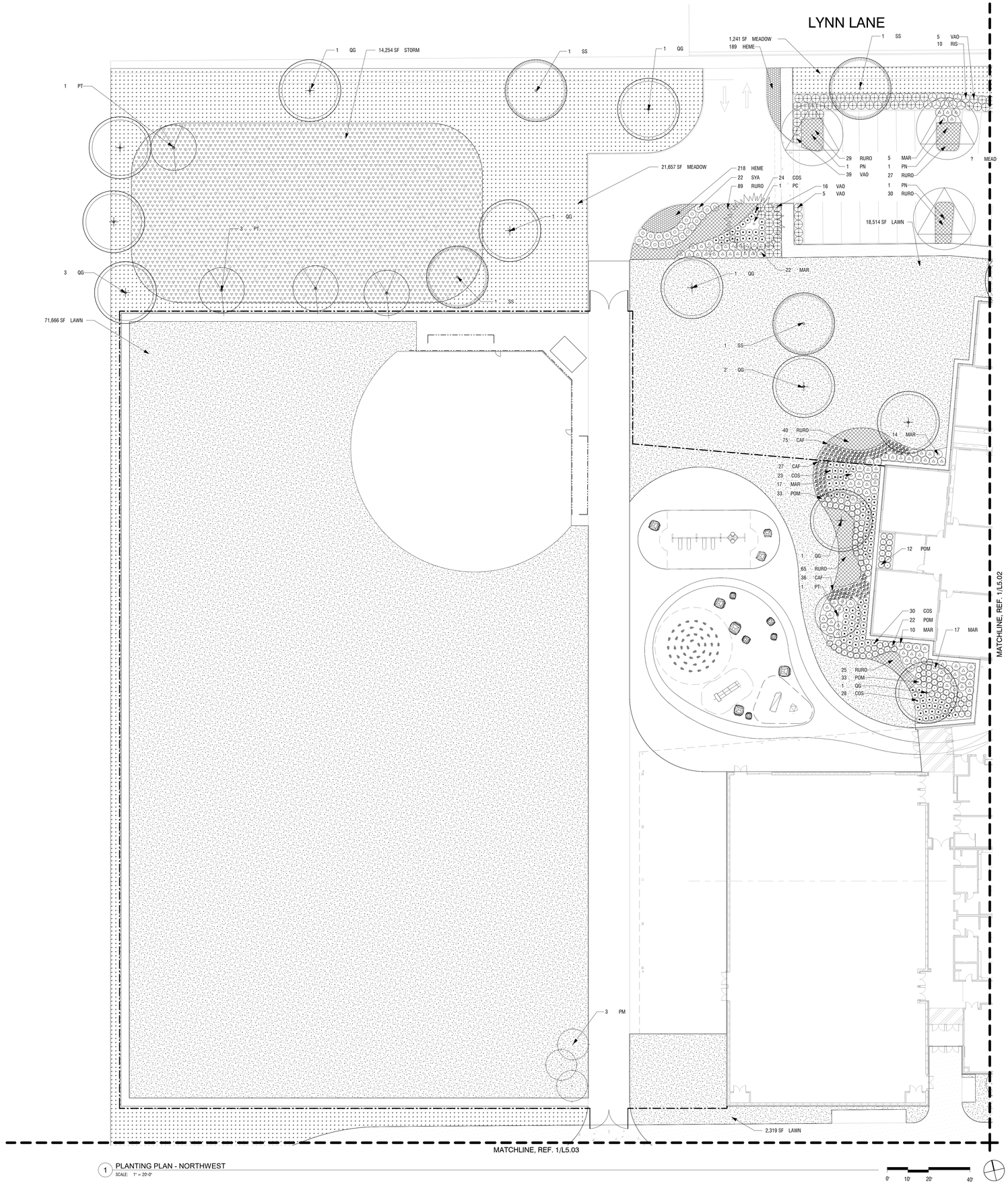
Date: **05/21/2025**

Sheet Title
PLANTING NOTES AND SCHEDULE

Sheet No.
L5.00

Job No.
4924-01

plotted: 5/21/2025 1:06:54 PM
sheet size: 30" x 42"



1 PLANTING PLAN - NORTHWEST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

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PLANTING LEGEND - TREES

Symbol	Code	Botanical Name
	AC	*ACER CIRCINATUM*
	CC	*CERCIS CANADENSIS 'FOREST PANSY'*
	OV	*OSTRYA VIRGINIANA*
	PC	*PINUS CONTORTA*
	PN	*PINUS NIGRA*
	PP	*PINUS PONDEROSA*
	PT	*POPULUS TREMULOIDES*
	PM	*PSEUDOTSUGA MENZESII*
	QG	*QUERCUS GARRYANA*
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	SS	*SEQUOIADENDRON SEMPERVIRENS*
	TM	*TSUGA MERTENSIANA*
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PLANTING LEGEND - SHRUBS

Symbol	Code	Botanical Name
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	COS	*CORNUS SERICEA 'KELSEYI'*
	MAR	*MAHONIA REPENS*
	POM	*POLYSTICHUM MUNITUM*
	RIS	*RIBES SANGUINEUM*
	SAH	*SARCOCOCCA HOOKERIANNA VAR. HUMILIS*
	SYA	*SYMPHORICARPUS ALBUS*
	VAO	*VACCINIUM OVATUM*
GROUNDCOVER		
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	HEME	*HEMEROCALLIS 'STELLA DE ORO'*
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PLANTING LEGEND - MIXES

SEEDED LAWN

NATIVE MEADOW MIX

STORMWATER PLANTING MIX

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Status: **LAND USE SUBMISSION**

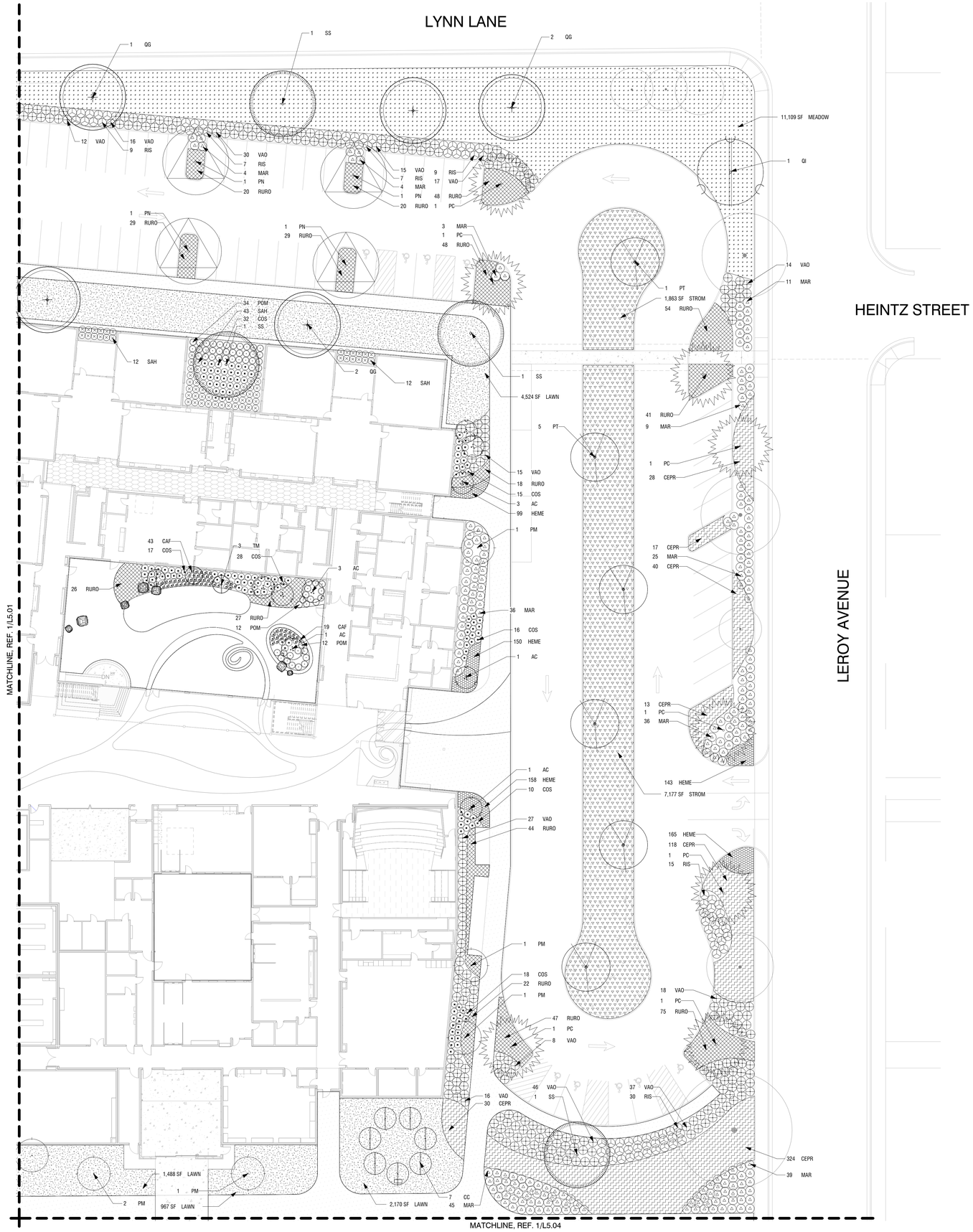
Date: **05/21/2025**

Sheet Title
PLANTING PLAN - NORTHWEST

Sheet No.
L5.01

Job No.
4924-01

plotted: 5/21/2025 1:06:58 PM
sheet size: 30" x 42"



1 PLANTING PLAN - NORTHEAST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

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SEEDED LAWN

NATIVE MEADOW MIX

STORMWATER PLANTING MIX

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

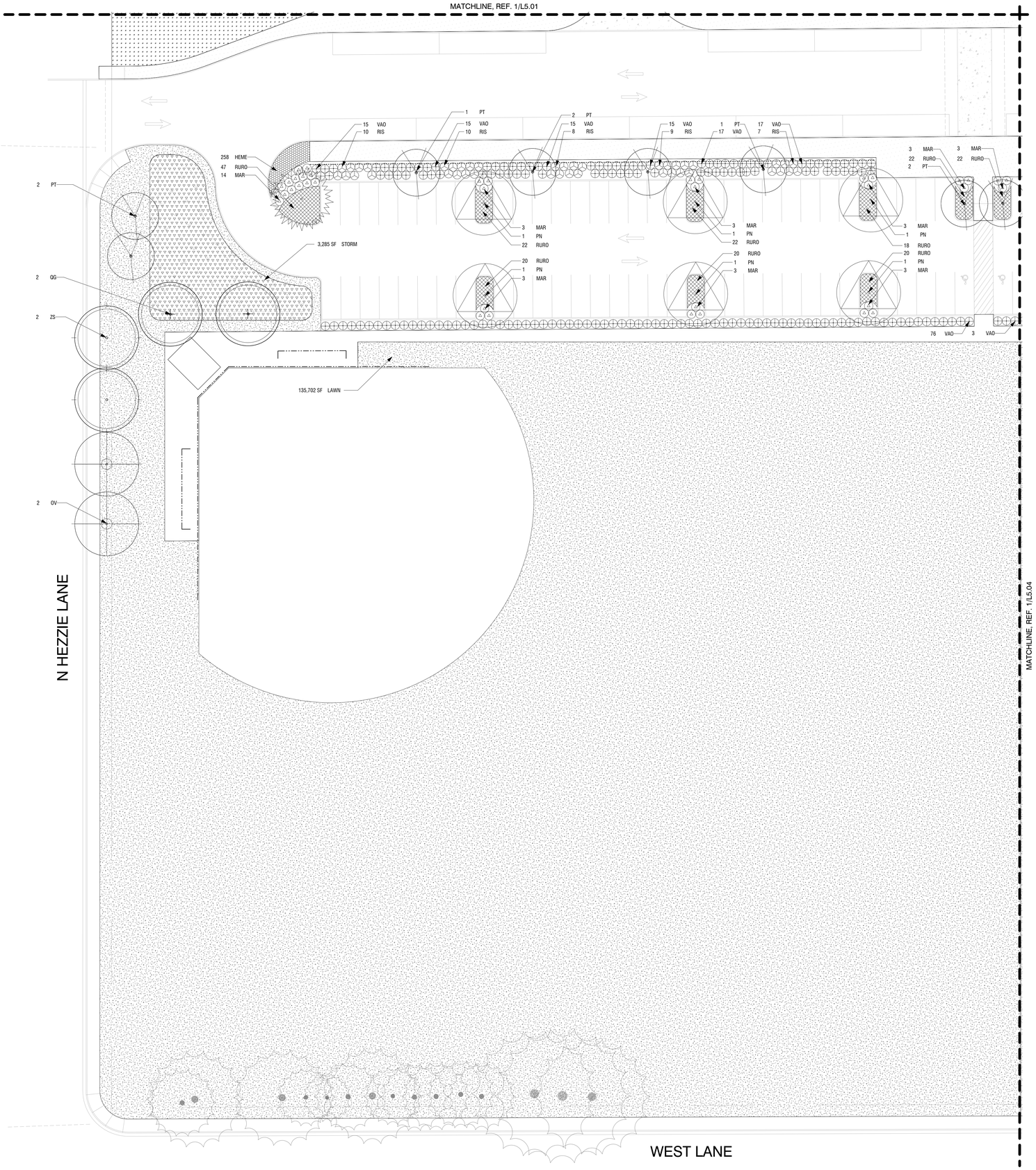
Date: **05/21/2025**

Sheet Title
PLANTING PLAN - NORTHEAST

Sheet No.
L5.02

Job No.
4924-01

plotted: 5/27/2025 12:10:11 PM
sheet size: 30" x 42"



1 PLANTING PLAN - SOUTHWEST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

GENERAL NOTES

1. LANDSCAPE DOCUMENTS ARE BASED ON A SURVEY BY AKS DATED 11.06.2024. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES IDENTIFIED ON SITE RELATED TO SURVEY INFORMAITON PRIOR TO INSTALLATION.
2. REFERENCE CIVIL DRAWINGS FOR SITE GRADING.
3. REFERENCE LANDSCAPE DRAWINGS FOR PLAYGROUND AND COMMONS COURTYARD GRADING.
4. REFERERENCE ELECTRICAL DRAWINGS FOR LIGHTING.
5. REFERENCE ARCHITECTURAL DRAWINGS FOR BUILDING.
6. REFERENCE DEMOLITION PLANS FOR SITE REMOVALS.

PLANTING NOTES

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2. DO NOT BEGIN PLANTING UNTIL SOIL PREPARATION IS COMPLETE AND APPROVED.
3. LOCATE PLANTS AS DIMENSIONED ON THE PLANS AND AS SHOWN IN THE PLANT SCHEDULE. PLANT SPACING IS MEASURED CENTER TO CENTER. PLANT LOCATIONS MAY BE ADJUSTED BY THE LANDSCAPE ARCHITECT TO MEET FIELD CONDITIONS.
4. VERIFY ALL QUANTITIES AND VARIETIES SHOWN ON THE DRAWINGS PRIOR TO ORDERING. OWNER MUST APPROVE ANY NECESSARY SUBSTITUTIONS DURING SUBMITTALS PROCESS. REVIEW PROCESS TO BE ESTABLISHED AT PRE-CONSTRUCTION MEETING.
5. THOROUGHLY WATER IN ALL PLANTS WITHIN 6 HOURS OF PLANTING.
6. APPLY SPECIFIED MULCH OVER PLANTING AREAS WITHIN TWO DAYS OF INSTALLING PLANTS, UNLESS OTHERWISE NOTED.
7. ALL PLANTS ARE REQUIRED TO MEET AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2014.
8. TO CALCULATE THE QUANTITY OF PLANTS PER AREA, USE THE FOLLOWING SPACING MULTIPLIERS:

TRIANGULAR SPACING	9"	12"	15"	18"	24"	30"	36"	48"
SQUARE FT MULTIPLIER	2.053	1.155	0.739	0.513	0.289	0.185	0.128	0.072

PLANTING LEGEND - TREES

Symbol	Code	Botanical Name
	AC	*ACER CIRCINATUM*
	CC	*CERCIS CANADENSIS 'FOREST PANSY'*
	OV	*OSTRYA VIRGINIANA*
	PC	*PINUS CONTORTA*
	PN	*PINUS NIGRA*
	PP	*PINUS PONDEROSA*
	PT	*POPULUS TREMULOIDES*
	PM	*PSEUDOTSUGA MENZIESII*
	QG	*QUERCUS GARRYANA*
	QI	*QUERCUS ILEX*
	SS	*SEQUOIADENDRON SEMPERVIRENS*
	TM	*TSUGA MERTENSIANA*
	ZS	*ZELKOVA SERRATA 'WIRELESS'*

PLANTING LEGEND - SHRUBS

Symbol	Code	Botanical Name
SHRUBS		
	CAF	*CAREX FLACCA*
	COS	*CORNUS SERICEA 'KELSEYI'*
	MAR	*MAHONIA REPENS*
	POM	*POLYSTICHUM MUNITUM*
	RIS	*RIBES SANGUINEUM*
	SAH	*SARCOCOCCA HOOKERIANNA VAR. HUMILIS*
	SYA	*SYMPHORICARPUS ALBUS*
	VAO	*VACCINIUM OVATUM*
GROUNDCOVER		
	CEPR	*CEANOTHUS GLORIOSUS 'POINT REYES'*
	HEME	*HEMEROCALLIS 'STELLA DE ORO'*
	RURO	*RUBUS ROLFEI*

PLANTING LEGEND - MIXES

SEEDED LAWN

NATIVE MEADOW MIX

STORMWATER PLANTING MIX

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opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Address:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

Mayer/Reed
Mayer/Reed, Inc.
920 SW 6th Ave, Ste 425
Portland, Oregon 97204
503.223.5953

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

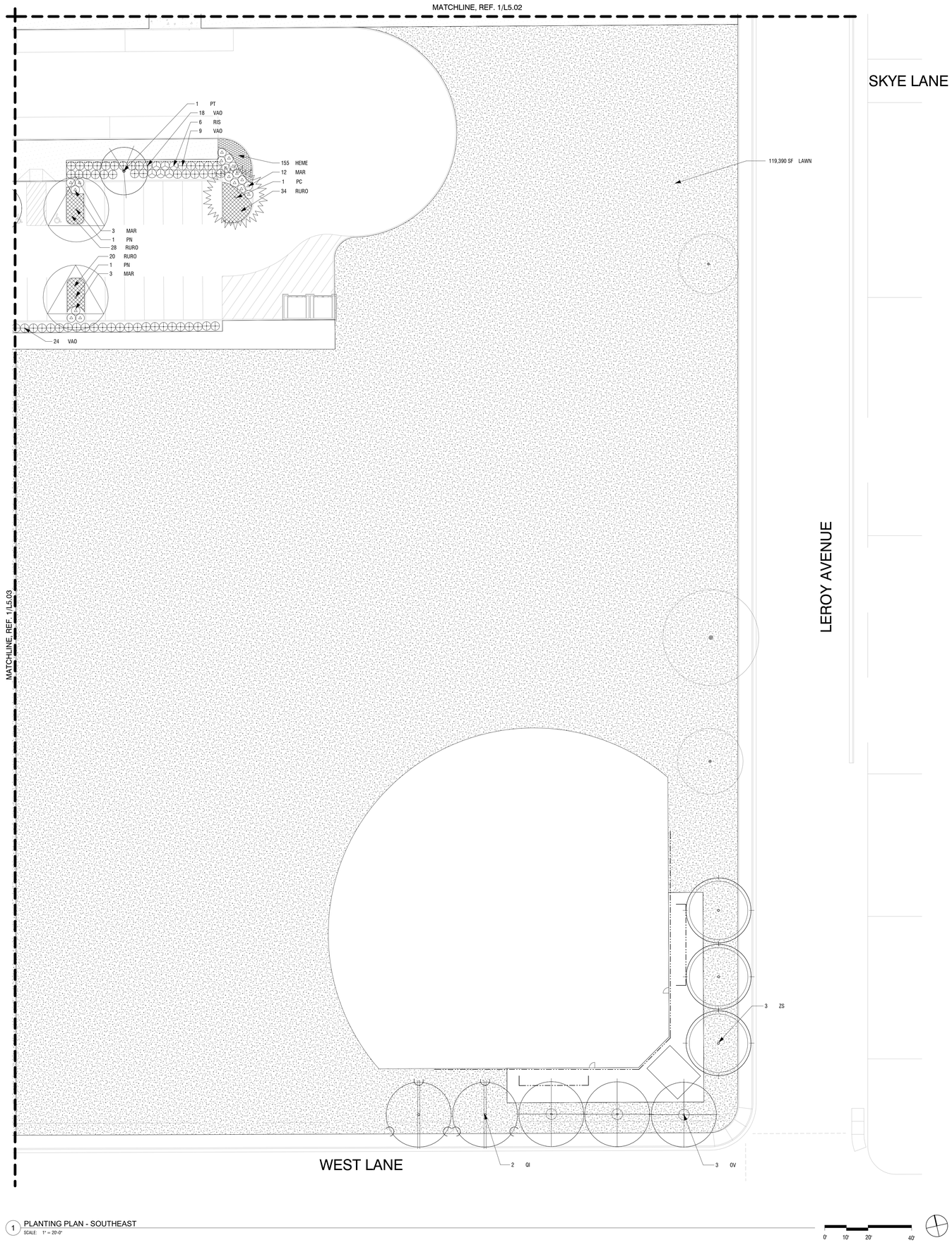
Date: **05/21/2025**

Sheet Title
PLANTING PLAN - SOUTHWEST

Sheet No.
L5.03

Job No.
4924-01

plotted: 5/21/2025 1:07:03 PM
sheet size: 30" x 42"



1 PLANTING PLAN - SOUTHEAST
SCALE: 1" = 20'-0"

0' 10' 20' 40'

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	HEME	*HEMEROCALLIS 'STELLA DE ORO'*
	RURO	*RUBUS ROLFEI*

PLANTING LEGEND - MIXES

SEEDED LAWN

NATIVE MEADOW MIX

STORMWATER PLANTING MIX

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

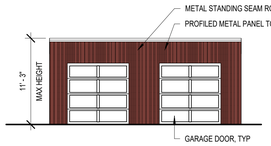
Date: **05/21/2025**

Sheet Title
PLANTING PLAN - SOUTHEAST

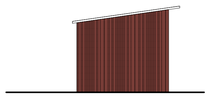
Sheet No.
L5.04

Job No.
4924-01

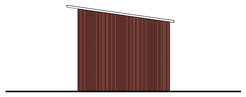
plotted: 5/23/2025 11:19:57 AM
sheet size: 30" x 42"



2 | EXTERIOR ELEVATION SHED - NORTH
LU - 01 1/8" = 1'-0"

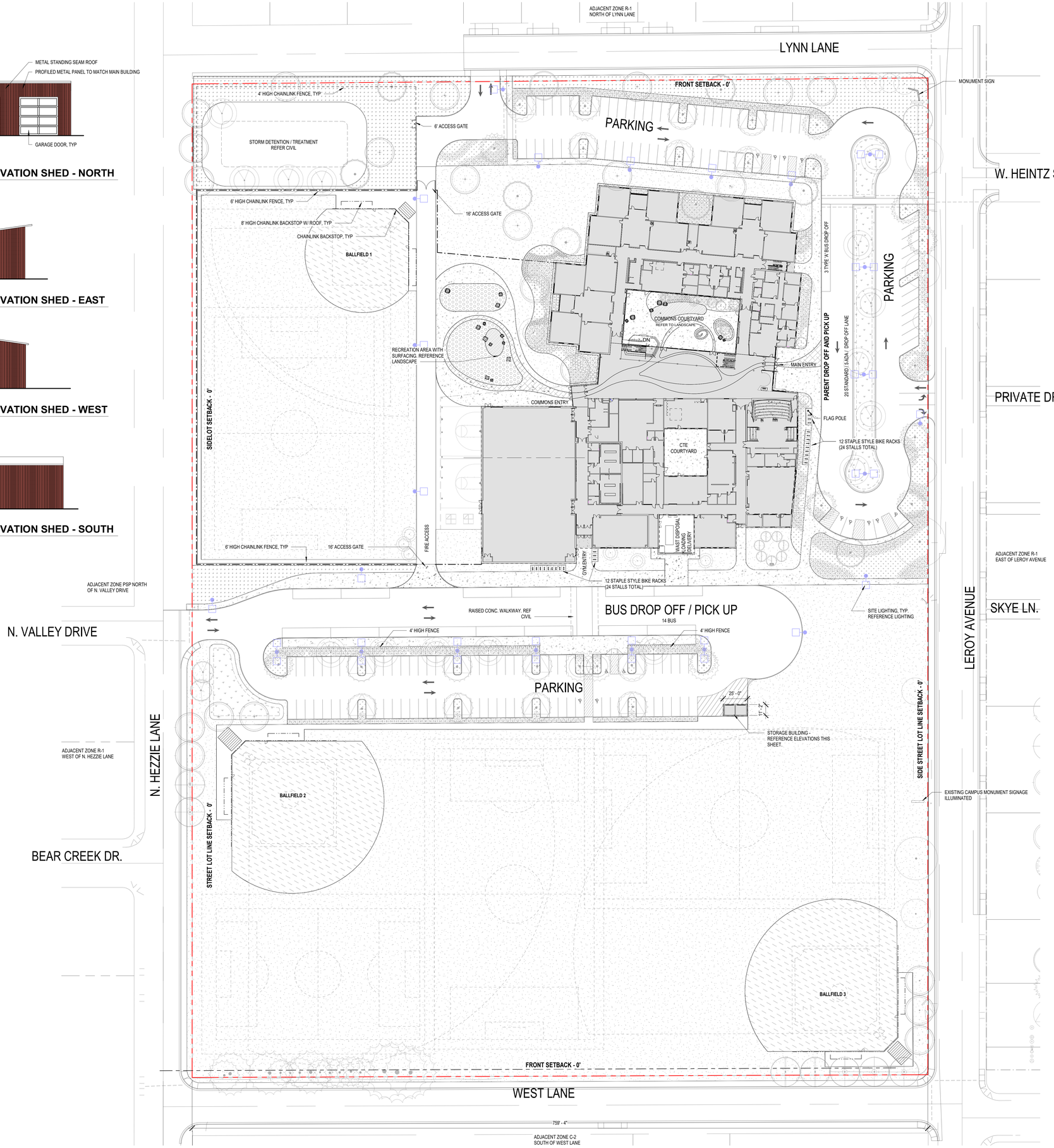


3 | EXTERIOR ELEVATION SHED - EAST
LU - 01 1/8" = 1'-0"



4 | EXTERIOR ELEVATION SHED - WEST
LU - 01 1/8" = 1'-0"

5 | EXTERIOR ELEVATION SHED - SOUTH
LU - 01 1/8" = 1'-0"



0 20 40 80

1 | SITE PLAN
LU - 01 1" = 40'-0"

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opsisarch.com

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Project Owner:
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Project Name:
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Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **5/21/2025**

Sheet Title
ARCHITECTURAL SITE PLAN

Sheet No.
LU - 01

Job No.
4924-01

plotted: 5/21/2025 9:14:56 PM
sheet size: 30" x 42"

FLOOR PLANS SHEET NOTES

1. REFERENCE SHEET G0.10 FOR MOUNTING HEIGHTS AND GENERAL INFORMATION
2. REFERENCE LIGHTING / ELECTRICAL FOR LIGHTING TYPES. NOT ALL LIGHTING IS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLAN
3. REFERENCE EXTERIOR ELEVATIONS FOR EXTERIOR MATERIALS
4. OUTSIDE INTERIOR CORNERS TO HAVE 5' HIGH S.S. CORNER GUARDS - SEE FINISH PLANS FOR LOCATIONS.
5. FURNITURE SHOWN FOR REFERENCE ONLY - OFOI.
6. PROVIDE BLOCKING AS REQUIRED FOR ALL LOCATIONS TO RECEIVE MARKER BOARDS, TACK BOARDS, TV BRACKETS, AND CLOCKS.
7. PROVIDE BLOCKING AT LOCATIONS TO RECEIVE TOILET AND SHOWER WALL MOUNTED EQUIPMENT AND ACCESSORIES
8. SEE REFLECTED CEILING PLANS FOR ROLLER SHADE LOCATIONS.
9. AT LEVEL 2 SECTOR A: FLOOR F3 TYPICAL AT CLASSROOM SUITES AND SPECIALIZED LEARNING, OFFICES AND STAFF LOUNGE. F4 TYPICAL AT CORRIDORS & BOH SERVICE. F5 TYPICAL AT MULTI-USER AND SINGLE USER RESTROOMS.

1 | **FLOOR PLAN - LEVEL 01**
LU-02 1/16" = 1'-0"

0 8 16 32

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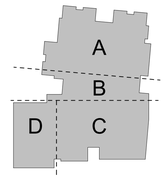
Key Plan



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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

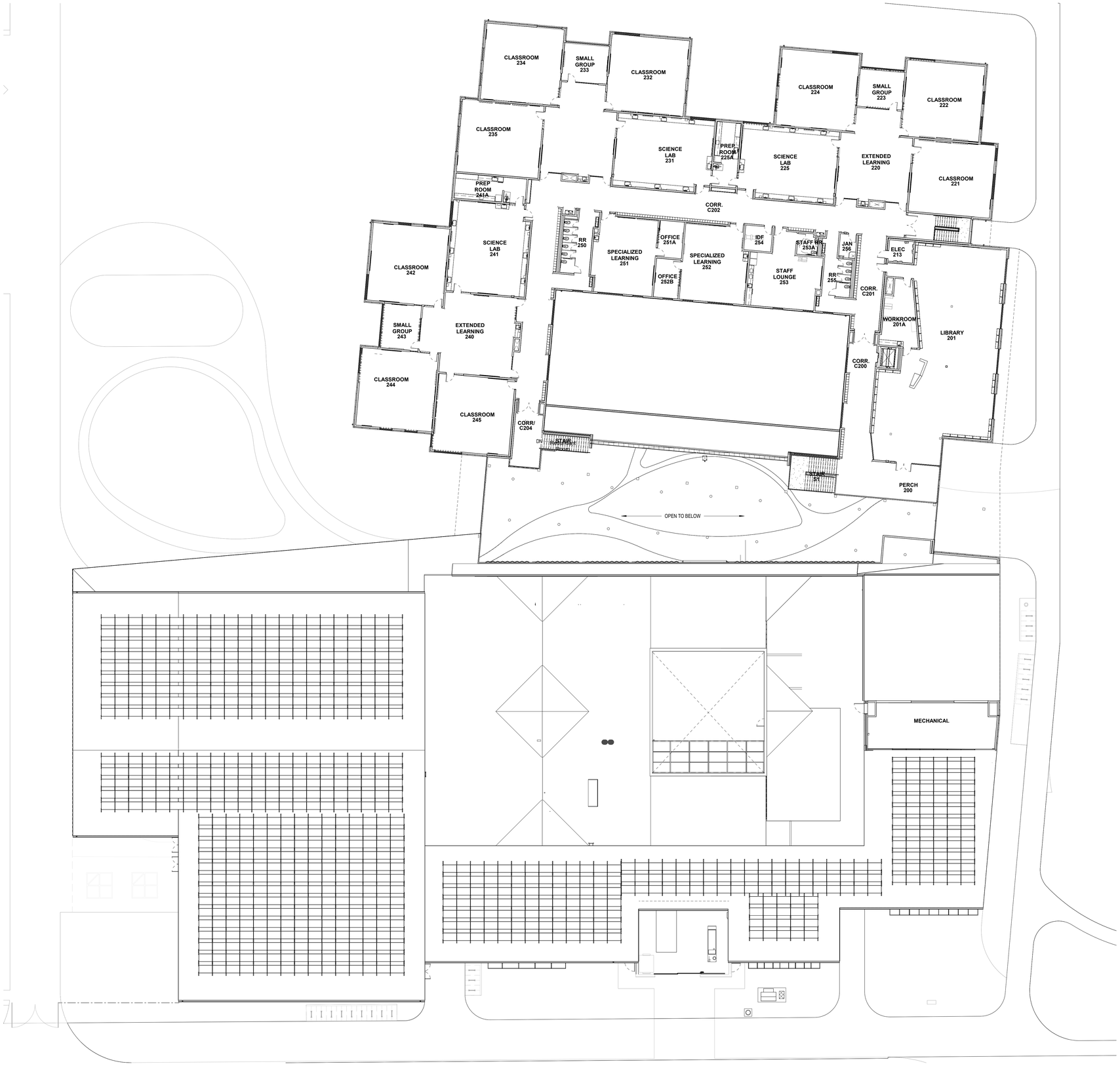
Date: **5/21/2025**

Sheet Title
FLOOR PLAN LEVEL 01

Sheet No.
LU-02

Job No.
4924-01

plotted: 5/21/2025 9:12:14 PM
sheet size: 30" x 42"



1 | FLOOR PLAN - LEVEL 02
LU-03 1/16" = 1'-0"

0 8 16 32

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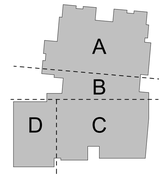
Key Plan



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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

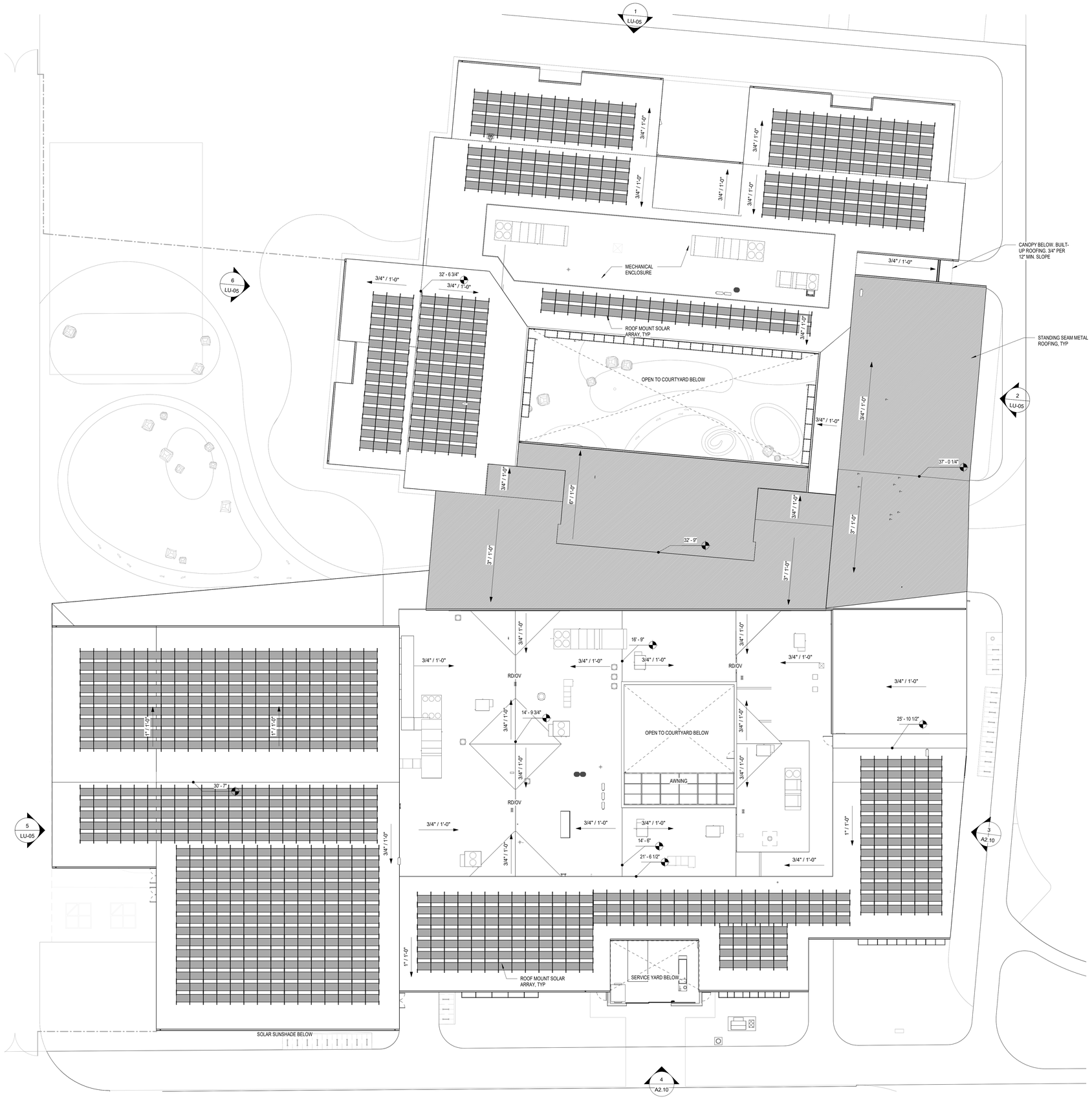
Date: **5/21/2025**

Sheet Title
FLOOR PLAN LEVEL 02

Sheet No.
LU-03

Job No.
4924-01

plotted: **5/21/2025 9:04:44 PM**
sheet size: 30" x 42"



ROOF PLANS LEGEND

- BUILT UP ROOFING
- STANDING SEAM METAL ROOFING
- ROOFTOP SOLAR EXTENTS
  APPROXIMATE AREA BASED ON 1.5% GET.
  ROOF SUBSTRATE VARIES PER PLAN.
  ESTIMATE 558 KW ARRAY BASED ON SOLAR FEASIBILITY STUDY -250305.

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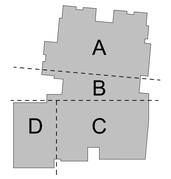

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **5/21/2025**

Sheet Title
ROOF PLAN

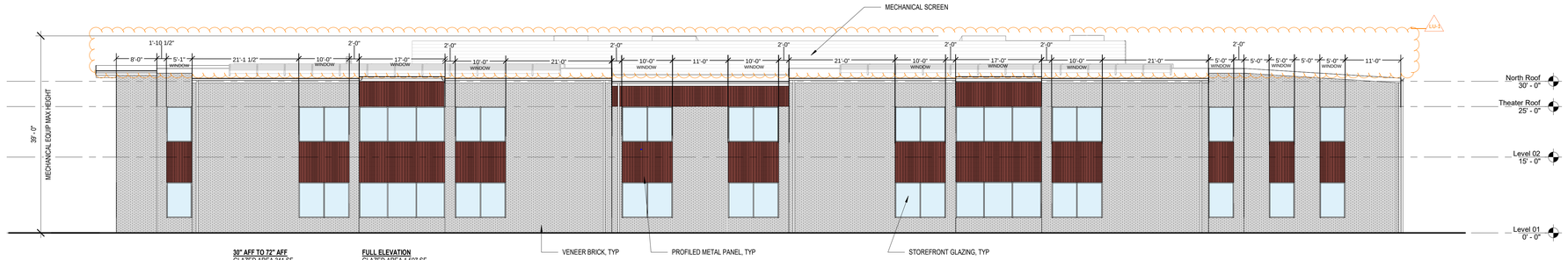
Sheet No.
LU-04

Job No.
4924-01

1 ROOF PLAN
LU-04 1/16" = 1'-0"

0 8 16 32

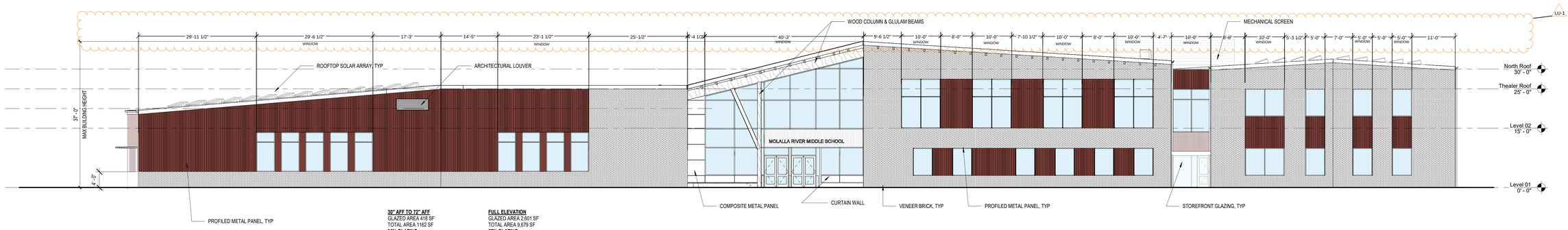
plotted: 5/21/2025 9:55:13 PM
sheet size: 30" x 42"



30" AFF TO 72" AFF
GLAZED AREA 341 SF
TOTAL AREA 889 SF
38% GLAZING

FULL ELEVATION
GLAZED AREA 1,597 SF
TOTAL AREA 7,929 SF
20% GLAZING

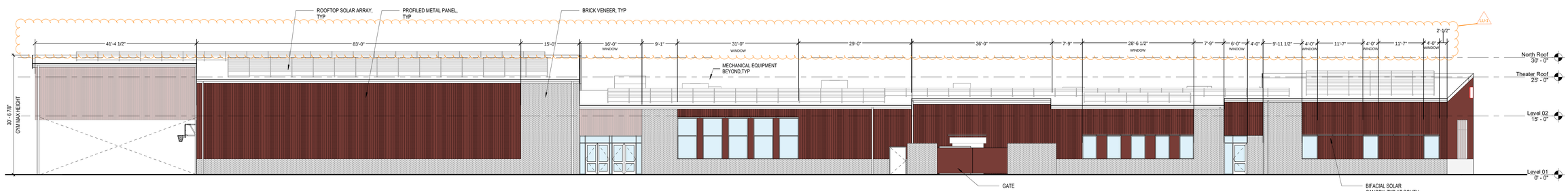
1 | NORTH ELEVATION (FACING LYNN LANE)
LU-05 3/32" = 1'-0"



30" AFF TO 72" AFF
GLAZED AREA 418 SF
TOTAL AREA 1162 SF
36% GLAZING

FULL ELEVATION
GLAZED AREA 2,601 SF
TOTAL AREA 9,679 SF
27% GLAZING

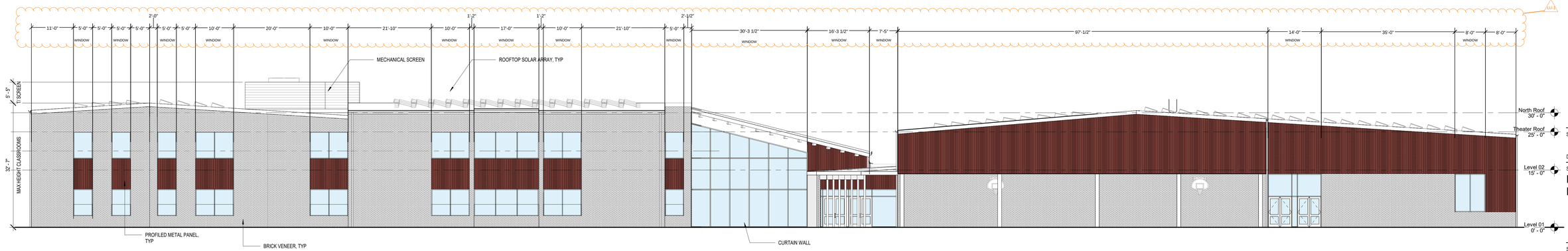
2 | EAST ELEVATION (FACING LEROY AVE)
LU-05 3/32" = 1'-0"



30" AFF TO 72" AFF
GLAZED AREA 188 SF
TOTAL AREA 1120 SF
17% GLAZING

FULL ELEVATION
GLAZED AREA 665 SF
TOTAL AREA 6,445 SF
10% GLAZING

3 | SOUTH ELEVATION (FACING WEST LANE)
LU-05 3/32" = 1'-0"



30" AFF TO 72" AFF
GLAZED AREA 488 SF
TOTAL AREA 1,367 SF
35% GLAZING

FULL ELEVATION
GLAZED AREA 2,336 SF
TOTAL AREA 11,185 SF
21% GLAZING

4 | WEST ELEVATION (FACING N HEZZIE LANE)
LU-05 3/32" = 1'-0"

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Revisions to Sheet

No.	Revision	Date
LU-1	LAND USE REV 1	07/25/2025

Status: **LAND USE SUBMISSION**

Date: **5/21/2025**

Sheet Title
EXTERIOR ELEVATIONS

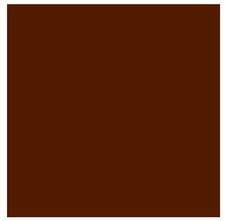
Sheet No.
LU-05

Job No.
4924-01

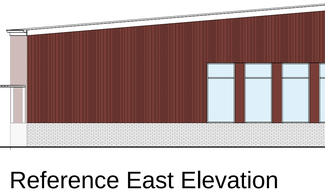
plotted: 5/6/2025 1:24:28 PM
sheet size: 30" x 42"

Brick Veneer

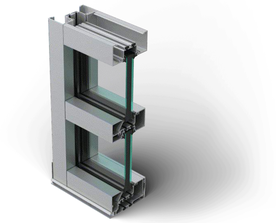
Gluelam Beams and Columns with Plywood Deck



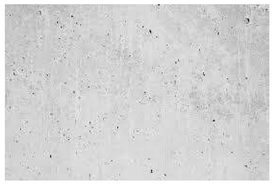
Profiled Metal Panel - Various Profiles



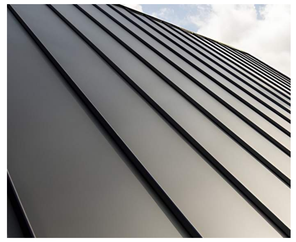
Fiber Cement Panel



Anodized Storefront and Curtainwall System



Concrete Bench with Wood Seat

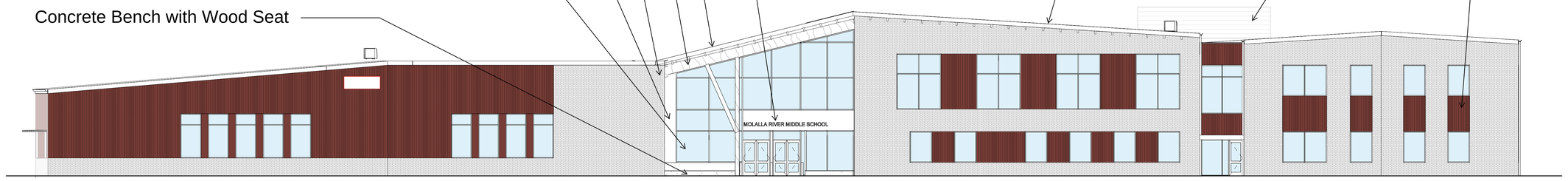


Standing Seam Metal Roof

Built-up Roofing with PVs

Mechanical Equipment Screen

Dimensional Aluminum Letters



Reference East Elevation

opsis

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975 SE Main St., Portland, OR 97214
503.525.9511 | info@opsisarch.com
opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LANDUSE SUBMISSION**

Date: **05/21/2025**

Sheet Title
EXTERIOR BUILDING MATERIALITY

Sheet No.
LU-07

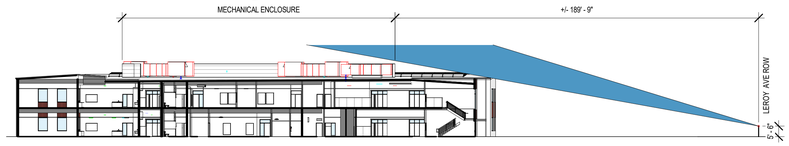
Job No.
4924-01

plotted: 5/21/2025 4:28:25 PM
sheet size: 30" x 42"

Exterior Rendering - View from Leroy Avenue

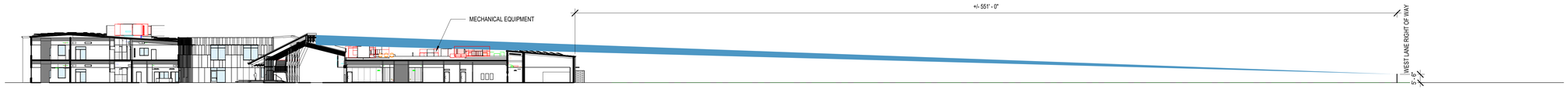
Exterior Rendering - View from North

Exterior Rendering - View from South



2 | **SECTION - RTU SIGHTLINE - EAST (FROM LEROY AVE)**
LU-7 1/32" = 1'-0"

4 | **SECTON - RTU SIGHTLINE - NORTH (FROM LYNN LANE**
LU-7 1/32" = 1'-0"



3 | **SECTION - RTU SIGHTLINE - SOUTH (FROM WEST LANE)**
LU-7 1/32" = 1'-0"

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

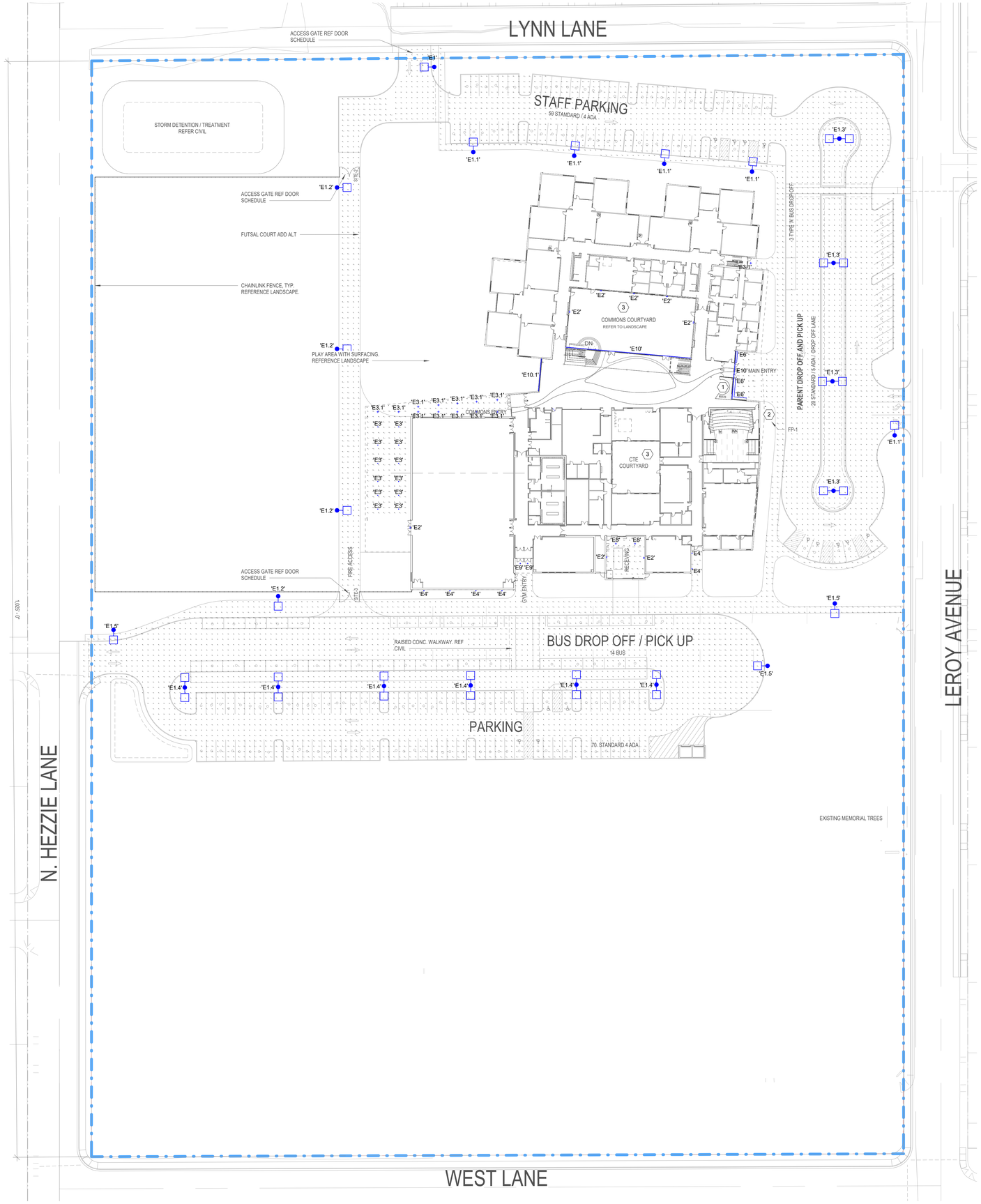
Date: **5/21/2025**

Sheet Title
RENDERINGS AND SIGHT LINE DIAGRAMS

Sheet No.
LU-7

Job No.
4924-01

plotted: 5/21/2025 5:02:15 PM
sheet size: 30" x 42"



1 LAND USE SITE PLAN - LIGHTING
1" = 40'-0"

GENERAL LIGHTING NOTES

1. REFER TO LANDSCAPE ARCHITECTURE DRAWINGS FOR EXACT FIXTURE PLACEMENT.
2. ELECTRICAL ENGINEER AND OR ELECTRICAL CONTRACTOR ARE RESPONSIBLE FOR DETERMINING ALL VOLTAGES.
3. ELECTRICAL CONTRACTOR TO SUPPLY ALL FIXTURES IN NEW CONDITION, WITH ALL NECESSARY PARTS, MOUNTING BRACKETS, ACCESSORIES, AND PIECES FOR CODE COMPLIANT INSTALLATION.
4. ALL EXTERIOR FIXTURES AND MOUNTING COMPONENTS TO BE MADE FROM CORROSION RESISTANT MATERIALS.
5. WHEN INSTALLING FIXTURE AND WIRING, CONTRACTOR TO MINIMIZE DISRUPTION TO THE EXTENT POSSIBLE FOR ANY EXISTING TREES AND TREE ROOTS.
6. ELECTRICAL CONTRACTOR TO COORDINATE ALL REMOTE POWER SUPPLY LOCATION/S WITH ARCHITECT AND OR LIGHTING DESIGNER; SUGGESTED LOCATIONS, IF SHOWN, ARE FOR REFERENCE AND QTY ONLY.
7. CONTRACTOR TO PROVIDE WET RATED POWER SUPPLY OR WET RATED ANTI-CORROSIVE ENCLOSURE FOR THE POWER SUPPLY, OR TO LOCATE THE POWER SUPPLY IN A DRY LOCATION WHERE IT WILL BE PROTECTED FROM THE ELEMENTS.
8. CONTRACTOR TO NOTIFY ARCHITECT AND OR LIGHTING DESIGNER ABOUT FIELD CONDITIONS AT VARIANCE WITH CONTRACT DOCUMENTS PRIOR TO COMMENCING INSTALLATION.
9. REFER TO ELECTRICAL DRAWINGS FOR EMERGENCY AND LIGHTING CONTROL INFROMATION.

SHEET KEYNOTES (#)

1. TYPE E6 BENCH LIGHTING NOT INCLUDED IN THE CALCULATIONS, TYPICAL.
2. FLAG POLE LIGHTING IS NOT INCLUDED IN THE CALCULATIONS.
3. EXTERIOR COURTYARD ON THE INTERIOR OF THE BUILDING IS NOT INCLUDED IN THE CALCULATIONS.

CALCULATION SUMMARY

TARGET LIGHTING LEVELS: 2FC MIN, 5FC AVG
COMPLIES: YES

BUILDING ENTRANCE - EAST STAIR
Illuminance (Fc)
Average=3.7 Maximum=3.9 Minimum=3.4 Avg/Min=1.1 Max/Min=1.2

BUILDING ENTRANCE - COMMONS
Illuminance (Fc)
Average=3.9 Maximum=5.8 Minimum=2.0 Avg/Min=1.9 Max/Min=2.9

BUILDING ENTRANCE - GYM SOUTH
Illuminance (Fc)
Average=5.6 Maximum=6.6 Minimum=4.3 Avg/Min=1.3 Max/Min=1.5

BUILDING ENTRANCE - GYM WEST
Illuminance (Fc)
Average=4.5 Maximum=4.5 Minimum=4.4 Avg/Min=1.0 Max/Min=1.0

BUILDING ENTRANCE - SOUTH ENTRY
Illuminance (Fc)
Average=2.6 Maximum=3.0 Minimum=2.3 Avg/Min=1.1 Max/Min=1.3

BUILDING ENTRANCE-VISITOR ENTRY
Illuminance (Fc)
Average=5.3 Maximum=10.8 Minimum=2.1 Avg/Min=2.5 Max/Min=5.1

TARGET LIGHTING LEVELS: 2FC
COMPLIES: YES

COVERED PLAY AREA
Illuminance (Fc)
Average=3.2 Maximum=5.4 Minimum=1.9 Avg/Min=1.7 Max/Min=2.8

TARGET LIGHTING LEVELS: TBD

FIRE ACCESS
Illuminance (Fc)
Average=1.0 Maximum=1.9 Minimum=0.4 Avg/Min=2.6 Max/Min=4.8

TARGET LIGHTING LEVELS: 0.2FC MIN, 0.8FC AVG
COMPLIES: YES

PARKING-COMMUNITY, BUS DROP OFF
Illuminance (Fc)
Average=1.3 Maximum=3.5 Minimum=0.4 Avg/Min=3.3 Max/Min=8.8

PARKING-PARENT DROP OFF, VISITOR
Illuminance (Fc)
Average=1.4 Maximum=3.3 Minimum=0.4 Avg/Min=3.4 Max/Min=8.3

PARKING-STAFF
Illuminance (Fc)
Average=1.1 Maximum=2.0 Minimum=0.4 Avg/Min=2.6 Max/Min=5.0

SIDEWALK - EAST
Illuminance (Fc)
Average=0.9 Maximum=1.9 Minimum=0.5 Avg/Min=1.8 Max/Min=3.8

SIDEWALK-NORTH
Illuminance (Fc)
Average=1.3 Maximum=1.9 Minimum=0.7 Avg/Min=1.8 Max/Min=2.7

SIDEWALK-SOUTH
Illuminance (Fc)
Average=1.0 Maximum=3.5 Minimum=0.4 Avg/Min=2.5 Max/Min=8.8

TARGET LIGHTING LEVELS: 3FC
COMPLIES: YES

RECEIVING ENTRY
Illuminance (Fc)
Average=5.8 Maximum=6.8 Minimum=4.3 Avg/Min=1.3 Max/Min=1.6

TARGET LIGHTING LEVELS: 10FC
COMPLIES: YES

RECEIVING OUTDOOR STORAGE
Illuminance (Fc)
Average=11.7 Maximum=16.4 Minimum=8.8 Avg/Min=1.3 Max/Min=1.9

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biellalighting.com

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opsisarch.com

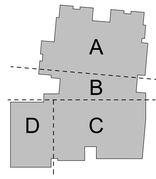
NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan



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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **05/21/2025**

Sheet Title
LAND USE SITE PLAN - LIGHTING

Sheet No.
EL0.81

Job No.
4924-01

plotted: 5/21/2025 5:07:51 PM
sheet size: 30" x 42"

LUMINAIRE SCHEDULE

TAG	SIZE/DESCRIPTION	LOCATION	FINISH	LAMP INFORMATION			DIMMABLE	DRIVER DESCRIPTION	TOTAL VA	MANUFACTURER/SERIES	VOLT	MOUNTING	RECESS DEPTH	LUMINAIRE REMARKS	ALTERNATIVE MANUFACTURER/SERIES
				TYPE	QTY	LAMP									
EXTERIOR LIGHTING															
E1	NOM. 14.25" WIDE X 8" HIGH X 33" LONG POLE TOP AREA LIGHT, 25' ROUND STRAIGHT STEEL POLE, (1) HEAD, TYPE IV MEDIUM OPTICS, WET LISTED	PARKING LOT	CPA	LED		3000K, 80 CRI, 13400LM+	YES	INTEGRAL 0-10V	102	HEAD: LITHONIA DSX 1 POLE: LITHONIA RSS	UNV	POLE			BEACON VIPER/RSS SERIES GUARDCO OPTIFORM SERIES
E1.1	NOM. 14.25" WIDE X 8" HIGH X 33" LONG POLE TOP AREA LIGHT, 25' ROUND STRAIGHT STEEL POLE, (1) HEAD, TYPE FORWARD THROW MEDIUM OPTICS, WET LISTED	PARKING LOT	CPA	LED		3000K, 80 CRI, 13400LM+	YES	INTEGRAL 0-10V	102	HEAD: LITHONIA DSX 1 POLE: LITHONIA RSS	UNV	POLE			BEACON VIPER/RSS SERIES GUARDCO OPTIFORM SERIES
E1.2	NOM. 14.25" WIDE X 8" HIGH X 33" LONG POLE TOP AREA LIGHT, 25' ROUND STRAIGHT STEEL POLE, (1) HEAD, TYPE II MEDIUM OPTICS, WET LISTED	PARKING LOT	CPA	LED		3000K, 80 CRI, 13000LM+	YES	INTEGRAL 0-10V	102	HEAD: LITHONIA DSX 1 POLE: LITHONIA RSS	UNV	POLE			BEACON VIPER/RSS SERIES GUARDCO OPTIFORM SERIES
E1.3	NOM. 14.25" WIDE X 8" HIGH X 33" LONG POLE TOP AREA LIGHT, 25' ROUND STRAIGHT STEEL POLE, (2) HEAD MOUNTING AT 180 DEGREE, TYPE IV MEDIUM (BOTH HEADS), WET LISTED	PARKING LOT	CPA	LED		3000K, 80 CRI, 26400LM+	YES	INTEGRAL 0-10V	204	HEADS: LITHONIA DSX 1 POLE: LITHONIA RSS	UNV	POLE			BEACON VIPER/RSS SERIES GUARDCO OPTIFORM SERIES
E1.4	NOM. 14.25" WIDE X 8" HIGH X 33" LONG POLE TOP AREA LIGHT, 25' ROUND STRAIGHT STEEL POLE, (2) HEAD MOUNTING AT 180 DEGREE, TYPE FORWARD THROW MEDIUM (BOTH HEADS) OPTICS, WET LISTED	PARKING LOT	CPA	LED		3000K, 80 CRI, 26400LM+	YES	INTEGRAL 0-10V	204	HEADS: LITHONIA DSX 1 POLE: LITHONIA RSS	UNV	POLE			BEACON VIPER/RSS SERIES GUARDCO OPTIFORM SERIES
E2	NOM. 18" WIDE X 9" TALL X 8" DEEP SURFACE MOUNT WALL PACK, TYPE IV OPTICS, WET LISTED.	OUTDOOR STORAGE, COURTYARDS	CPA	LED		3000K, 80 CRI, 6300LM+	YES	INTEGRAL 0-10V	52	LITHONIA WDGE 3	UNV	SURFACE WALL AT 10'-0" AFF BOF		[1]	BEACON VIPER SERIES GUARDCO WEDGE
E3	NOM. 5" DIA X 8" TALL STEM MOUNTED CYLINDER DOWNLIGHT, 50 DEGREE OPTICS, CLEAR LENS AT BAFFLE, SEMI-SPECULAR BAFFLE, WET LOCATION.	SLOPED CANOPIES	CPA	LED		3000K, 90 CRI, 1095LM+	YES	INTEGRAL 0-10V DIMMING 100%-1%	14	LUMENWERX AERA 4 SEAL MOD: MP4799	UNV	SUSPENDED			GOTHAM INCITO 4 SERIES DMF M SERIES
E3.1	NOM. 5" DIA x 8" TALL SURFACE MOUNTED CYLINDER DOWNLIGHT, 80 DEGREE OPTICS, CLEAR LENS AT BAFFLE, SEMI-SPECULAR BAFFLE, WET LOCATION.	FLAT CANOPIES	CPA	LED		3000K, 90 CRI, 980LM+	YES	INTEGRAL 0-10V DIMMING 100%-1%	14	LUMENWERX AERA 4 SEAL	UNV	SURFACE			GOTHAM INCITO 4 SERIES DMF M SERIES
E4	NOM. 9" WIDE X 8" TALL X 5.5" DEEP SURFACE MOUNT WALL PACK, FORWARD THROW COMFORT OPTICS, WET LISTED.	SIDEWALKS, BIKE PARKING	CPA	LED		3000K, 80 CRI, 700LM+	YES	INTEGRAL 0-10V	7	LITHONIA WDGE 1	UNV	SURFACE WALL AT 10'-0" AFF BOF		[1]	BEACON VIPER SERIES GUARDCO WEDGE
E5	NOM. 3" WIDE X 4.25" TALL X LENGTH PER PLANS SURFACE MOUNT LINEAR, ENVIRONMENTALLY PROTECTED DIRECT OPTIC, CONTINUOUS LOOK LENS, WET LOCATION	CTE COURTYARD	CPA	LED	PER FT	3000K, 80 CRI, 500LM/FT	YES	INTEGRAL 0-10V	5	LUMENWERX VIA 3 SEAL	UNV	SURFACE CEILING			
E6	NOM. 1" WIDE X .75" TALL X LENGTH PER PLAN CURVABLE TAPE, ENCAPSULATED TRANSLUCIENT LENS, HIGH EFFICIENCY TAPE, WET LOCATION, WIRING AND CONNECTORS PER CONTRACTOR	SITE BENCHES	CPA	LED	PER FT	3000K, 90+ CRI, 158LM/FT	YES	REMOTE 0-10V DIMMING TO 1%	2	QTL Q-CAP KURV-BK	24/UNV	SURFACE		[2]	
E7	SIZE TBD BASED ON FLAG POLE DIAMETER. CIRCULAR POLE MOUNTED UPLIGHT, HALYARD STYLE TBD BASED ON FLAG POLE SPECIFICATION	FLAGPOLE	CPA	LED		3000K, 80+ CRI, 2300+LM	NO	N/A	38	POLELED EXTENDED	UNV	POLE		[4]	
E8	NOM. 19" DIA X 5" TALL SUSPENDED DIRECT-ONLY AREA LIGHT, TYPE 5 ENTRY COMFORT OPTICS, STEM MOUNT FOR SLOPED CANOPY	RECEIVING CANOPY	CPA	LED		3000K, 80+ CRI, 7200+LM	YES	INTEGRAL 0-10V DIMMING 100%-10%	56	LITHONIA VCGP	UNV	SUSPENDED			
E9	NOM. 4" APERTURE RECESSED DOWNLIGHT, FLANGED TRIM, 80 DEGREE OPTICS, SEMI-SPECULAR BAFFLE, WET LOCATION	SOUTH GYM ENTRY	CPA	LED		3500K, 90 CRI, 1200LM+	YES	INTEGRAL 0-10V DIMMING 100%-1%	14	LUMENWERX AERA 4	UNV	RECESSED	7" MAX		GOTHAM EVO 4 SERIES FOCAL POINT ID 3.5 SERIES
E10	NOM. 3" WIDE X 5" TALL X LENGTH PER PLANS MULLION MOUNT DIRECT/INDIRECT LINEAR, ASYMMETRIC SOFT DIRECT OPTIC, WIDESPREAD INDIRECT OPTIC, CONTINUOUS LOOK LENS, WET LOCATION	CTE COURTYARD	CPA	LED	PER FT	3000K, 80 CRI, 350LM/FT DIRECT, 350 LM/FT INDIRECT	YES	INTEGRAL 0-10V	8	LUMENWERX VIA 2 SEAL	UNV	SURFACE MULLION		[1]	
E10.1	NOM. 3" WIDE X 5" TALL X LENGTH PER PLANS MULLION MOUNT INDIRECT ONLY LINEAR, ASYMMETRIC SOFT DIRECT OPTIC, WIDESPREAD INDIRECT OPTIC, CONTINUOUS LOOK LENS, WET LOCATION	CTE COURTYARD	CPA	LED	PER FT	3000K, 80 CRI, 350 LM/FT INDIRECT	YES	INTEGRAL 0-10V	4	LUMENWERX VIA 2 SEAL	UNV	SURFACE MULLION		[1]	

GENERAL NOTES:

A. ALL LAMPS TO BE 3500 KELVIN COLOR TEMPERATURE, 90+ SERIES CRI UNLESS OTHERWISE NOTED

B. ALL PERIMETER LIGHTING SHALL RUN WALL TO WALL OR END TO END OF POCKET WHERE FIXTURE/S ARE INSTALLED

C. PRODUCT NUMBERS SHOWN ARE ASSOCIATED WITH THE FIRST MANUFACTURER LISTED ON THE LUMINAIRE SCHEDULE FOR EACH LUMINAIRE TYPE. ALL OTHER LISTED MANUFACTURERS ARE ACCEPTABLE: ADDITIONAL MANUFACTURERS MUST SHOW CONFIRMATION THAT PRODUCT RESULTS IN THE SAME OR BETTER ILLUMINATION LEVELS AND MUST MEET ALL OTHER REQUIREMENTS OF SPECIFIED ITEM. CONTRACTOR TO SUBMIT CUTSHEETS OF ADDITIONAL (NON FIRST NAME SPEC) MANUFACTURERS' PRODUCT ALONG WITH CALCULATION SUMMARY AND PRODUCT CUTSHEETS FOR REVIEW BY THE LIGHTING DESIGNER

D. CATALOG NUMBERS DO NOT INCLUDE HANGER BARS AND/OR OTHER REQUIRED MOUNTING ACCESSORIES. CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND PROVIDING THESE AND ALL OTHER PARTS, INCLUDING LAMPS, BALLASTS, TRANSFORMERS, CABLES, ETC. NECESSARY FOR A COMPLETE, PROPER, AND CODE COMPLYING INSTALLATION

E. CONTRACTOR TO VERIFY CEILING THICKNESS AND PROVIDE REQUIRED LUMINAIRE MOUNTING BRACKETS AND TRIMS FOR ALL FIXTURE TYPES

F. CONTRACTOR TO VERIFY ALL VOLTAGE PRIOR TO ORDERING FIXTURES

G. X OR XX = OPTIONS PER CONTRACTOR OR AS DESCRIBED. CPA = COLOR PER ARCHITECT, QTY = QUANTITY, EC = ELECTRICAL CONTRACTOR, L = LED / ARCHITECTURAL LUMINAIRE, F = FLUORESCENT LUMINAIRE, A = INCANDESCENT / HALOGEN LUMINAIRE, D = DECORATIVE LUMINAIRE, T = TRACK MOUNTED LUMINAIRE, E = EXTERIOR LUMINAIRE, AFF = ABOVE FINISHED FLOOR, BOF = BOTTOM OF FIXTURE, BOB = BOTTOM OF BEAM

H. CONTRACTOR TO VERIFY ALL DRIVERS AND LIGHTING CONTROL SYSTEM COMPATIBILITY PRIOR TO ORDERING EQUIPMENT

LUMINAIRE REMARKS:

[1] REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT.

[2] REFERENCE ARCHITECTURAL ELEVATIONS & DETAILS FOR INSTALLATION INFORMATION. REMOTE DRIVER(S) NOT SHOWN FOR CLARITY. LOCATE IN A CONCEALED LOCATION WITH ADEQUATE VENTILATION AND ACCESS FOR MAINTENANCE. PROVIDE SECONDARY WIRING RUNS UPSIZED FOR VOLTAGE DROP IN ACCORDANCE WITH MANUFACTURER REQUIRMENTS.

[3] CONTRACTOR TO PROVIDE ALLOWANCE FOR ADDITIONAL OPTICS FOR THIS FIXTURE TYPE: PROVIDE A SAMPLE OF (1) OF EA. OF THE FOLLOWING ACCESSORIES FOR MOCK UP TO DETERMINE IF AND WHICH OPTICS WILL BE REQUIRED FOR THE REST OF THE LUMINAIRES (PROVIDE OPTICS SO ENOUGH TIME IS AVAILABLE TO DO A MOCK UP AND PURCHASE AND INSTALL ADDITIONAL ACCESSORIES BEFORE PROJECT IS COMPLETED): #1598 LINEAR SPREAD LENS, #1596-52 HEX LOUVER, #1740 26 DEGREE OPTIC, #1743 57 DEGREE OPTIC, #1694-52 BLACK CROSS BAFFLE, # 1697-52 SMALL SNOOT, (2) OF # 1700-52 WALL WASH VISOR

[4] FIXTURE MOUNTING HEIGHT TO BE DETERMINED BY FLAG SIZE AND POLE HEIGHT, CONFIRM WITH ARCHITECT AND LIGHTING DESIGN PRIOR TO FINAL INSTALLATION.

1 LUMINAIRE SCHEDULE LAND USE
NOT TO SCALE

RECESSED LIGHT, SIZE PER DRAWINGS
UNDER CABINET MOUNTED STRIPLIGHT
SURFACE MOUNTED STRIPLIGHT
LINEAR WALL SCONCE
SURFACE MOUNTED CEILING LIGHT, SIZE PER DRAWINGS
DECORATIVE PENDANT, SIZE PER DRAWINGS
RECESSED SHOWER LIGHT
SINGLE SWITCH
TWO-WAY SWITCH
SWITCHED OUTLET
PENDANT MOUNTED LINEAR LIGHT
DECORATIVE PENDANT, SIZE PER DRAWINGS
RECESSED LIGHT
CYLINDER
UNDER CABINET LIGHT
WALL WASH RECESSED
2X2 RECESSED
2X4 RECESSED
(EM) HATCHING INDICATES EMERGENCY (EM) INDICATES EMERGENCY
DIRECTIONAL PENDANT
XXX GRAFIK EYE, TYPE AS NOTED
$ # LIGHTING SWITCH, TYPE NOTED

WALL MOUNT SCONCE
POST TOP LIGHT
LINEAR LOW VOLTAGE
LINEAR FLOOD LIGHT
INDUSTRIAL STRIP LIGHT
RECESSED WALL WASHER LIGHT, SIZE PER DRAWINGS
EC ELECTRICAL CONTRACTOR
TYP. TYPICAL
T TABLE LAMP BY CLIENT
RECESSED 1X4 LINEAR LIGHT
SURFACE MOUNTED LINEAR LIGHT
RECESSED LINEAR WALL GRAZER
GC GENERAL CONTRACTOR
(E) EXISTING
DECORATIVE PENDANT
LINEAR WALL SCONCE
ARM MOUNTED LINEAR SCONCE
SURFACE MOUNTED LINEAR
PENDANT MOUNTED LINEAR
DIRECTIONAL LINEAR RECESSED WALL WASHER
DIRECTIONAL RECESSED

2 LIGHTING SYMBOL LEGEND
NOT TO SCALE

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biellalighting.com

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Project Owner:
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Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND USE SUBMISSION**

Date: **05/21/2025**

Sheet Title
LIGHTING SCHEDULE - LAND USE

Sheet No.
EL0.82

Job No.
4924-01

3J CONSULTING
9600 SW NIMBUS AVENUE, SUITE 100
BEAVERTON, OREGON 97008
PH: (503) 946.9365
WWW.3JCONSULTING.COM

March 17, 2025

Molalla River Middle School
318 Leroy Avenue
Molalla, OR

To Our Neighbors:

3J Consulting acts on behalf of the Molalla River School District, regarding the proposed replacement of Molalla River Middle School located at 318 Leroy Avenue. This property can be legally identified as tax lot 52E08B03000 and is zoned Public/Semi-Public (PSP).

The Molalla River School District is proposing to construct a new middle school on the grounds of the existing Molalla River Middle School Campus as a part of the District's 2024 bond. The existing school will remain in operation while the new school is being constructed and will be demolished after students are able to occupy the new school. Before applying to the Molalla Planning Department, we would like to take the opportunity to discuss the proposal in more detail with surrounding property owners and members of the community.

A meeting to discuss this project has been scheduled at the following time and location:

Monday, March 31st at 6:00pm
Molalla River Middle School Cafeteria
318 Leroy Avenue
Molalla, OR 97038

The purpose of this meeting will be to provide a forum for surrounding property owners and residents to review the proposal and identify issues, so they can be given proper consideration. The project team will try to answer questions related to how the project meets the relevant development standards consistent with the City of Molalla's land use regulations.

Please note that this will be an informational meeting based on preliminary development plans and that these plans may change before the application is submitted to the City.

We look forward to discussing this proposal with you. Please feel free to contact us by emailing mercedes.serra@3j-consulting.com or by phone at 503.946.9365 x211 if you have any questions.

Sincerely,

Mercedes Serra
Planning Project Manager
3J Consulting, Inc.

SITE
N Hezzie L
Lincoln Ln
Carter Ln
Lynn Ln
W Heintz St
Kae Ct
North Valley Dr
Doug Fir Ln
Leroy Ave
Skye Ln
Carol Ct
N Hezzie Ln
West Ln
211

NEIGHBORHOOD MEETING

AFFIDAVIT OF MAILING

STATE OF OREGON)

SS

County of Clackamas)

I, Sam Huck, being duly sworn, state that I represent the party initiating interest in the Molalla River Middle School affecting the land located at 318 Leroy Avenue and that pursuant to Molalla's Development Code Section 17-4.1.070, did on the 17th day of March, 2025 caused to have mailed, to each of the persons on the attached list, a notice of a meeting to discuss the proposed development of the aforementioned property.

I further state that said notices were enclosed in plainly addressed envelopes to said persons and were deposited on the date indicated above in the United States Post Office with postage prepaid thereon.

This 20th day of May 2025.

Signature

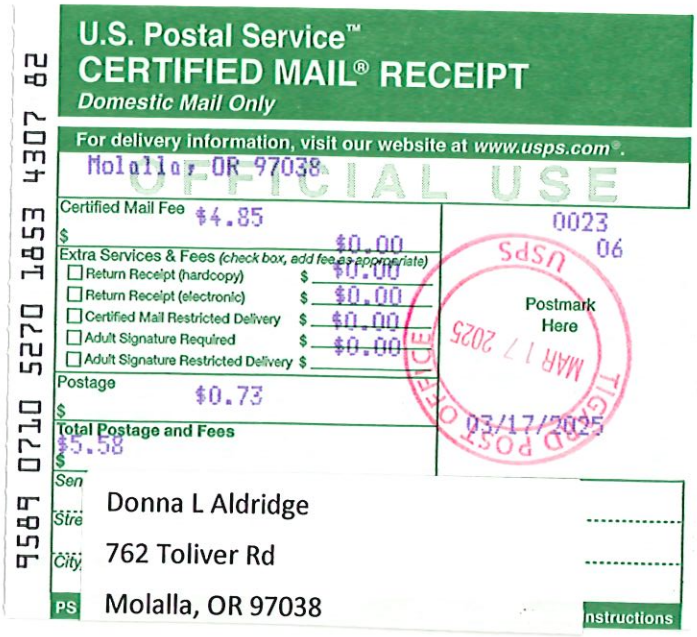
Subscribed and sworn to, or affirmed, before me this 20th day of May, 2025.

OFFICIAL STAMP
Shane Gretchen Anderson Fuller
NOTARY PUBLIC - OREGON
COMMISSION NO. 1047718
MY COMMISSION EXPIRES APRIL 30, 2028

Notary Public for the State of Oregon

County of Washington

My Commission Expires: April 30, 2028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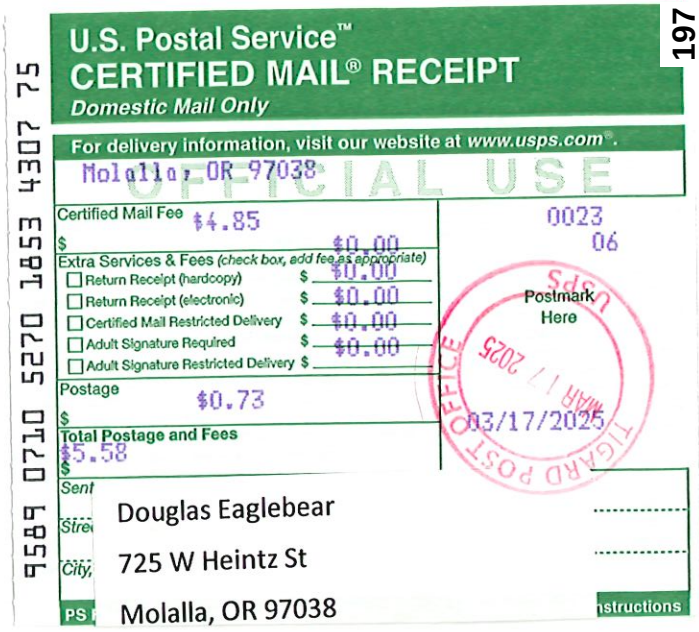
762 Toliver Rd
Molalla, OR 97038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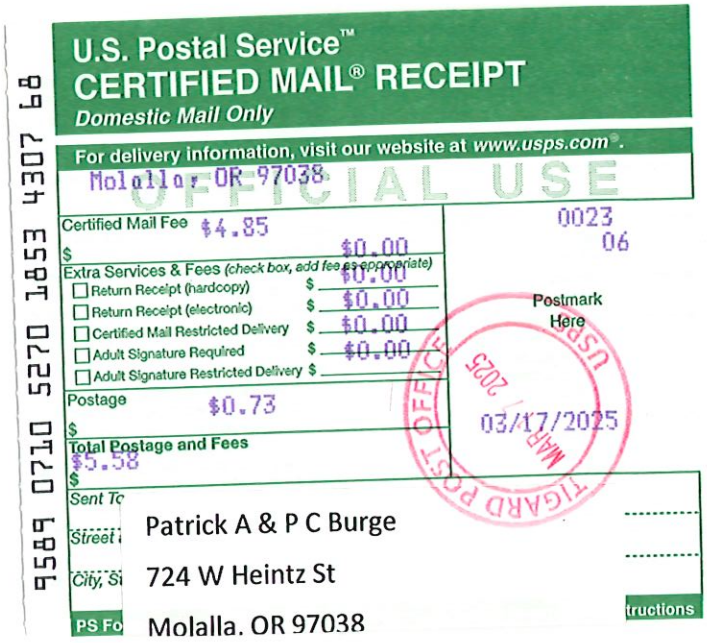
TIGARD POST OFFICE
Douglas Eaglebear
725 W Heintz St
Molalla, OR 97038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TIGARD POST OFFICE
Patrick A & P C Burge
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Adult Signature Required $0.00
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Scott Stigliano
PO Box 1103
Molalla, OR 97038

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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
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0023 06
Postmark Here
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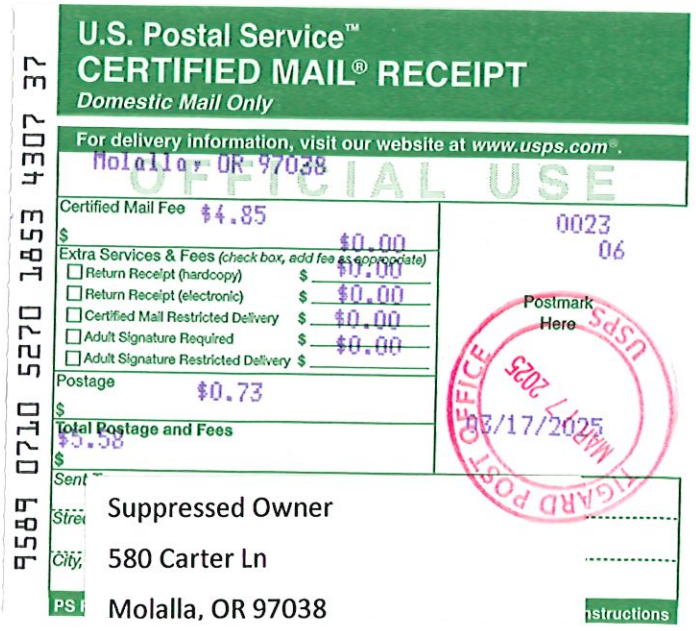
03/17/2025
USPS
TIGARD POST OFFICE
Max L Smith
1515 NE Laurel Ave
Woodburn. OR 97071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Adult Signature Restricted Delivery $
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Suppressed Owner
580 Carter Ln
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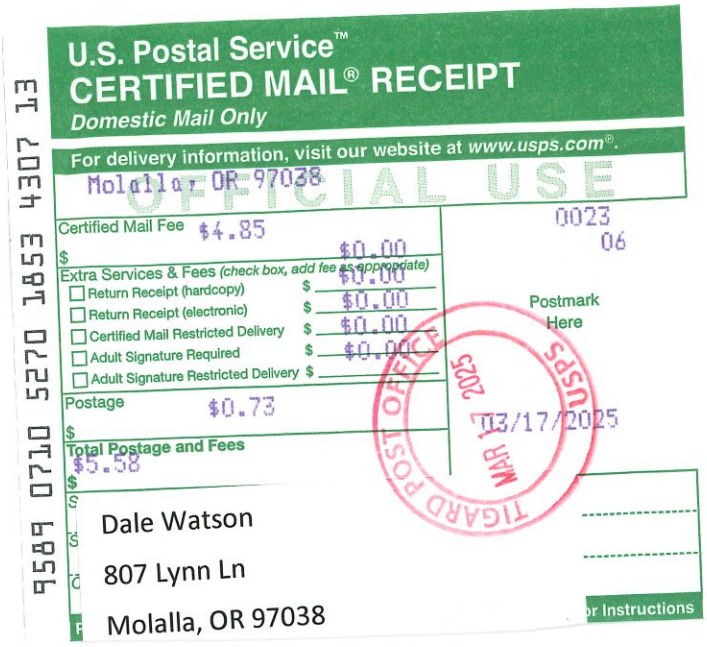
TIGARD POST OFFICE USPS MAR 17 2025
03/17/2025
Jeremy E & Mary E Comer
815 Lynn Ln
Molalla, OR 97038
Instructions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Adult Signature Restricted Delivery $
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Dale Watson
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Adult Signature Restricted Delivery $
Postage $0.73
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512 Leroy Ave
Molalla, OR 97038
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03/17/2025
Jeffrey Olds
515 Leroy St
Molalla, OR 97038
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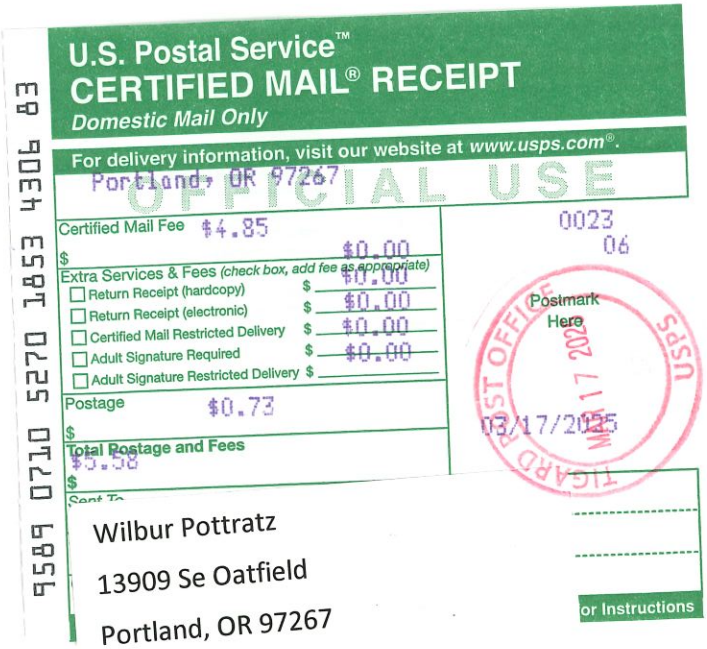
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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
Postmark Here
TIGARD POST OFFICE USPS MAR 17 2025
03/17/2025
Wilbur Pottratz
13909 Se Oatfield
Portland, OR 97267
Instructions

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Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
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723 W Heintz St
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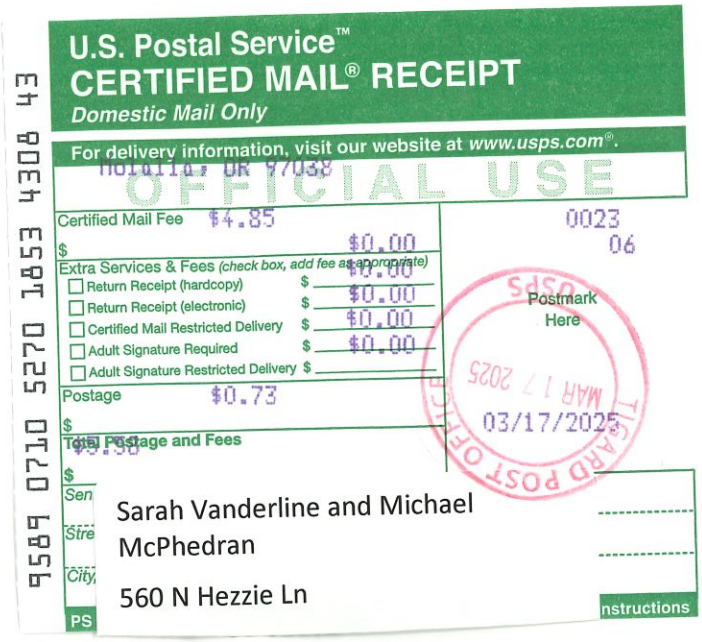
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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
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03/17/2025
Sarah Vanderline and Michael McPhedran
560 N Hezzie Ln
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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
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Scott D Morey
540 Lincoln Ln
Molalla, OR 97038
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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
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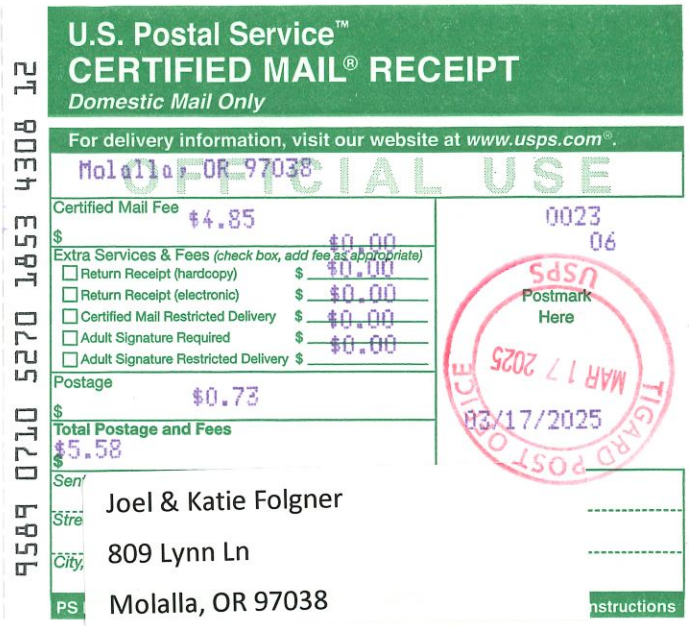
03/17/2025
Mark E & Sandra D Locke
560 Carter Ln
Molalla, OR 97038
9589 0710 5270 1853 4308 29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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
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Joel & Katie Folgner
809 Lynn Ln
Molalla, OR 97038
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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
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Steven A & Victoria Lamm, Trustees
PO Box 553
Molalla, OR 97038
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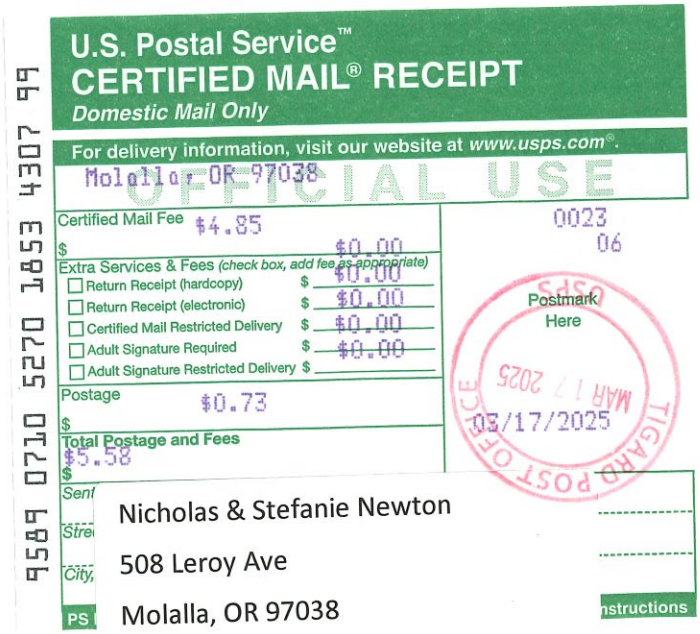
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Nicholas & Stefanie Newton
508 Leroy Ave
Molalla, OR 97038
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City, State, ZIP+4®
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Molalla, OR 97308

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☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
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Jason M & Nancy M Stadler
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☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
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Levi F Davis
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319 Leroy St
City, State, ZIP+4®
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☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
$
Total Postage and Fees
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$

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Cody & Madison Park
Street and Apt. No., or PO Box No.
509 West Ln
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Adult Signature Required $0.00
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Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
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Rigoberto Amaral & Carmen Rodriguez de Armaral
814 Sw 15th St
Pendleton, OR 97801

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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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Christopher D Heisner & Sophia Stiles
110 Leroy Ave
Molalla, OR 97038

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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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7020 0090 0001 9292 4654

Kevin C & Alana K Bisenius
150 N Hezzie Ln
Molalla, OR 97038

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Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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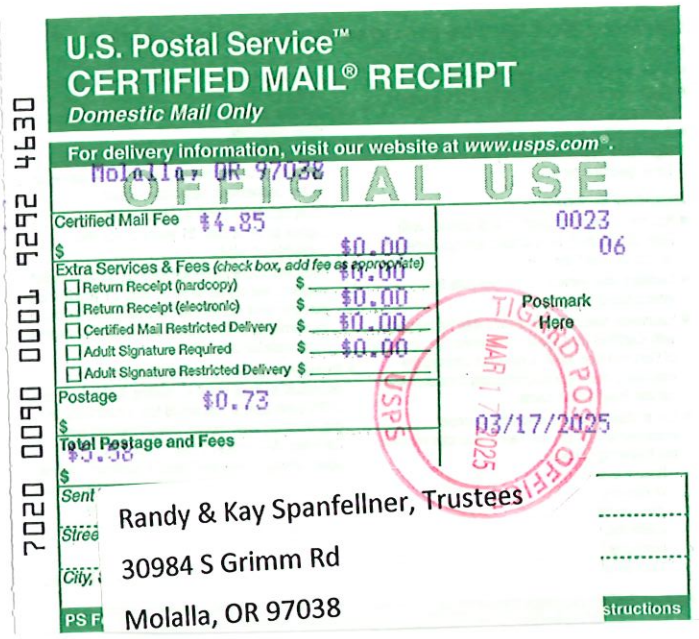
Joe D Reutov
180 N Hezzie Ln
Molalla, OR 97038



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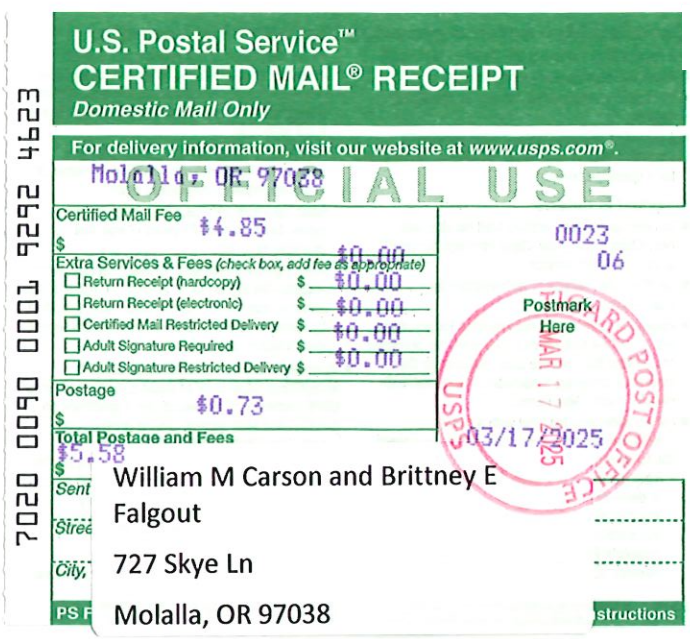
Randy & Kay Spanfellner, Trustees
30984 S Grimm Rd
Molalla, OR 97038



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Postage $0.73

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7020 0090 0001 9292 4623

William M Carson and Brittney E Falgout
727 Skye Ln
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- ☐ Certified Mail Restricted Delivery $ — $0.00
- ☐ Adult Signature Required $ — $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $0.73

Total Postage and Fees $5.58

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7020 0090 0001 9292 4616

Frank J Marson
13464 S Buff Rd
Mulino, OR 97042

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- ☐ Certified Mail Restricted Delivery $ — $0.00
- ☐ Adult Signature Required $ — $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $0.73

Total Postage and Fees $5.58

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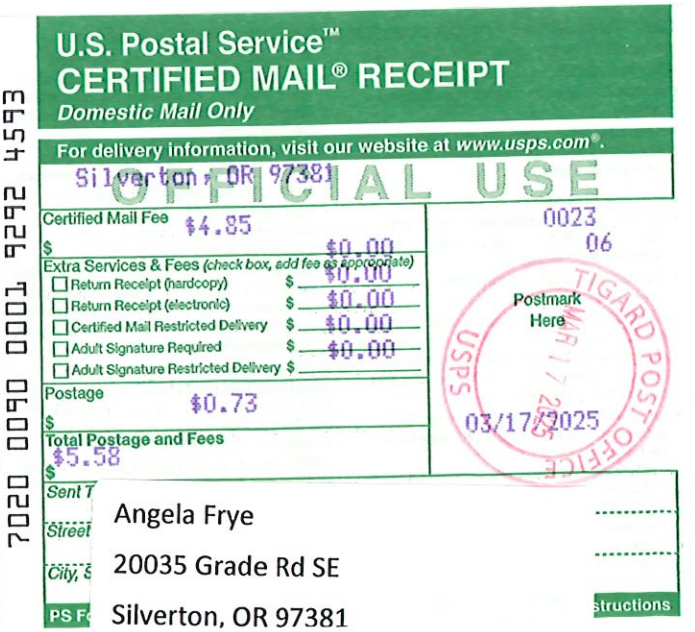
7020 0090 0001 9292 4609

Denise N Richer and Leanne D Gribble
523 West Ln
Molalla, OR 97038



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7020 0090 0001 9292 4593

Angela Frye
20035 Grade Rd SE
Silverton, OR 97381

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Michael Eekhoff and Devon Highley
520 West Ln
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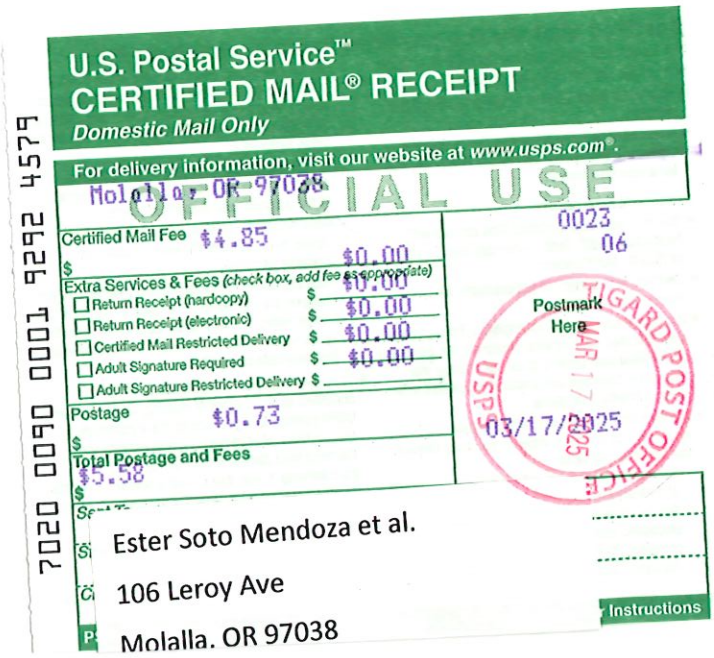

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☐ Adult Signature Restricted Delivery $
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7020 0090 0001 9292 4579
Ester Soto Mendoza et al.
106 Leroy Ave
Molalla, OR 97038
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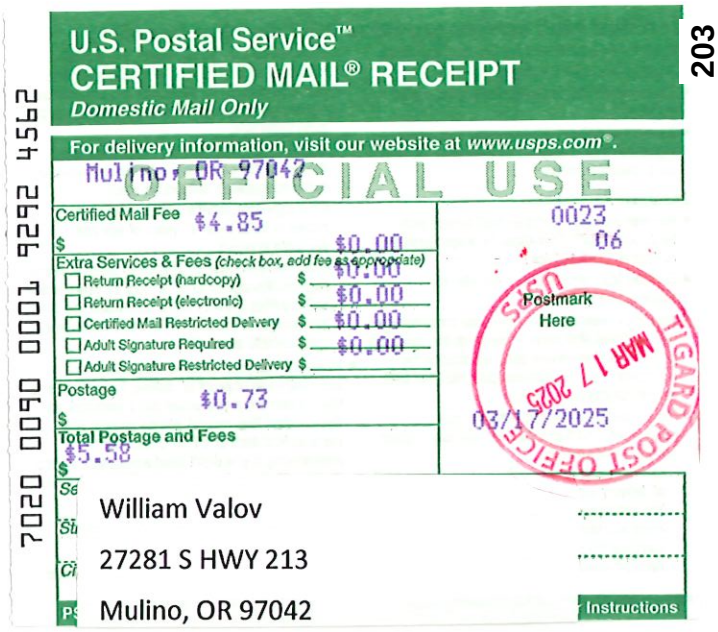

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7020 0090 0001 9292 4562
William Valov
27281 S HWY 213
Mulino, OR 97042
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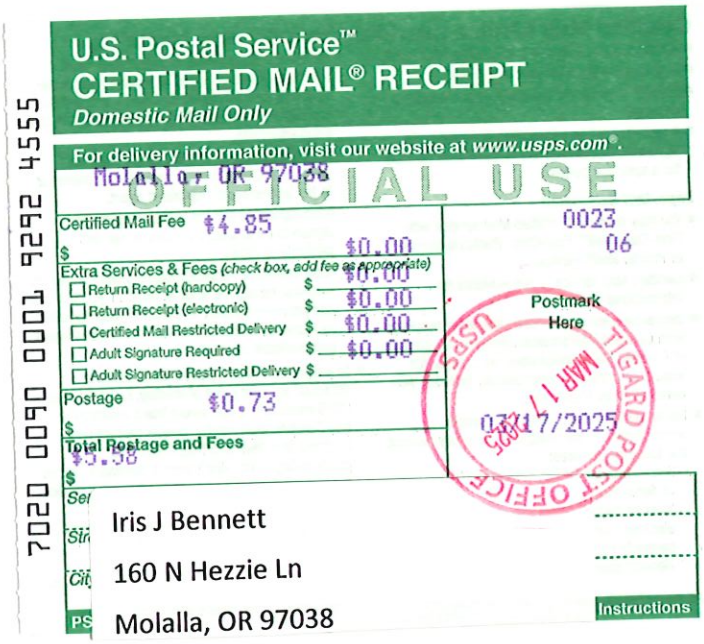

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7020 0090 0001 9292 4555
Iris J Bennett
160 N Hezzie Ln
Molalla, OR 97038
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☐ Adult Signature Required $ — $0.00
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7020 0090 0001 9292 4531
William L & Lynn L Metz
413 Leroy St
Molalla, OR 97038
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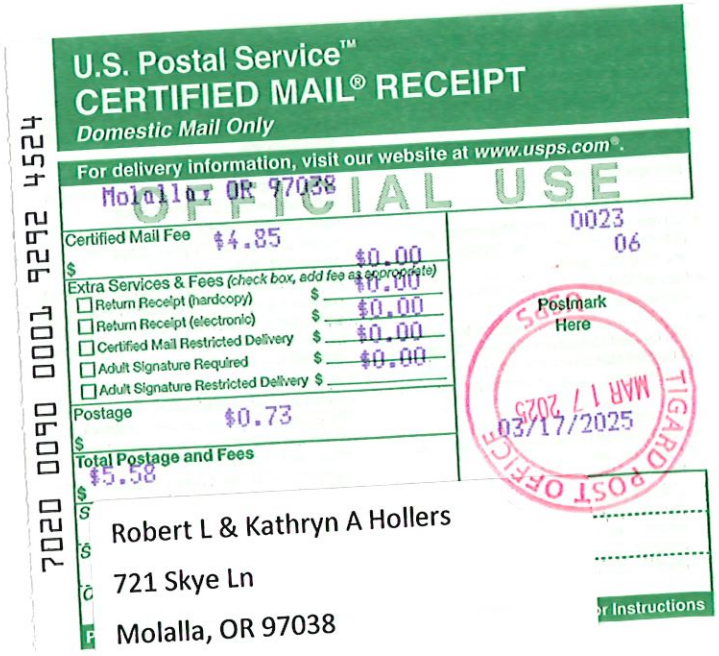

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☐ Adult Signature Required $ — $0.00
☐ Adult Signature Restricted Delivery $
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7020 0090 0001 9292 4524
Robert L & Kathryn A Hollers
721 Skye Ln
Molalla, OR 97038
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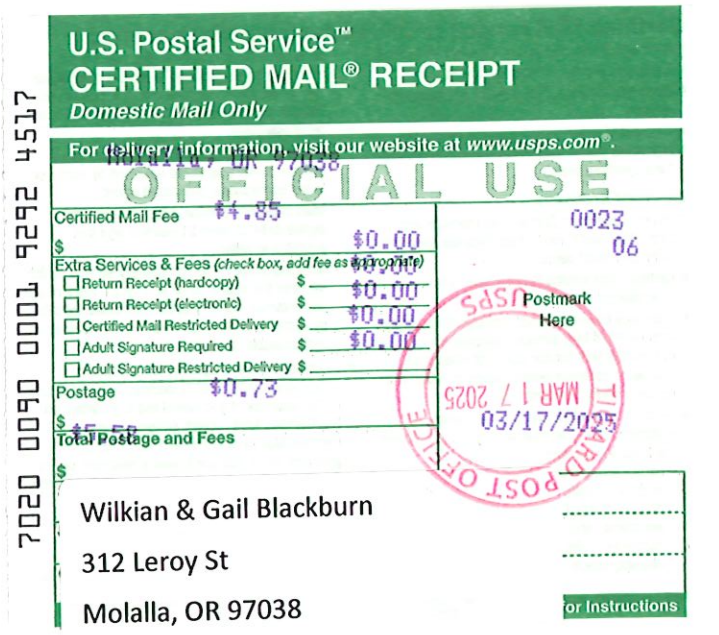

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☐ Adult Signature Required $ — $0.00
☐ Adult Signature Restricted Delivery $
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7020 0090 0001 9292 4517
Wilkian & Gail Blackburn
312 Leroy St
Molalla, OR 97038
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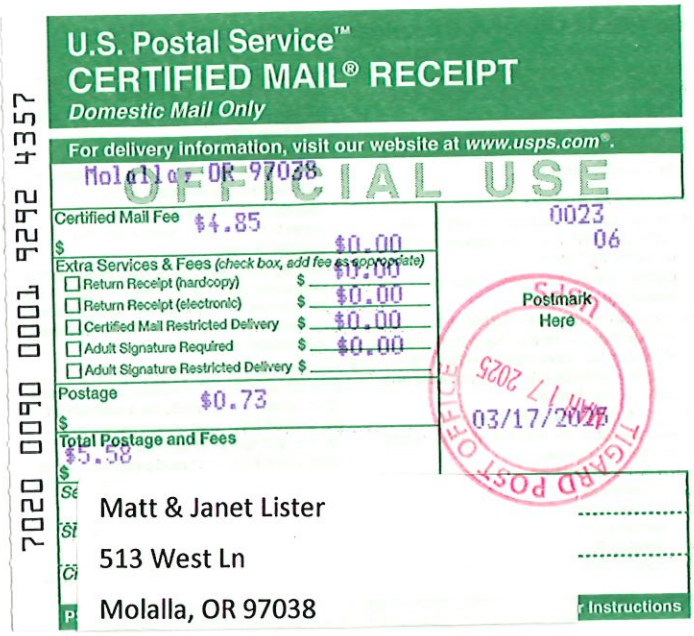

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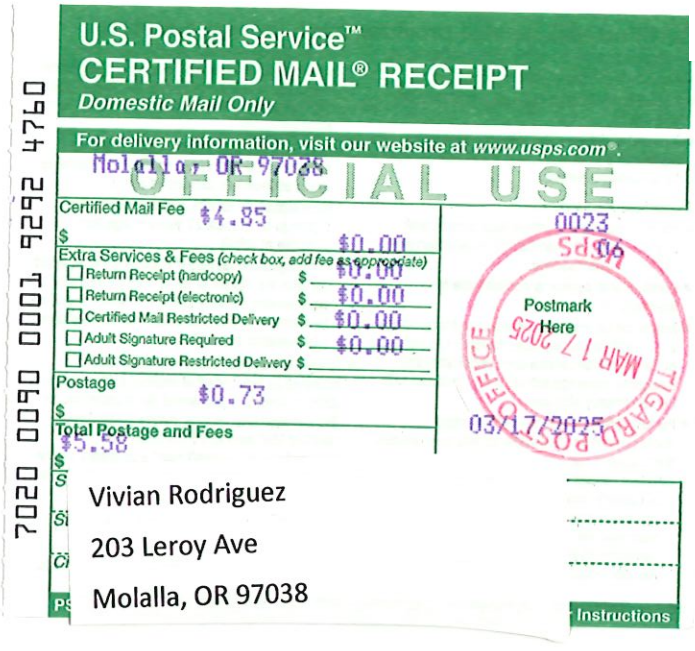
Matt & Janet Lister
513 West Ln
Molalla, OR 97038



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☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
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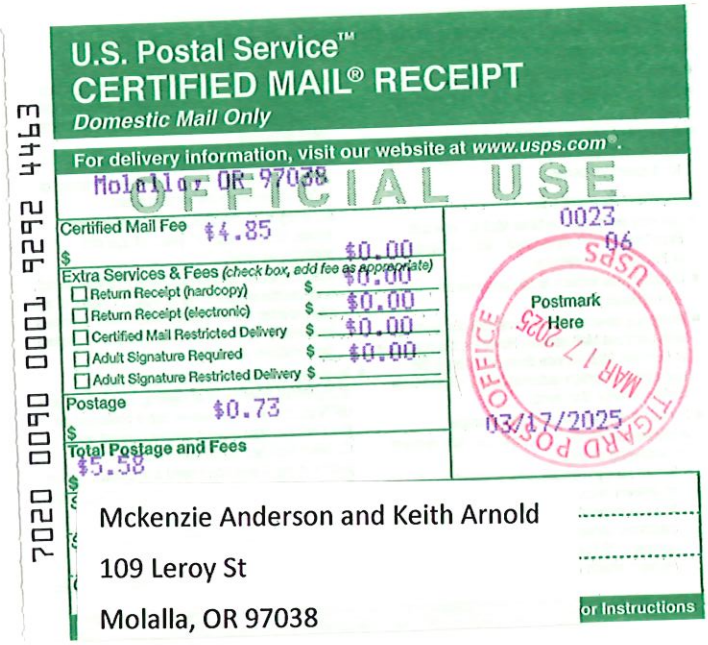
7020 0090 0001 9292 4760

Vivian Rodriguez
203 Leroy Ave
Molalla, OR 97038



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☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
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7020 0090 0001 9292 4463

Mckenzie Anderson and Keith Arnold
109 Leroy St
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees

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Dorothy M Mason, Trustee
108 Leroy Ave
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
$
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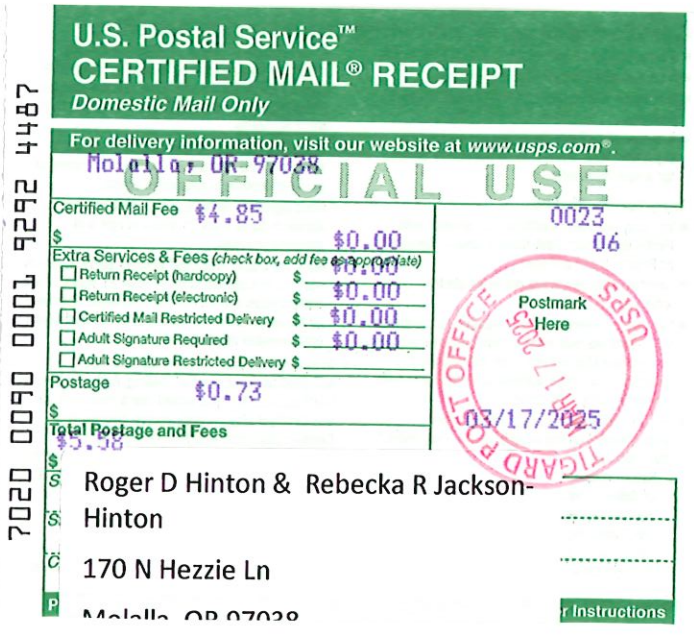
7020 0090 0001 9292 4494

Farmhouse Holdings LLC
PO Box 22404
Portland, OR 97269



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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
$
Total Postage and Fees

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7020 0090 0001 9292 4487

Roger D Hinton & Rebecka R Jackson-Hinton
170 N Hezzie Ln
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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7020 0090 0001 9292 4456

Becky J & Kevin R Ritz
240 N Hezzie Ln
Molalla, OR 97038

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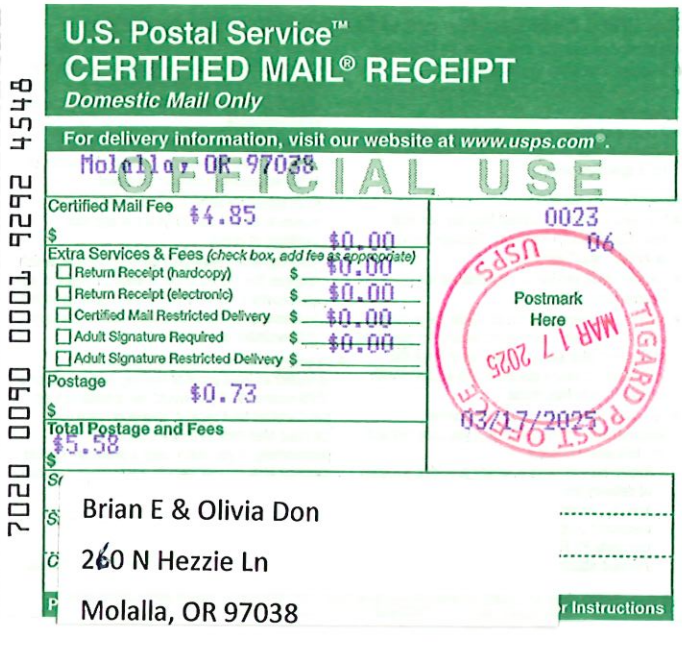

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☐ Adult Signature Restricted Delivery $
Postage $0.73
$
Total Postage and Fees
$5.58

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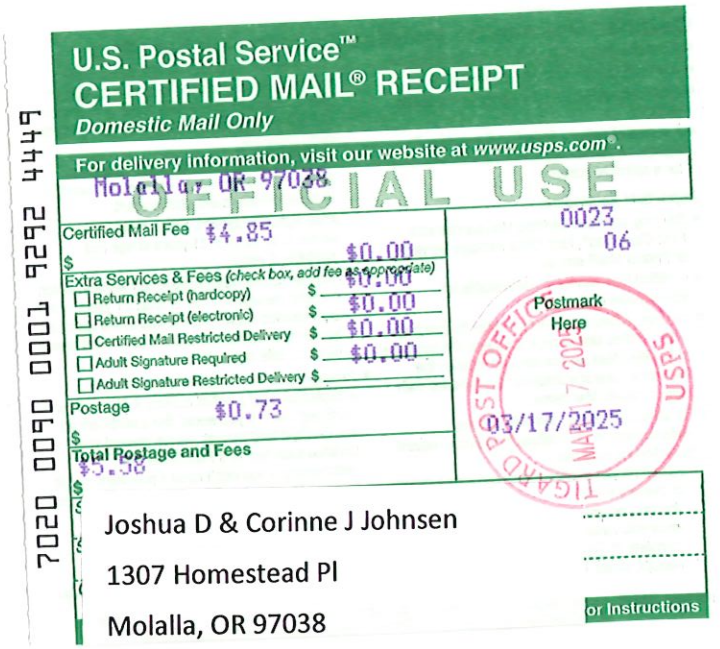
7020 0090 0001 9292 4548

Brian E & Olivia Don
260 N Hezzie Ln
Molalla, OR 97038

or Instructions



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Postage $0.73
$
Total Postage and Fees
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7020 0090 0001 9292 4449

Joshua D & Corinne J Johnsen
1307 Homestead Pl
Molalla, OR 97038

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Postage $0.73
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Total Postage and Fees
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Eliborio Fernandez & Ruth Sotelo
852 Bear Creek Dr
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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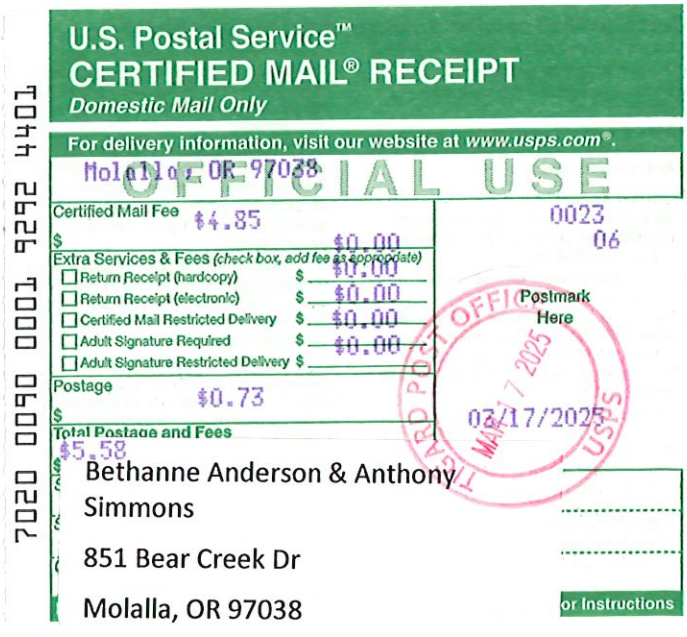
7020 0090 0001 9292 4425

Bear Creek HOA
485 S State St
Lake Oswego, OR 97034

for Instructions



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☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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7020 0090 0001 9292 4401

Bethanne Anderson & Anthony Simmons
851 Bear Creek Dr
Molalla, OR 97038

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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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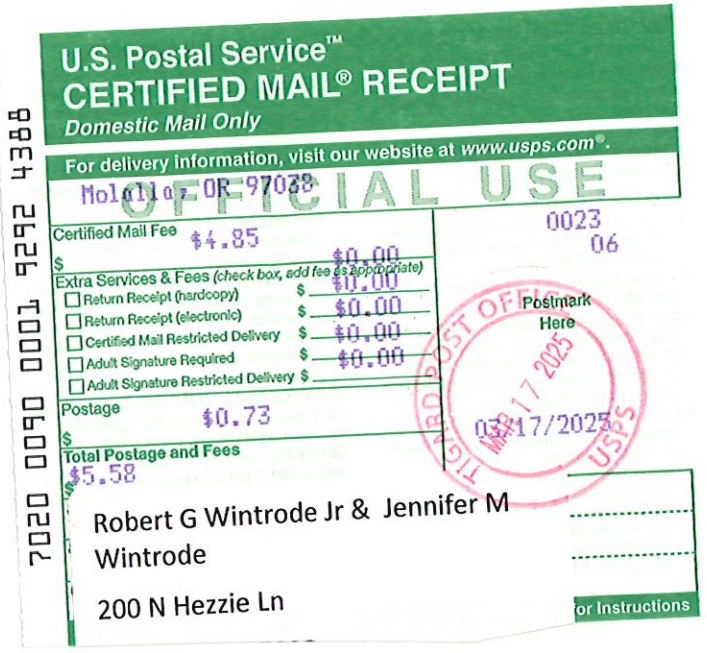
TIGARD POST OFFICE MAR 17 2025 03/17/2025 USPS
7020 0090 0001 9292 4395
Kacie & Daniel Burck
854 N Valley Dr
Molalla, OR 97038
for Instructions



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Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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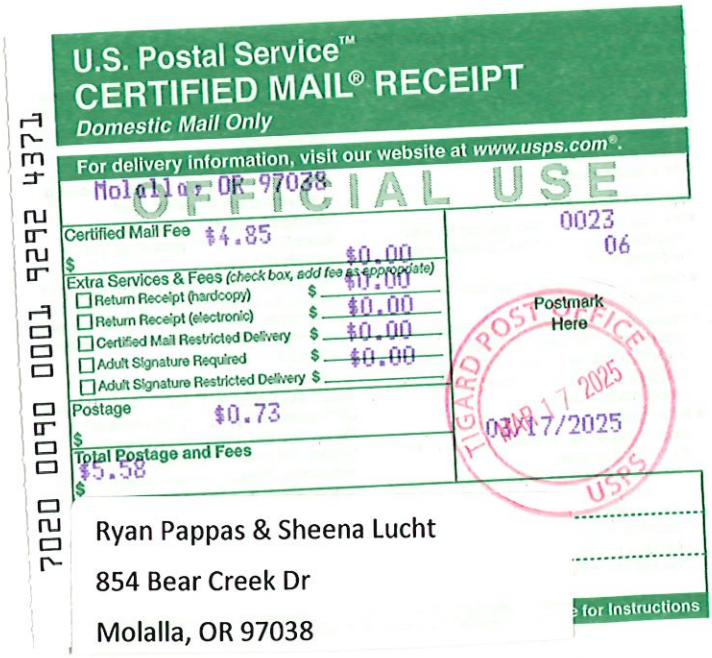
TIGARD POST OFFICE MAR 17 2025 03/17/2025 USPS
7020 0090 0001 9292 4388
Robert G Wintrode Jr & Jennifer M Wintrode
200 N Hezzie Ln
for Instructions



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Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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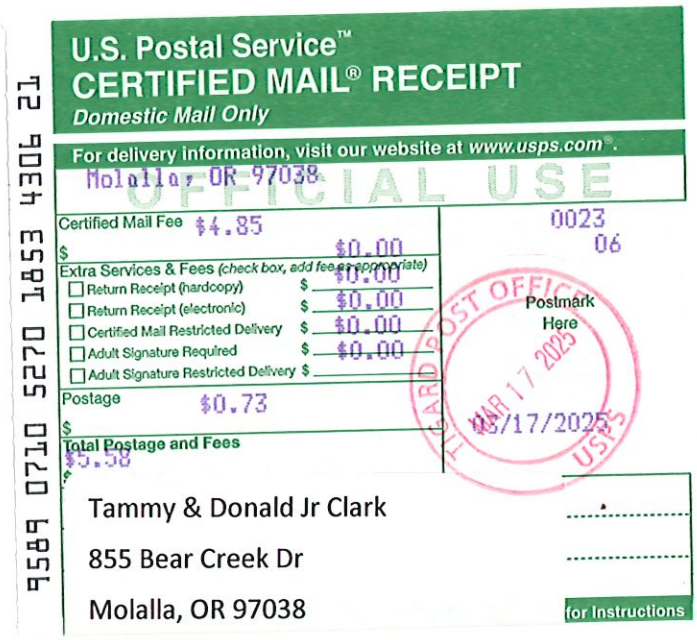
7020 0090 0001 9292 4371
Ryan Pappas & Sheena Lucht
854 Bear Creek Dr
Molalla, OR 97038
for Instructions



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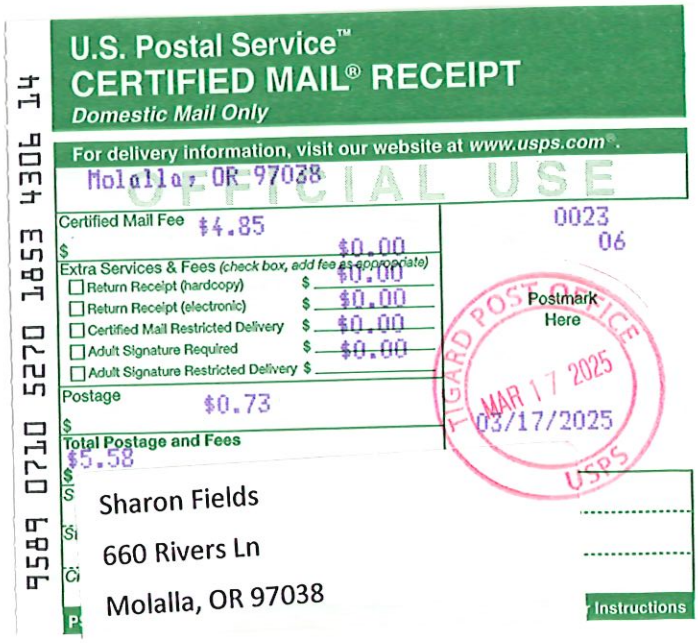
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
Postmark Here
TIGARD POST OFFICE MAR 17 2025 03/17/2025 USPS
9589 0710 5270 1853 4306 21
Tammy & Donald Jr Clark
855 Bear Creek Dr
Molalla, OR 97038
for Instructions



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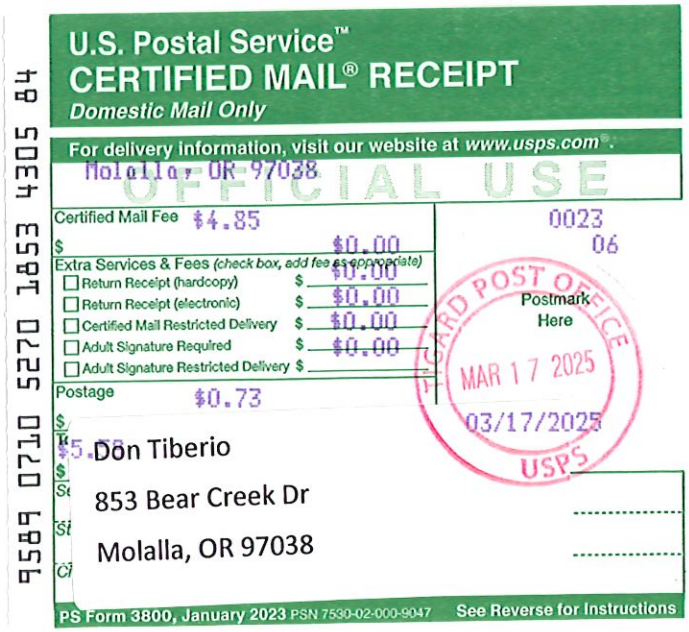
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
Postmark Here
TIGARD POST OFFICE MAR 17 2025 03/17/2025 USPS
9589 0710 5270 1853 4306 14
Sharon Fields
660 Rivers Ln
Molalla, OR 97038
Instructions



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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58
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TIGARD POST OFFICE MAR 17 2025 03/17/2025 USPS
9589 0710 5270 1853 4305 84
Don Tiberio
853 Bear Creek Dr
Molalla, OR 97038
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☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
$5.58
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Adan & Rebekah Magana
856 Bear Creek Dr
Molalla, OR 97038
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$ $0.00
Extra Services & Fees (check box, add fee as appropriate)
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
$5.58
Gardenia & Timothy Gallardo
850 Bear Creek Dr
Molalla, OR 97038
for Instructions
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MAR 17 2025
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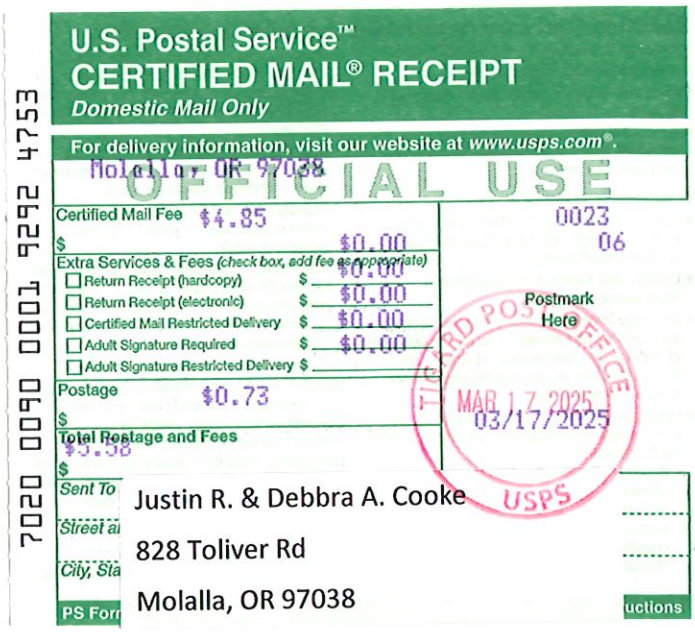

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☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
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Postage $0.73
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Total Postage and Fees
$5.58
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Justin R. & Debbra A. Cooke
828 Toliver Rd
Molalla, OR 97038
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☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
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Total Postage and Fees
$5.58
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Molalla, OR 97038
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☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
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Total Postage and Fees
$5.58
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Double I Construction Llc
1515 NE Laurel Ave
Woodburn, OR 97071
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03/17/2025
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$ $0.00
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☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
$
Total Postage and Fees
$5.58
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Ninette E Stein
520 Lincoln Ln
Molalla, OR 97038
Instructions
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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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Tammy E Baurer
Street and Apt. No.
811 Lynn Ln
City, State, ZIP+4®
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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Sent To
Michael & Hannah Theeler
Street and Apt. No.
802 Toliver Rd
City, State, ZIP+4®
Molalla, OR 97038

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☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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Robert B & Tammy J Larson
Street and Apt. No.
510 Leroy Ave
City, State, ZIP+4®
Molalla, OR 97038

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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USPS TIGARD POST OFFICE

Sent To
Michael & Debbi McGuyer
Street and Apt. No.
519 Leroy St
City, State, ZIP+4®
Molalla, OR 97038

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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03/17/2025
USPS TIGARD POST OFFICE

Sent To
Niva J McMyne and Lloyd L Miller
Street and Apt. No.
31941 S Goodtime Rd
City, State, ZIP+4®
Molalla, OR 97038

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.73
Total Postage and Fees	$5.58

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Sent To
Linda D & Marvin G Stoller, Trustees
Street and Apt. No.
726 W Heintz St
City, State, ZIP+4®
Molalla, OR 97038

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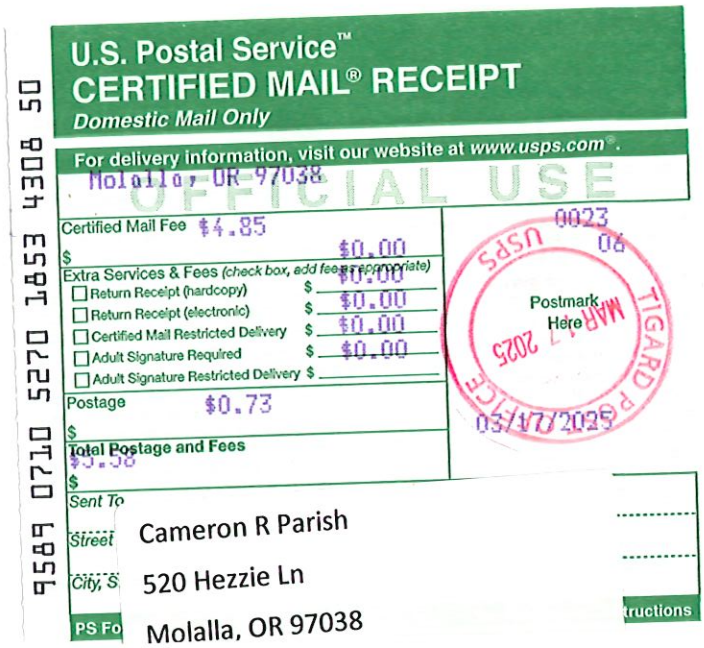

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9589 0710 5270 1853 4308 50

Certified Mail Fee $4.85 $0.00
Extra Services & Fees (check box, add fee as appropriate) $0.00
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $
☐ Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $5.58

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TIGARD OR 97223
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Sent To Cameron R Parish
Street 520 Hezzie Ln
City, S Molalla, OR 97038
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Justin R. & Debbra A. Cooke
828 Toliver Rd
Molalla, OR 97038

Steven L Estes
580 N Hezzie Ln
Molalla, OR 97038

Double I Construction Llc
1515 NE Laurel Ave
Woodburn, OR 97071

Ninette E Stein
520 Lincoln Ln
Molalla, OR 97038

Tammy E Baurer
811 Lynn Ln
Molalla, OR 97038

Michael & Hannah Theeler
802 Toliver Rd
Molalla, OR 97038

Robert B & Tammy J Larson
510 Leroy Ave
Molalla, OR 97038

Michael & Debbi McGuyer
519 Leroy St
Molalla, OR 97038

Niva J McMyne and Lloyd L Miller
31941 S Goodtime Rd
Molalla, OR 97038

Linda D & Marvin G Stoller, Trustees
726 W Heintz St
Molalla, OR 97038

Cameron R Parish
520 Hezzie Ln
Molalla, OR 97038

Sarah Vanderline and Michael McPhedran
560 N Hezzie Ln
Molalla, OR 97038

Scott D Morey
540 Lincoln Ln
Molalla, OR 97038

Mark E & Sandra D Locke
560 Carter Ln
Molalla, OR 97038

Joel & Katie Folgner
809 Lynn Ln
Molalla, OR 97038

Steven A & Victoria Lamm, Trustees
PO Box 553
Molalla, OR 97038

Nicholas & Stefanie Newton
508 Leroy Ave
Molalla, OR 97038

Donna L Aldridge
762 Toliver Rd
Molalla, OR 97038

Douglas Eaglebear
725 W Heintz St
Molalla, OR 97038

Patrick A & P C Burge
724 W Heintz St
Molalla, OR 97038

Scott Stigliano
PO Box 1103
Molalla, OR 97038

Max L Smith
1515 NE Laurel Ave
Woodburn, OR 97071

Suppressed Owner
580 Carter Ln
Molalla, OR 97038

Jeremy E & Mary E Comer
815 Lynn Ln
Molalla, OR 97038

Dale Watson
807 Lynn Ln
Molalla, OR 97038

Joseph O & Jody A Wilson
512 Leroy Ave
Molalla, OR 97038

Jeffrey Olds
515 Leroy St
Molalla, OR 97038

Wilbur Pottratz
13909 Se Oatfield
Portland, OR 97267

Efrain Aguilar-Padilla
723 W Heintz St
Molalla, OR 97038

Melhorn & Stephanie D Andersen
419 Leroy St
Molalla, OR 97038

Jesse F & Margaret A Day
PO Box 928
Molalla, OR 97308

Jason M & Nancy M Stadler
PO Box 788
Molalla, OR 97038

Levi F Davis
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Molalla River Middle School Replacement Project

Transportation Impact Study

Molalla, Oregon

Date:
May 22, 2025

Prepared for:
Molalla River School District

Prepared by:
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Executive Summary

1. The proposed Molalla River Middle School (MRMS) Replacement Project is located along Leroy Avenue in Molalla, Oregon. The proposed project will replace the existing middle school with a new school on the same tax lot as the existing school with construction completed in time for the 2027-28 school year.
2. The new school will have three parking lots and three new access points; one each on Lynn Lane, Leroy Avenue and Hezzie Lane. The lot north of the school buildings will be designated for staff and parent parking. The east lot will have some visitor parking and a curbside zone for drop-off/pick-up activity. A lot on the south side of the building will support bus drop-off/pick-up activity and be used for community parking during the off hours.
3. The existing school has a capacity of 800 students while the new school will have a capacity of 700 students. Current enrollment is approximately 530 students. The construction of the school is not anticipated to change enrollment forecasts compared with the existing school; therefore, no new trip generation will be generated by the proposed project. However, some travel pattern changes are anticipated with the proposed project.
4. No significant trends or crash patterns were identified at any of the study intersections. Accordingly, no specific safety mitigation is recommended.
5. Adequate sight distance will be provided at the new site accesses to ensure safe operation of the intersections Hezzie Lane and Leroy Avenue.
6. The left-turn lane warrants were not met on Leroy Avenue for the northbound approach to the new site driveway during either the morning and afternoon peak hours. However, if the roadway with has sufficient width to provide a left-turn plus the two travel lane and bike lanes as shown in Exhibit 4 of the Molalla TSP, a left-turn lane should be considered.
7. The projected traffic demand at the intersection of W Main Street (OR 211) & Hezzie Lane does not meet the ODOT preliminary traffic signal warrant thresholds. No signal is recommended with the school replacement project.
8. Detailed analysis of traffic signal warrants at the intersection of W Main Street (OR 211) at Leroy Avenue shows the proposed development will not trigger the criteria for installation of a traffic signal at this location. No signal is recommended with the school replacement project.
9. The proposed improvements are consistent with the Safe Routes to School Plan and will enhance the program with new striped crosswalks at locations where existing demand is present and future demand is anticipated.
10. Based on the existing condition observations of drop-off and pick-up activity, the planned parking and loading facilities appear adequate to accommodate the future demand.

11. All study intersections are projected to meet ODOT standards except for W Main Street (OR 211) and Leroy Avenue. Three study intersections are projected to operate with LOS F conditions and long delays; all others will operate below targets with generally low delays:
    - Long delays are anticipated for traffic turning left from Hezzie Lane onto W Main Street (OR 211); however, the intersection has v/c ratio well below the ODOT performance threshold for peak hours and forecast conditions. Therefore, no mitigation is necessary or recommended at this intersection.
    - The analysis of the new site access on Leroy Avenue was based on a single exit lane from the parking lot and no separate left-turn lanes on Leroy Avenue because warrants are not met. The addition of separate left- and right-turn lane exit lanes and left-turn lanes on Leroy Avenue would significantly improve operations of school driveway, particularly in the morning peak hour. Therefore, turn lanes should be considered even if they warrants are not met.
    - Standard analysis methodologies show long delays and over capacity conditions at the intersection of W Main Street (OR 211) & Leroy Avenue under background and buildout conditions. However, conditions at the Leroy Avenue intersection can be better represented by traffic simulations rather than HCM methodologies because they consider how the traffic signals on OR 211 (W Main Street) at OR 213 and at Molalla Avenue affect the traffic flow past Leroy Avenue. Simulated scenarios demonstrate that the intersection can accommodate the forecast demand without a traffic signal.
12. The 95th percentile queues at the study intersections can generally be accommodated by the available vehicle storage space under all scenarios. No queuing hazards were identified and the proposed project will not significantly impact queuing.

Project Description

Introduction

The proposed Molalla River Middle School (MRMS) Replacement Project is located along Leroy Avenue in Molalla, Oregon. The proposed project will replace the existing middle school with a new school on the same tax lot as the existing school with construction completed in time for the 2027-28 school year. The existing school has a capacity of 800 students while the new school will have a capacity of 700 students. Current enrollment is approximately 530 students.

This report examines the traffic impacts of the proposed development on the transportation system in the vicinity of the project site. Based on correspondence with Molalla's city engineer and ODOT's development coordinator, this report conducts safety and capacity/level of service analyses at the following 16 intersections including existing and proposed site accesses:

1. Toliver Road & Cascade Highway (OR 213)
2. W Main Street (OR 211) & Cascade Highway (OR 213)
3. Toliver Road & Hezzie Lane
4. Proposed West Access & Hezzie Lane
5. West Lane & Hezzie Lane
6. W Main Street (OR 211) & Hezzie Lane
7. Toliver Road & Leroy Avenue
8. Lynn Lane & Proposed North Access
9. Lynn Lane & Leroy Avenue
10. Existing North Access & Leroy Avenue
11. Proposed East Access & Leroy Avenue
12. Existing Center Access & Leroy Avenue
13. Existing South Access & Leroy Avenue
14. West Lane & Leroy Avenue
15. W Main Street (OR 211) & Leroy Avenue
16. Toliver Road & N Molalla Avenue
17. W Main Street (OR 211) & Molalla Avenue

All supporting data and calculations are included in the appendix to this report.

Location Description

The proposed project intends to replace the existing middle school on Tax Lot 52E08B 03000 with a new school on the same lot. This tax lot is surrounded on all sides by public right of way dedicated to existing and planned roadway infrastructure including Leroy Avenue to the east, Lynn Lane to the north, Hezzie Lane to the west, and West Lane to the south. The school district also owns the two lots west of the undeveloped Hezzie Lane right of way: Tax Lots 52E08B 01500 and 02000.

Figure 1 displays a vicinity map of the project area, with existing MRMS school facilities outlined in red. The existing school building is located in the southeast portion of the site. Sports facilities, including baseball fields, a track, and a soccer field are located to the west and north of the school. The school has three full-access driveways along Leroy Avenue, shown with blue arrows, and open access along part West Lane. School buses park along Leroy Avenue as indicated with the yellow line. Parents generally drop-off/pick-up students in one of the parking lots but there is a morning drop-off zone along a portion of Leroy Avenue north of the bus zone.

Figure 2 shows the proposed site plan with a detailed plan attached to this memorandum. The new school will be constructed in the northeast portion of the site while the existing school remains in operation. When construction is completed and the new building is occupied, the existing school will be removed and replaced with new sports fields. The new school will have three parking lots and three new access points; one each on Lynn Lane, Leroy Avenue and Hezzie Lane. The lot north of the school buildings will be designated for staff and parent parking. It will have direct access via Lynn Lane and will also have access through main lot east the school buildings. The east lot will have some visitor parking and a curbside zone for drop-off/pick-up activity. As many as 10 parent vehicles can unload/load students along the curbside zone simultaneously. Stacking for approximately 40 vehicles will be provided in the parking lot. A lot on the south side of the building will support bus drop-off/pick-up activity and be used for community parking during the off hours. This lot will take access from Hezzie Lane.

Transportation Facilities

Vicinity Streets

The study area includes five roadways expected to be impacted by the proposed development. Table 1 provides a description of each of the vicinity roadways.

Table 1: Roadway Characteristics

Street Name	Functional Classification	Travel Lanes	Speed	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
ODOT Jurisdiction						
W Main St (OR 211)	Arterial & District Hwy	2-3	35 mph	Partial both sides	None	Partial both sides
Cascade Hwy S (OR 213)	Arterial & District Hwy	2-3	35 mph	Partial both sides	None	Partial both sides
City of Molalla Jurisdiction						
Hezzie Lane	Neighborhood Collector	2	25 mph	West side Partial East	Permitted	None
Leroy Ave	Major Collector	2-3	25 mph	West side Partial East	None	None
Molalla Ave	Arterial	2-3	25 mph	Continuous	Partially Permitted	None
Toliver Road	Major Collector	2	25-35 mph	Partial both sides	Not Permitted	Partial both sides
Lynn Lane	Local	2	25 mph (Statutory)	None	None	None
West Lane	Local	2	25 mph (Statutory)	None	None	None

Notes: Functional Classification based on the Molalla Transportation System Plan

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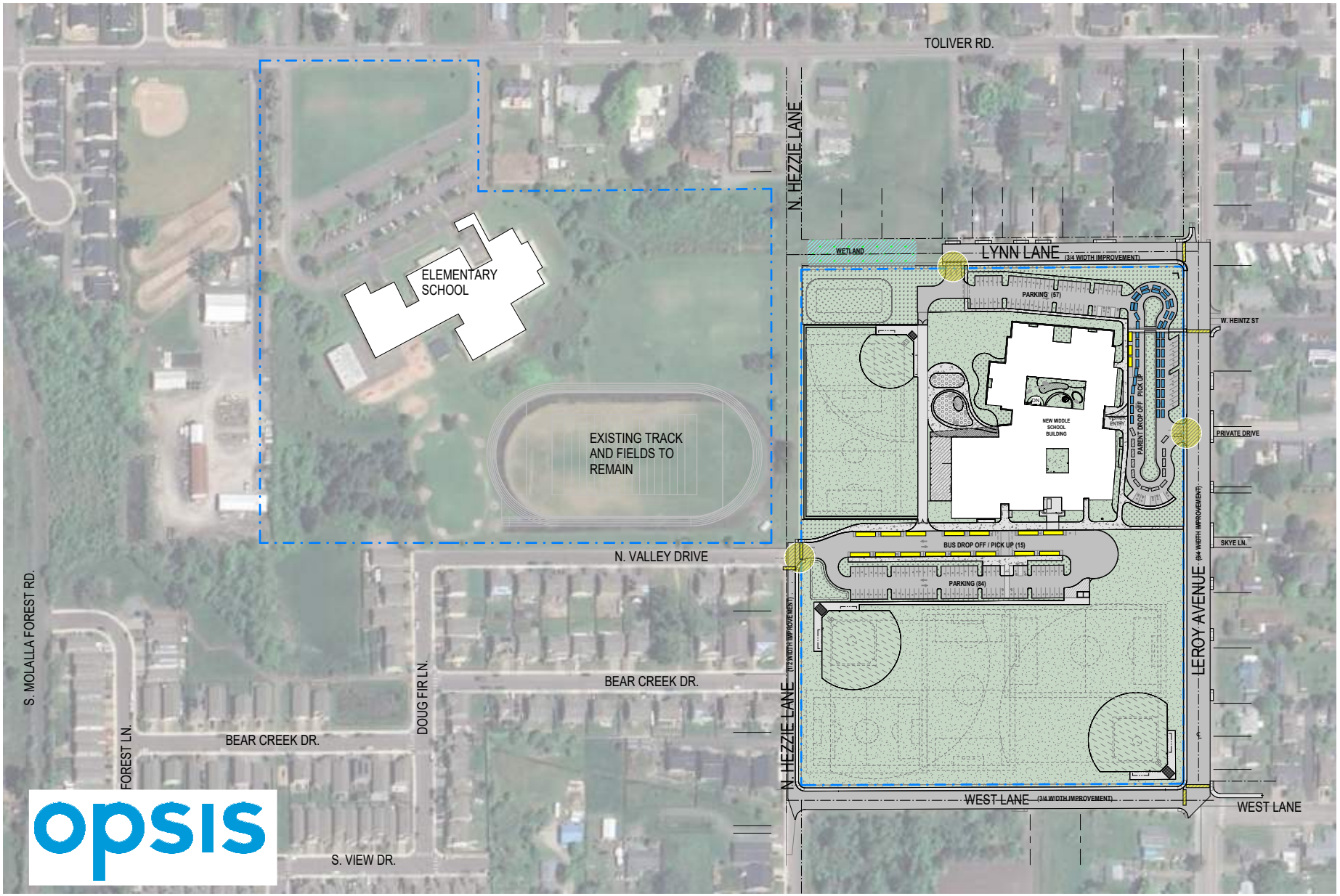
VICINITY MAP

Figure 1

Molalla River Middle School
Replacement Project



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PROPOSED SITE PLAN

Figure 2

Molalla River Middle School Replacement Project

Study Intersections

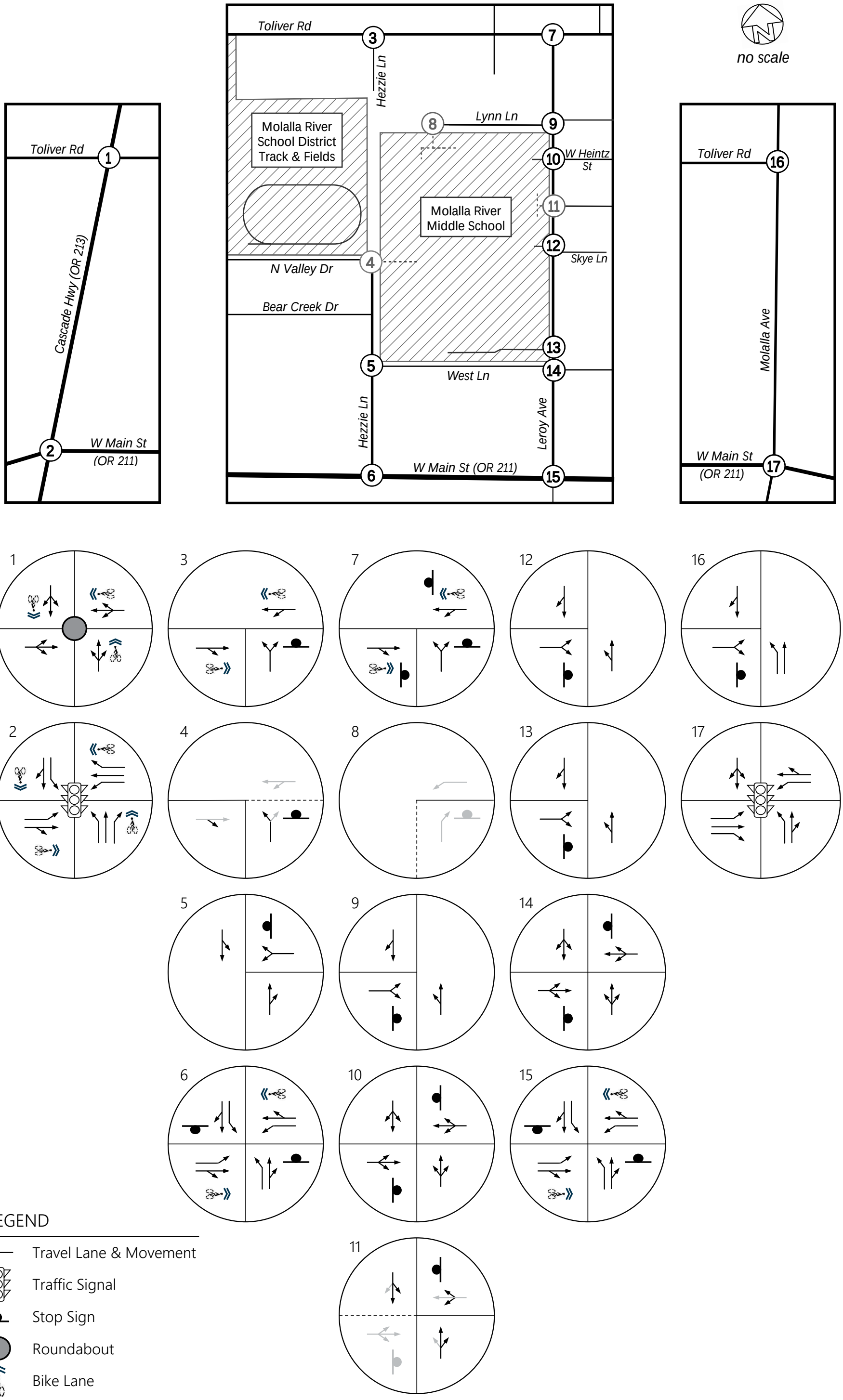
Through coordination with the City of Molalla and ODOT, 16 study intersections were identified for evaluation. The existing characteristics of these intersections are summarized in Table 2.

Table 2: Vicinity Intersection Descriptions

Intersection		Geometry	Traffic Control	Phasing/Stopped Approaches
1	Toliver Rd Cascade Hwy S (OR 213)	4-Leg	Roundabout	Yield Control All Approaches
2	W Main St (OR 211) & Cascade Hwy S (OR 213)	4-Leg	Signalized	Protected/Permitted Left Turn for All Approaches
3	Toliver Rd & Hezzie Ln	3-Leg	Unsignalized	NB Stop Control
4	Proposed West Access & Hezzie Ln	4-Leg	Unsignalized	To Be Determined
5	West Ln & Hezzie Ln	3-Leg	Unsignalized	WB Stop Control
6	W Main St (OR 211) & Hezzie Ln	4-Leg	Unsignalized	NB/SB Stop Control
7	Toliver Rd & Leroy Ave	3-Leg	Unsignalized	NB Stop Control
8	Lynn Ln & Proposed North Access	3-Leg	Unsignalized	NB Stop Control
9	Lynn Ln & Leroy Ave	4-Leg*	Unsignalized	EB/WB Stop Control
10	Existing North Access & Leroy Ave	4-Leg	Unsignalized	EB/WB Stop Control
11	Proposed East Access & Leroy Ave	4-Leg*	Unsignalized	EB/WB Stop Control
12	Existing Center Access & Leroy Ave	3-Leg	Unsignalized	EB Stop Control
13	Existing South Access & Leroy Ave	3-Leg	Unsignalized	EB Stop Control
14	West Ln & Leroy Ave	4-Leg	Unsignalized	EB/WB Stop Control
15	W Main St (OR 211) & Leroy Ave	4-Leg	Unsignalized	NB/SB Stop Control
16	Toliver Rd & N Molalla Ave	3-Leg	Unsignalized	EB Stop Control
17	W Main St (OR 211) & Molalla Ave	4-Leg	Signalized	EB/WB Protected Left-Turn

** Some roadways and accesses have a private driveway that forms a fourth leg of the intersection.*

A vicinity map showing the project site, vicinity streets, and intersection configurations is shown in Figure 3.



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LANE CONFIGURATION & TRAFFIC CONTROL

Figure 3

Molalla River Middle School
Replacement Project

Pedestrian Facilities

The school buildings currently have frontage along Leroy Avenue and West Lane. Continuous sidewalks are present on the west side of Leroy Avenue extending from W Main Street (OR 211) to Toliver Road. Both of these roadways have sidewalks on at least one side of the street. West Lane has no pedestrian facilities.

Striped crosswalks are located at numerous locations in the study area including:

- Toliver Road & Leroy Avenue – west and south approaches
- Existing North Access (W Heintz Street) & Leroy Avenue – south approach
- Existing South Access & Leroy Avenue – north approach
- West Lane & Leroy Avenue – east approach
- W Main Street (OR 211) & Leroy Avenue – west approach with flashing beacon
- W Main Street (OR 211) & Hezzie Lane – east approach with flashing beacon

Bicycle Facilities

Currently, the only roadways with any separated bicycle facilities are Cascade Highway (OR 213), Toliver Road, and W Main Street (OR 211).

Transit

South Clackamas Transit District has three routes that serve the City of Molalla. The Molalla City Bus route has a bus stop just over ½ mile walking/biking distance from the project site at the Ross Street Transit Center. The Molalla City route loops throughout the City in a largely clockwise direction. The bus runs from 7:30 AM to 5:35 PM, Monday through Friday, 9:30 AM to 3:45 PM, and has no service on Sunday. Headways are roughly one hour.

Site Trips

Estimated Trip Generation

Turning movement counts at the school driveways and West Lane were trip generation rates for MRMS and compared with standard rates from the *Trip Generation Manual*.[1] Data from the land use code 522, Middle School/Junior High School was used to estimate the current site's trip generation based on the number of students. The counts and standard trip generation estimates are compared in Table 3.

Table 3: Trip Generation Rate Comparison

Land Use	Intensity	AM Peak Hour			Afternoon Peak Hour			PM Peak Hour			Weekday Total
		In	Out	Total	In	Out	Total	In	Out	Total	
ITE Trip Generation											
522 - Middle School/Junior High School	531 Students	192	164	356	88	104	192	38	42	80	1,116
Traffic Counts											
MRMS	531 Students*	243	210	453	137	161	298	81	90	171	-
Net Difference		32	51	46	97	49	57	106	43	48	

** Oregon Department of Education Fall Membership Report 2024-25*

The traffic counts, which include all school buses (19 long buses and 2 short buses) were higher than the estimates prepared using standard trip rates; therefore, the counts were used as the basis for future estimates as well.

Forecasts were developed for the year 2030, a few years after the opening of the new school building for an enrollment of approximately 560 students. This estimate is based on an annual growth rate of approximately 1 percent per year for 5 years. A review for Oregon Department of Education Fall membership reports for the past 5 years shows a flat trend in enrollment; therefore, the assumption of 1 percent annual growth is higher than current trends. The resulting trip generation estimates are summarized in Table 4.

Table 4: Trip Generation Estimated for Year 2030

Land Use	Intensity	AM Peak Hour			Afternoon Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
MRMS	560 Students	256	221	477	144	170	314	85	95	180

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Mode Split

Multimodal traffic counts at the school driveways were used to review the travel modes serving MRMS. In addition to the driveway trips, observations of pick-up and drop-off activity along Leroy Avenue were conducted concurrently to capture off-site demand. Based on these data and observations, an estimated mode split was developed for the school, which is summarized in Table 5.

Table 5. Estimated Mode Split

Count Data	Morning Peak Hour		Afternoon Peak Hour		Assumptions
Vehicular Traffic					
Cars In	182		116		3 Accesses + West Lane on Leroy & Hezzie
Cars Out	149		140		
Estimated Curbside	40		20		Based on Observations
Estimated Staff Cars	33		24		Difference between Entering & Exiting
Estimated Parent Cars	189		136		-
Estimated Students	217		156		15% with 2 Students in vehicle
Mode Split					
Total Enrollment*	531				-
Absent	53				~10% Absent
Present	478				-
Car	217	45%	163	32%	-
Walk	42	9%	111	22%	-
Bike/Scooter	7	1%	20	4%	-
Bus	212	44%	210	42%	-

** Oregon Department of Education Fall Membership Report 2024-25*

These estimates of mode split rely on several assumptions, including the number of students per vehicle (approximately 15 percent assumed to have 2 students in one vehicle) and a 10 percent rate of absenteeism on the survey day. The results are compared with a school survey of travel modes in Table 6.

Table 6: Mode Split Comparison

Data Source	Morning Peak Hour				Afternoon Peak Hour			
	Car	Walk	Bike*	Bus	Car	Walk	Bike*	Bus
Counts	45%	9%	1%	44%	33%	23%	4%	40%
Survey	41%	12%	5%	42%	26%	27%	6%	41%

** Include bicycles and scooters*

The mode split estimates based on the multimodal traffic count volumes show similar trends to the survey day but the number of students arriving by car was higher. This could reflect the time of year, January, when most of the traffic counts were collected. Both surveys show that many more students walk home from school at the end of the day than walk to school in the morning. The pedestrian mode share in the afternoon was more than twice the mode share in the morning.

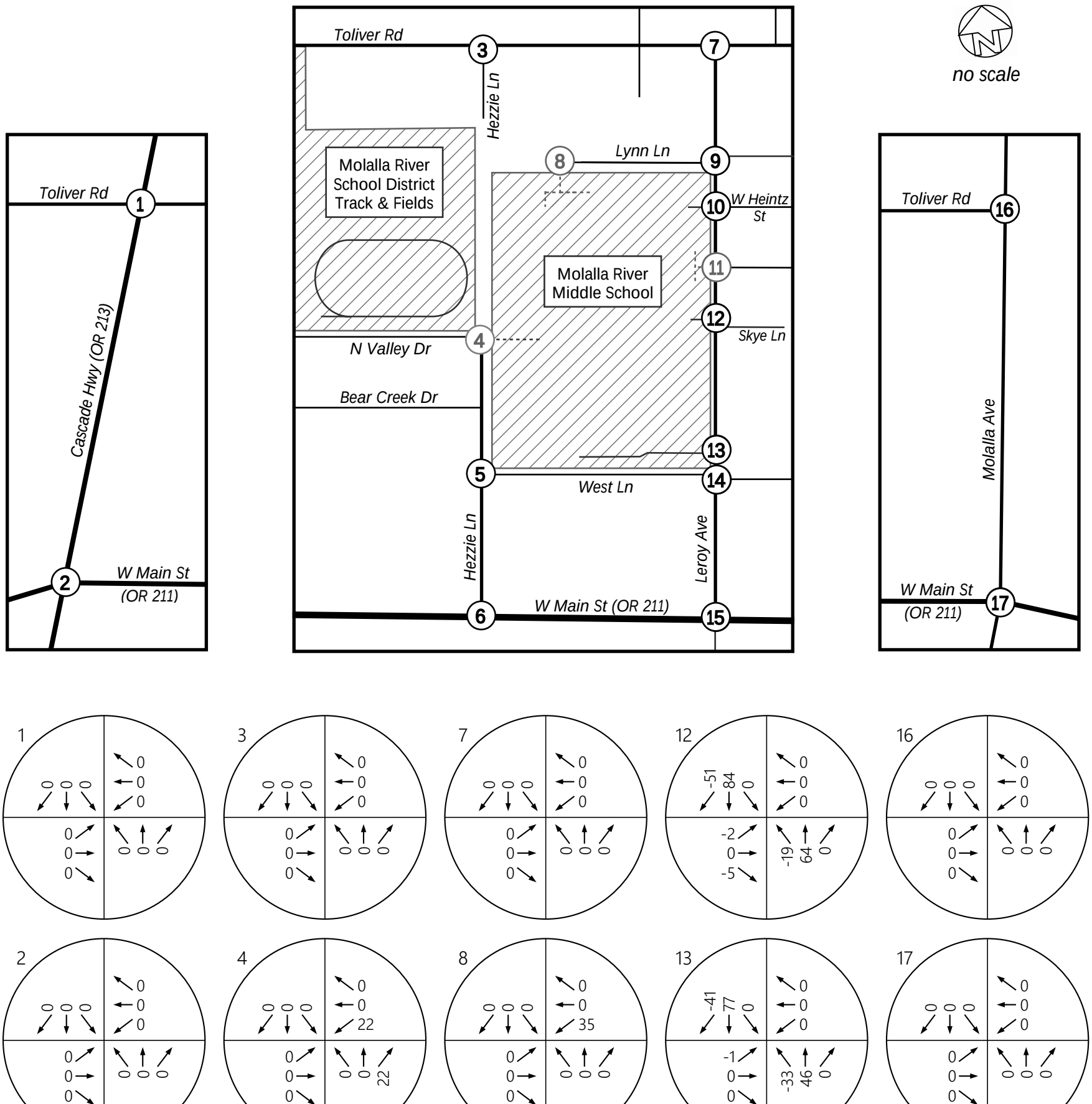
Trip Distribution

The general distribution of trips is not expected to change with the school replacement project; however, there will be some localized changes in traffic patterns, including:

- All buses will enter the site using the west access on Hezzie Lane. These buses were assumed to continue the current travel pattern of traveling along Toliver Road from the high school to Leroy Ave and then turn on West Lane to travel to Hezzie Lane. The buses were assumed to exit from Hezzie Lane back onto the system primarily via W Main Street (OR 211) following the same east-west distribution currently in place. More specific routing patterns may eventually be developed by transportation services but changes will not be planned until the opening of the new school.
- All staff traffic will enter the site using the north access on Lynn Lane.
- All passenger vehicle traffic will enter the site using the east access on Leroy Avenue. All parent traffic, including those who were observed dropping off or picking up children on Leroy Avenue, were assumed to enter the parking lot. Traffic volumes that were accessing the school lot on West Lane via Hezzie Lane were reassigned to the Leroy Avenue entrance.

Trip Assignment

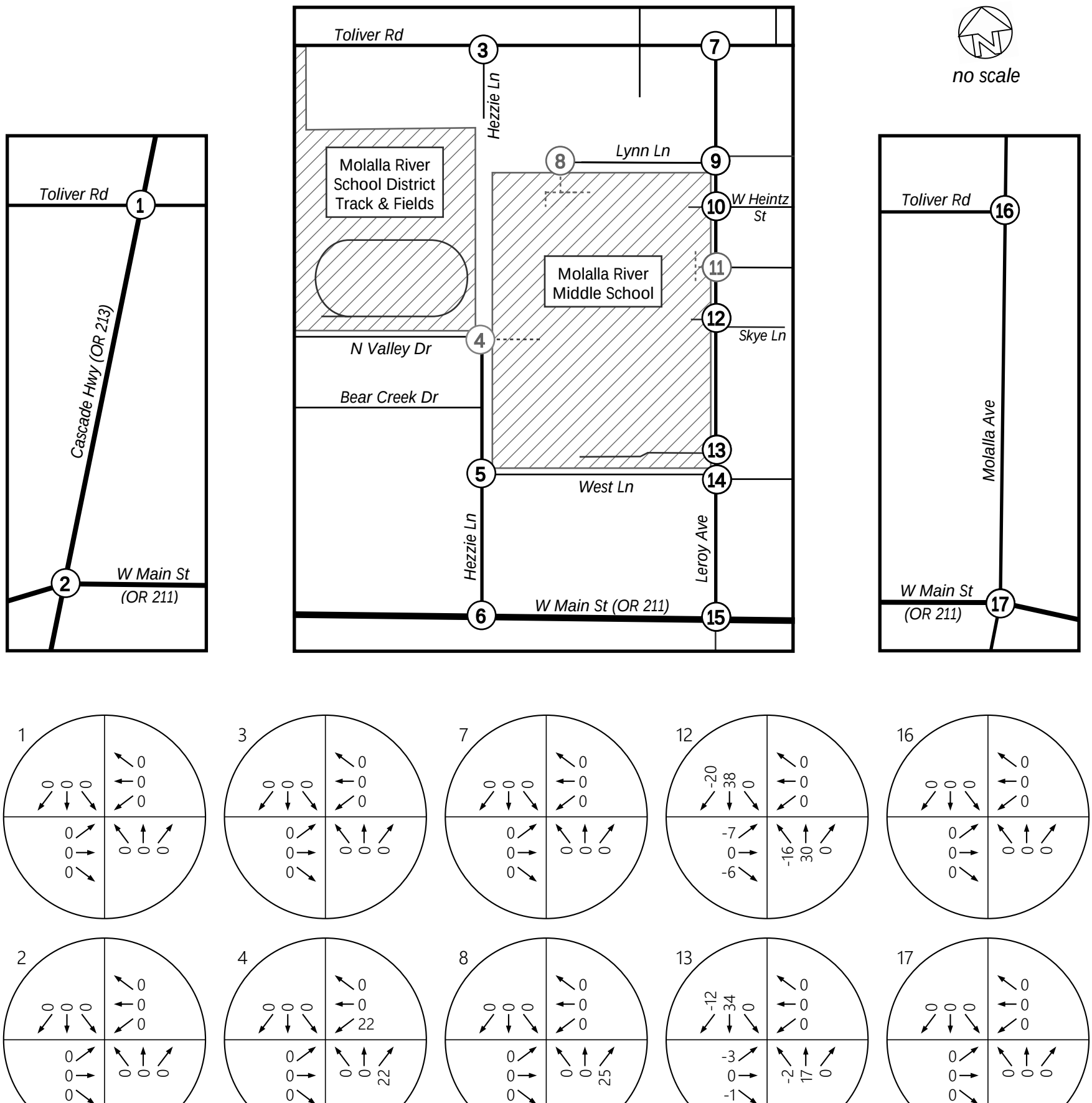
The resulting trip reassignment is shown in Figure 4a through Figure 4c for the morning, afternoon, and evening peak hours.



SCHOOL TRIP REASSIGNMENT
AM PEAK HOUR TRAFFIC VOLUMES

Figure 4a

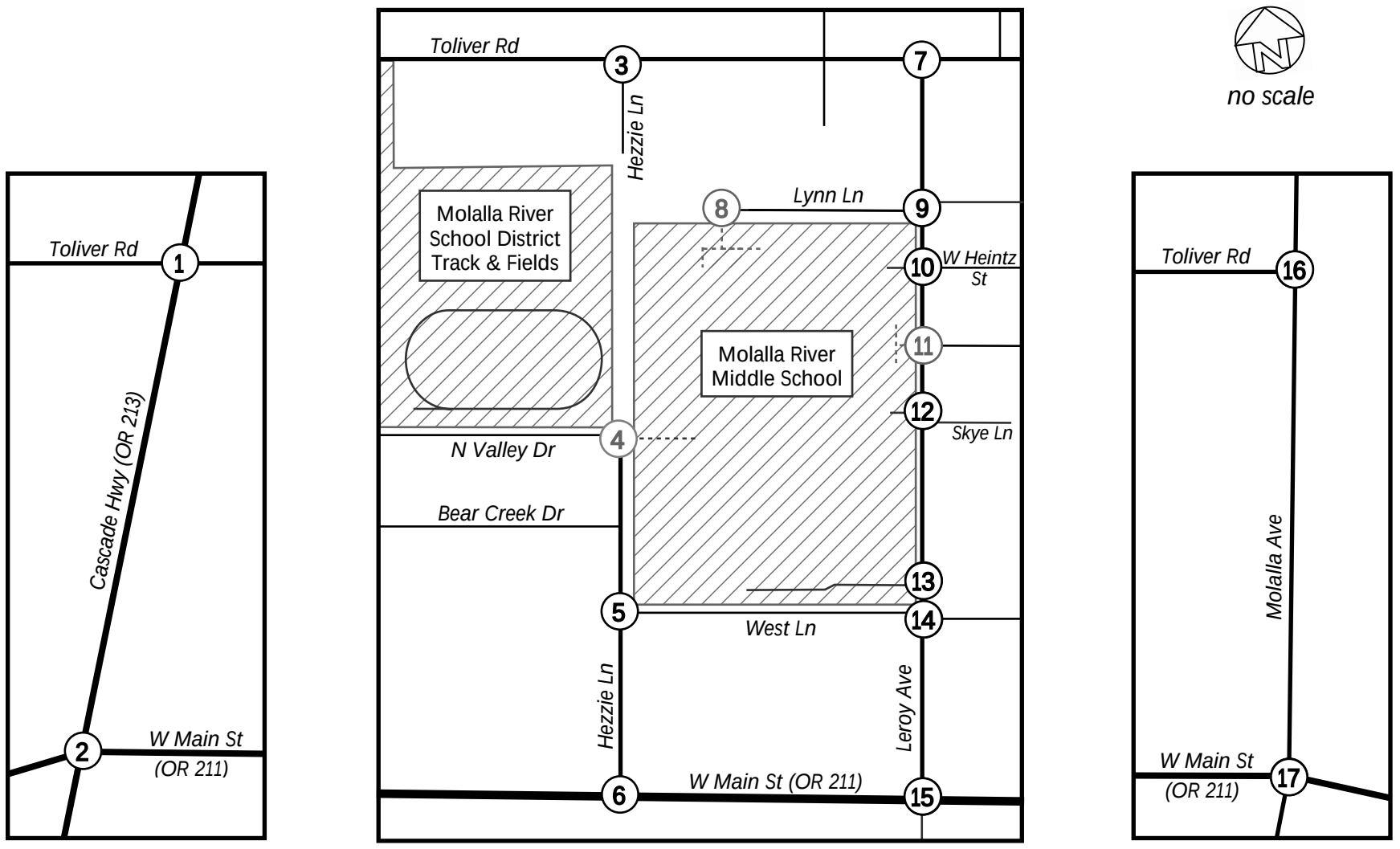
Molalla River Middle School
Replacement Project



SCHOOL TRIP REASSIGNMENT
AFTERNOON PEAK HOUR TRAFFIC VOLUMES

Figure 4b

Molalla River Middle School
Replacement Project



SCHOOL TRIP REASSIGNMENT
PM PEAK HOUR TRAFFIC VOLUMES

Figure 4c

Molalla River Middle School
Replacement Project

Traffic Volumes

Existing Conditions

Traffic counts were conducted at the study intersections on either Thursday, January 16, 2024, or Tuesday, April 15, 2025. All counts were collected from 6:30 AM to 8:00 AM and from 1:30 PM to 6:00 PM to capture the morning and afternoon peak hours corresponding with peak activity at the school and the evening peak hour between 3:30 PM and 6:00 PM corresponding with peak activity on the roadway network. Counts were collected at the intersection of W Main Street (OR 211) & Leroy avenue from 6:30 AM to 6:00 PM. The count data is included in Appendix B.

A common peak hour was identified for the morning and afternoon analysis and each intersection's evening peak hour was identified for evening analysis.

Seasonal Adjustment

Highway volumes were seasonally adjusted using the commuter factors in ODOT's 2023 Seasonal Trend Table. However, because school is not in session during the peak summer volume months, the highway traffic volumes were seasonally adjusted to the highest month of activity while school is in session, which is the first half of June. The following factors were applied:

- Counts collected on January 16, 2025: Factor = 1.1454
- Counts collected on April 15, 2025: Factor = 1.0443

Other Adjustment

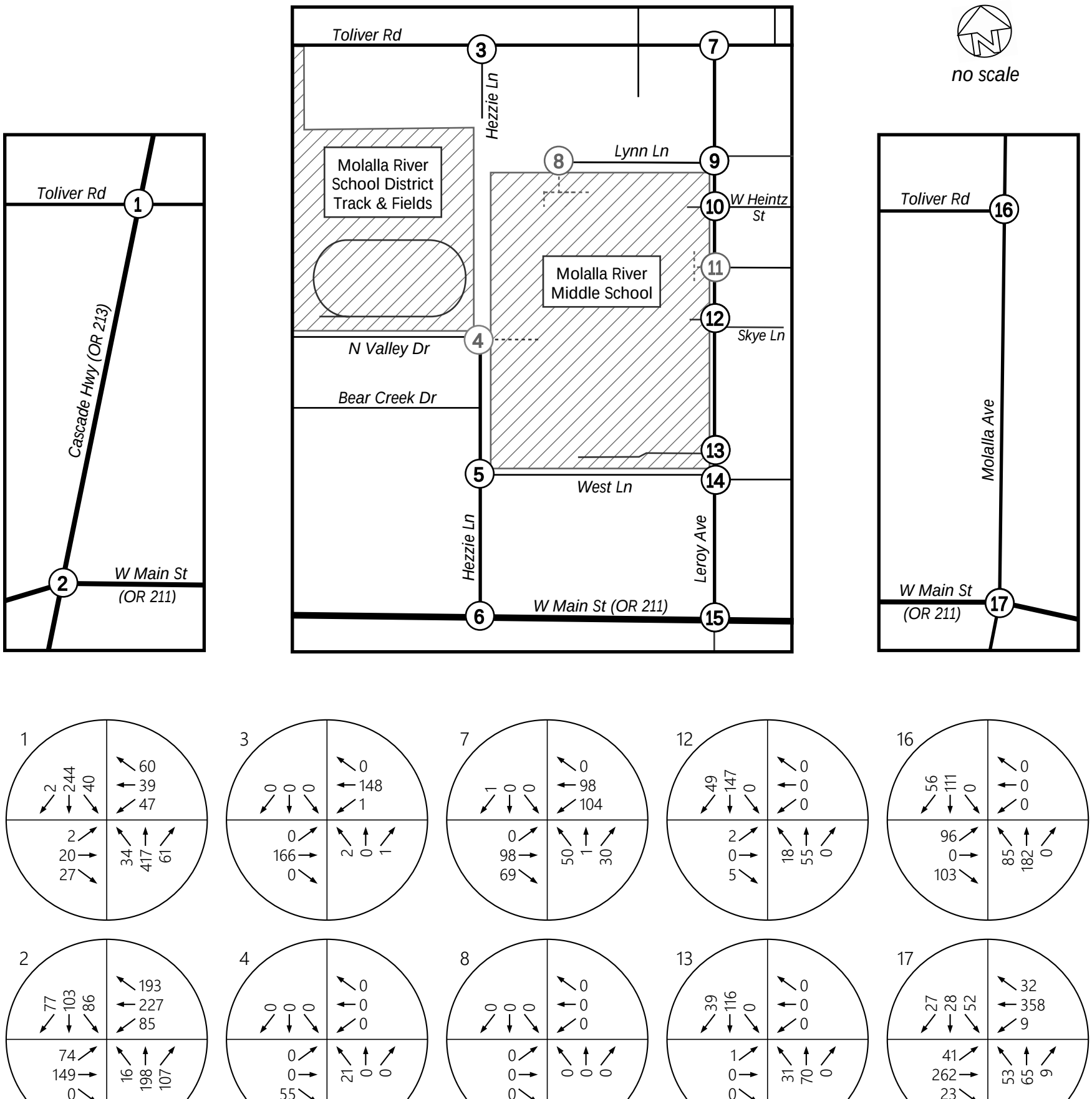
The school parking lots also provide community parking for activities on the playing fields. Because the count data for the site accesses was collected in January, when the fields were not being used, an additional volume adjustment was performed on the evening peak hour volumes.

To estimate the impacts of activity at the playing fields (baseball and soccer), trip generation was estimated based land use code 488, *Soccer Complex,* assuming 4 playing fields. Although there are also baseball fields near the school, the *Trip Generation Manual* does not have trip rates for that land use. The trip generation for soccer fields is assumed to be similar to that of baseball fields.

The trip generation was assigned to the network, assuming approximately 40 percent traveling to/from the north and 60 percent traveling to/from the south and further distributed the network following existing traffic patterns.

Traffic Volumes

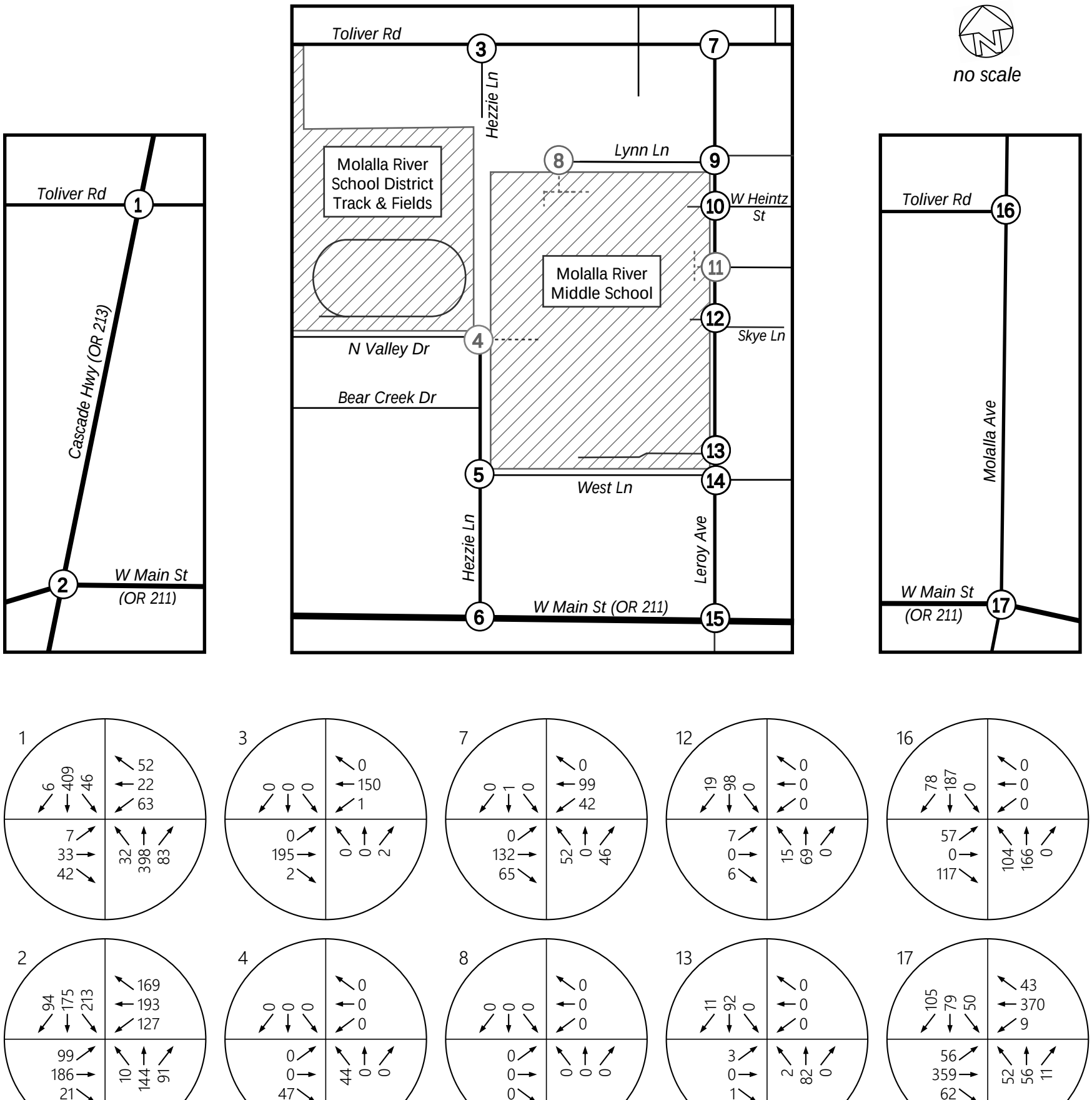
Figure 5a through Figure 5c show the year 2025 existing traffic volumes at the study intersections during the morning, afternoon, and evening peak hours.



2025 EXISTING CONDITION
AM PEAK HOUR TRAFFIC VOLUMES

Figure 5a

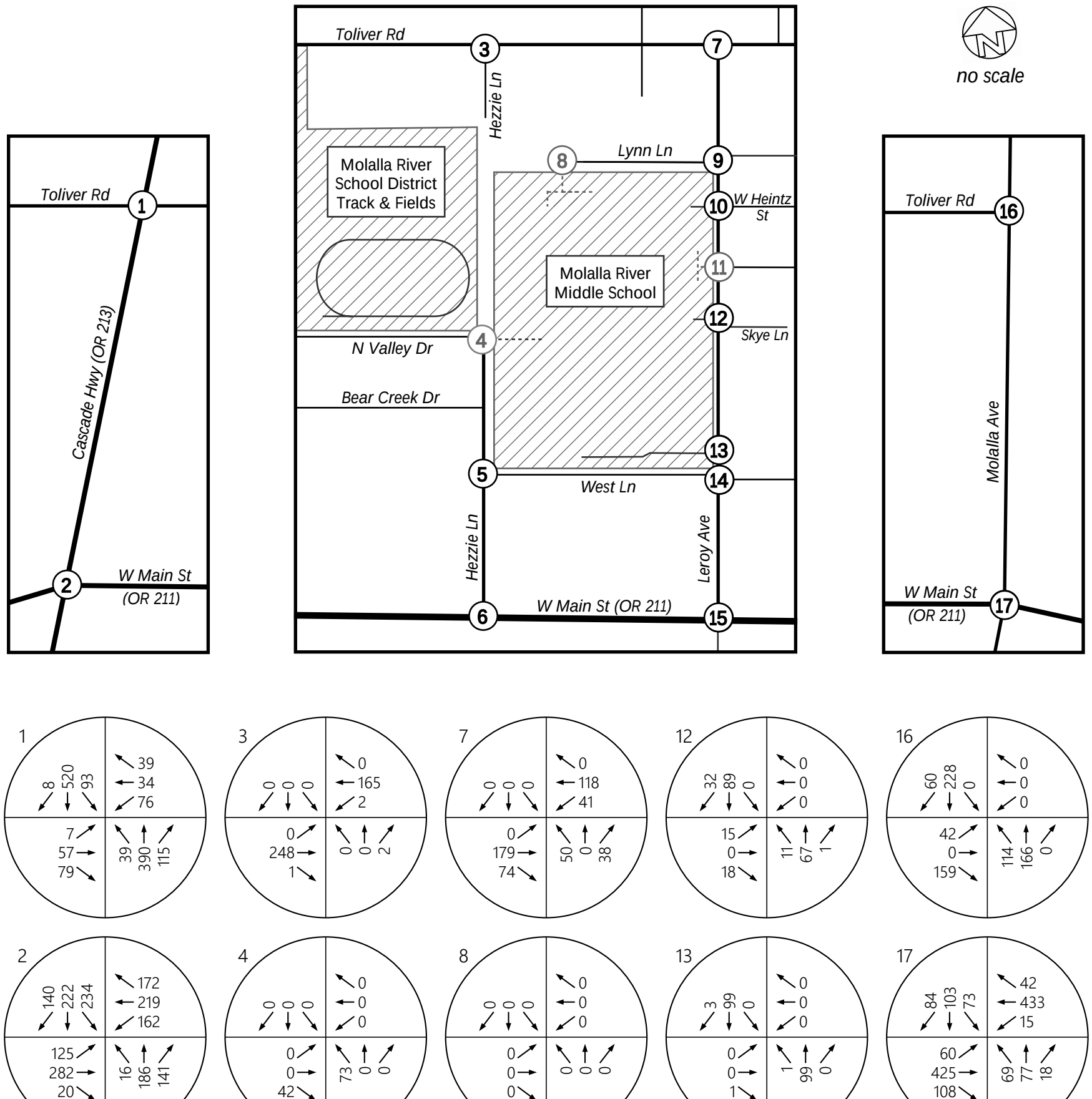
Molalla River Middle School
Replacement Project



2025 EXISTING CONDITION
AFTERNOON PEAK HOUR TRAFFIC VOLUMES

Figure 5b

Molalla River Middle School Replacement Project



2025 EXISTING CONDITION
PM PEAK HOUR TRAFFIC VOLUMES

Figure 5c

Molalla River Middle School Replacement Project

Background Conditions

Two components were included in the background traffic estimates: 1) general growth and 2) growth associated with planned developments. The buildout year is assumed to be 2030.

For the general background growth, the following annual growth rates were applied to the adjusted year 2025 existing traffic volumes:

- W Main Street (OR 211) – 1.02 percent per year (ODOT Future Volume Table MP 11.26 – 13.27)
- Cascade Highway (OR 213) – 0.73 percent per year (ODOT Future Volume Table MP 15.69 – 16.12)
- All other traffic movements – 1.00 percent per year

In addition to the general growth, six nearby developments that are approved but not yet fully constructed at the time of the traffic counts were included as in-process traffic:

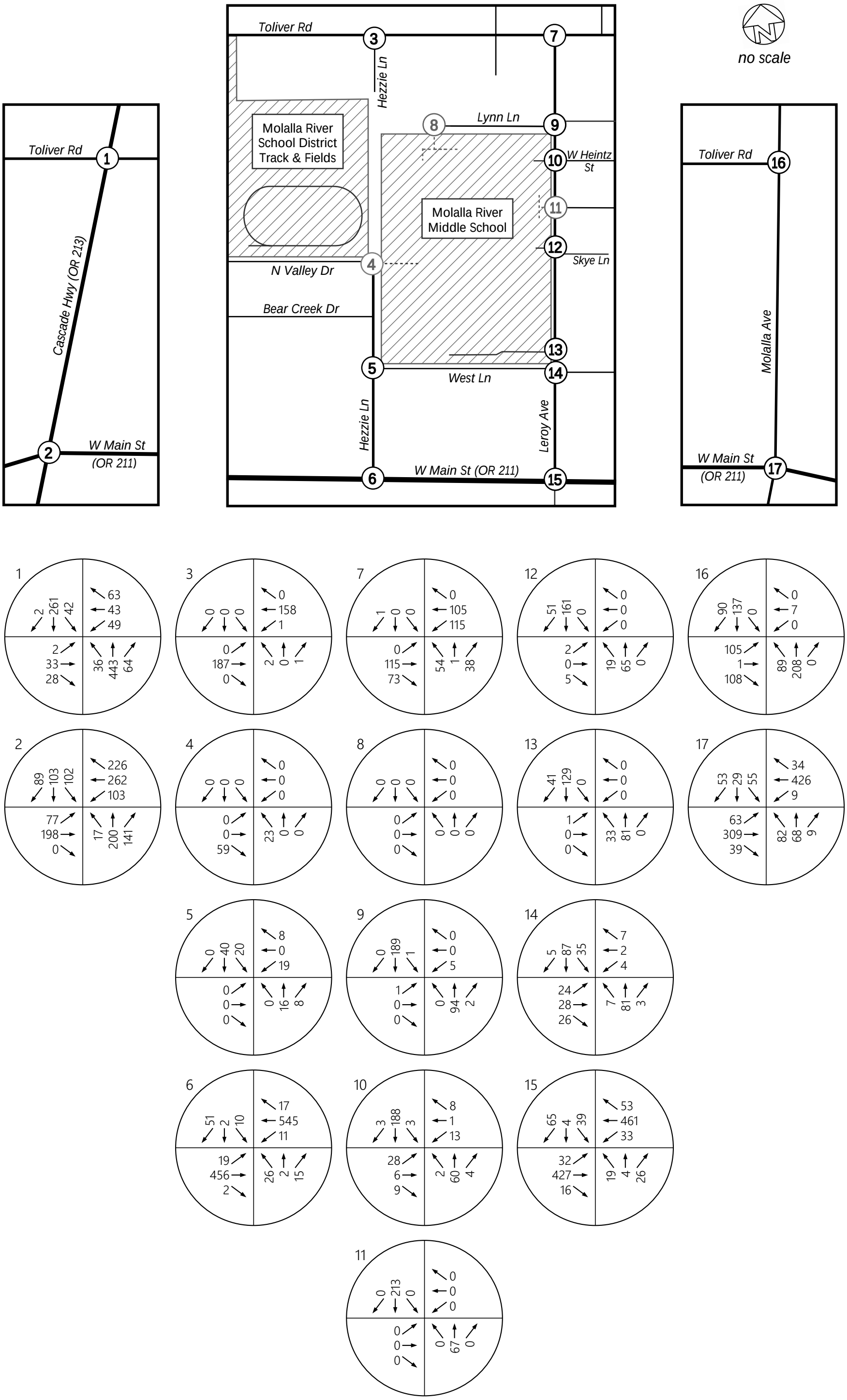
- Dairy Queen
- Food Carts
- 710 W Main
- Molalla Industrial
- Home First Affordable Housing 2
- Cascade Plaza (remaining not constructed)

Figure 6a through Figure 6c show the year 2030 background traffic volumes at the study intersections during the morning, afternoon, and evening peak hours.

Buildout Conditions

The reassigned traffic volumes with the new school were added to the year 2030 background volumes to obtain the expected Year 2030 buildout conditions.

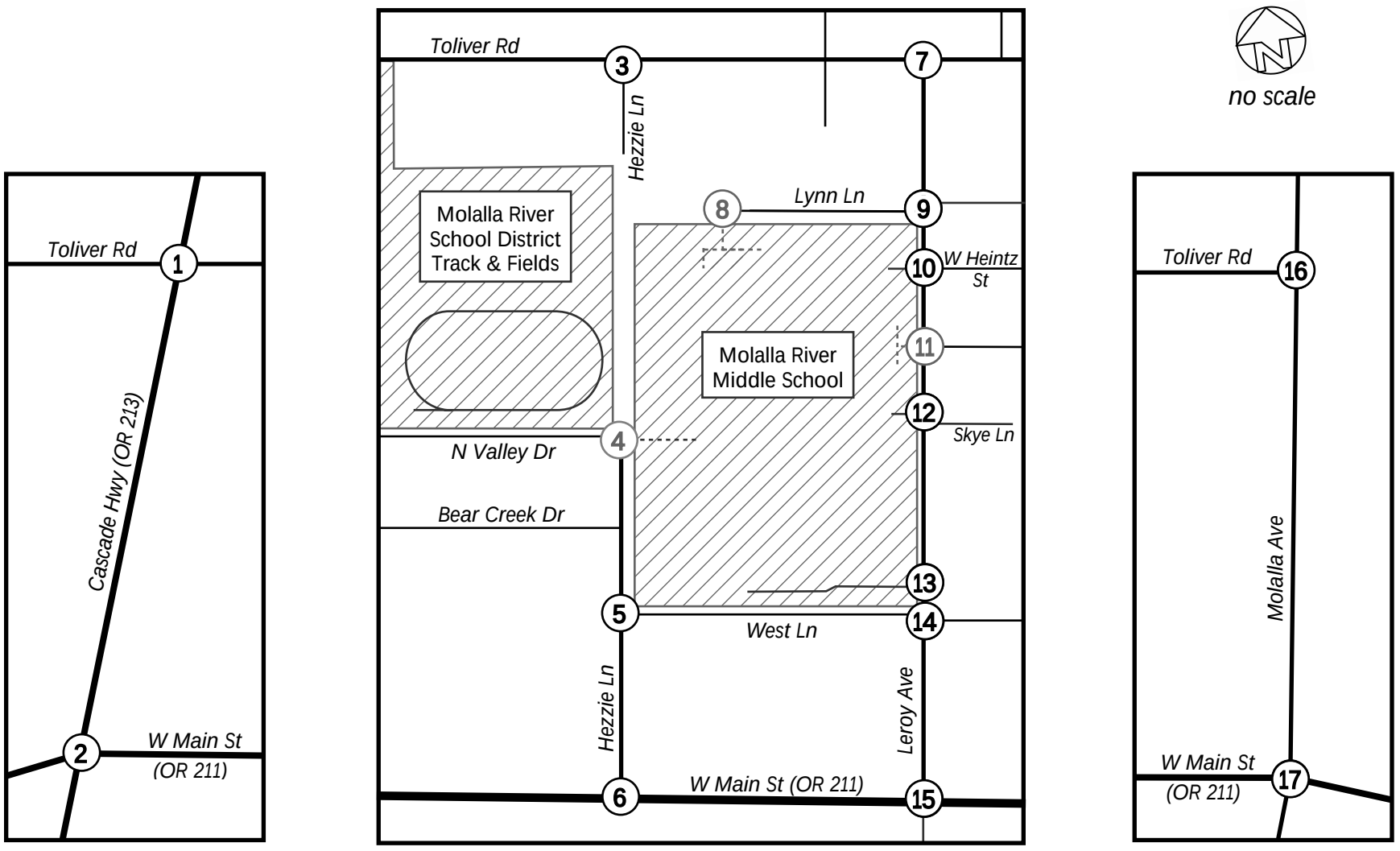
Figure 7a through Figure 7c show the year 2030 buildout traffic volumes at the study intersections during the morning, afternoon, and evening peak hours.



2030 BACKGROUND CONDITION
AM PEAK HOUR TRAFFIC VOLUMES

Figure 6a

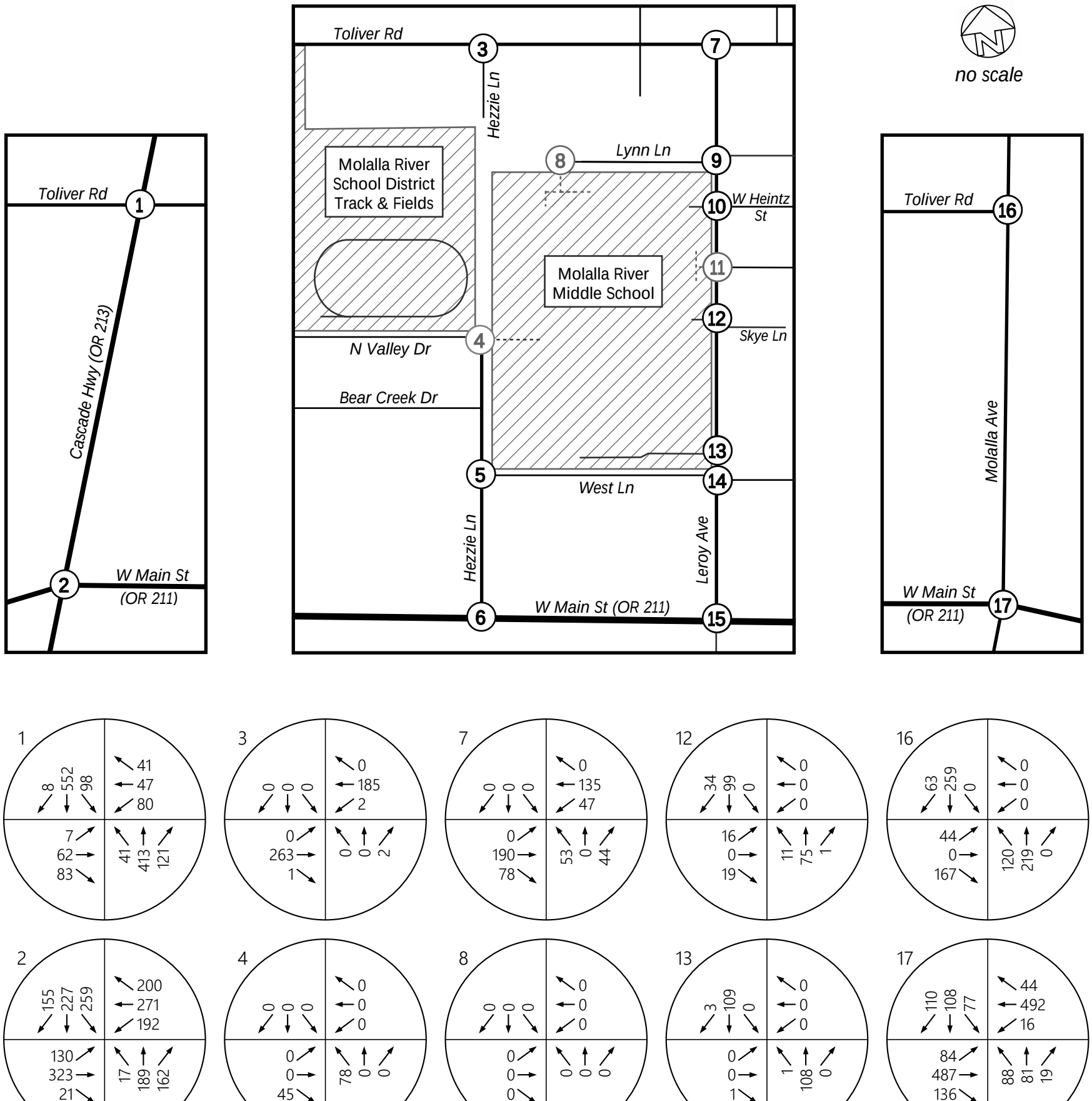
Molalla River Middle School Replacement Project



2030 BACKGROUND CONDITION
AFTERNOON PEAK HOUR TRAFFIC VOLUMES

Figure 6b

Molalla River Middle School
Replacement Project


no scale
Toliver Rd
Hezzie Ln
Lynn Ln
Molalla River School District Track & Fields
Molalla River Middle School
W Heintz St
N Valley Dr
Skye Ln
Bear Creek Dr
West Ln
Hezzie Ln
Leroy Ave
W Main St (OR 211)
Cascade Hwy (OR 213)
W Main St (OR 211)
Toliver Rd
Molalla Ave
W Main St (OR 211)
1 8 552 98 41 47 80 7 62 83 41 413 121
2 155 227 259 200 271 192 130 323 21 17 189 162
3 0 0 0 0 185 2 0 263 1 0 0 2
4 0 0 0 0 0 0 0 0 45 78 0 0
5 0 29 17 23 0 8 0 0 0 0 56 16
6 30 0 13 17 755 20 50 793 13 15 1 7
7 0 0 0 0 135 47 0 190 78 53 0 44
8 0 0 0 0 0 0 0 0 0 0 0 0
9 1 127 3 2 0 3 1 0 1 2 96 2
10 10 114 6 2 1 6 10 0 4 4 87 8
11 0 133 0 0 0 0 0 0 0 0 99 0
12 34 99 0 0 0 0 16 0 19 11 75 1
13 3 109 0 0 0 0 0 0 1 1 108 0
14 16 86 13 7 0 14 15 6 9 10 78 13
15 63 5 25 43 668 91 52 682 53 27 5 90
16 63 259 0 0 0 0 44 0 167 120 219 0
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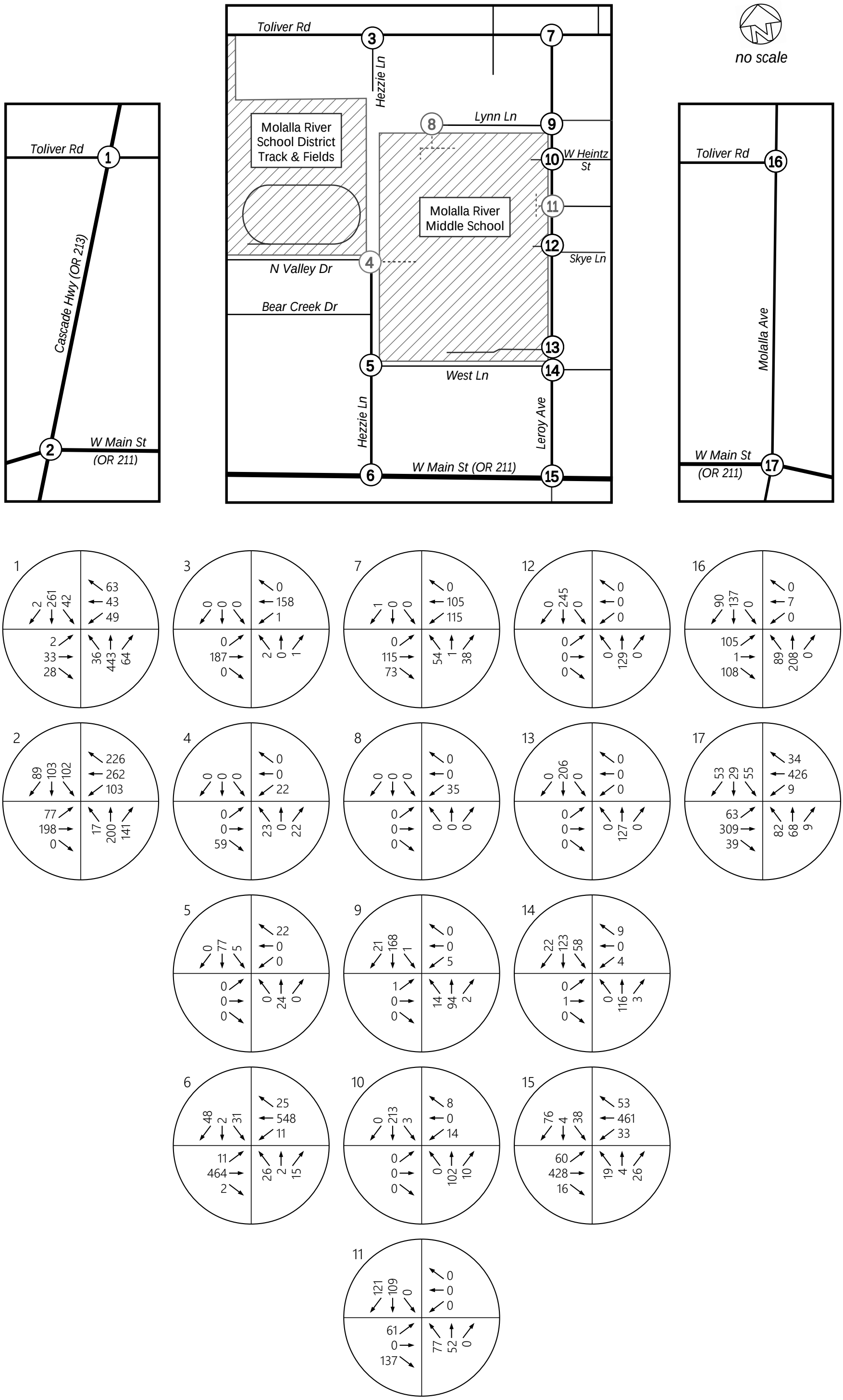
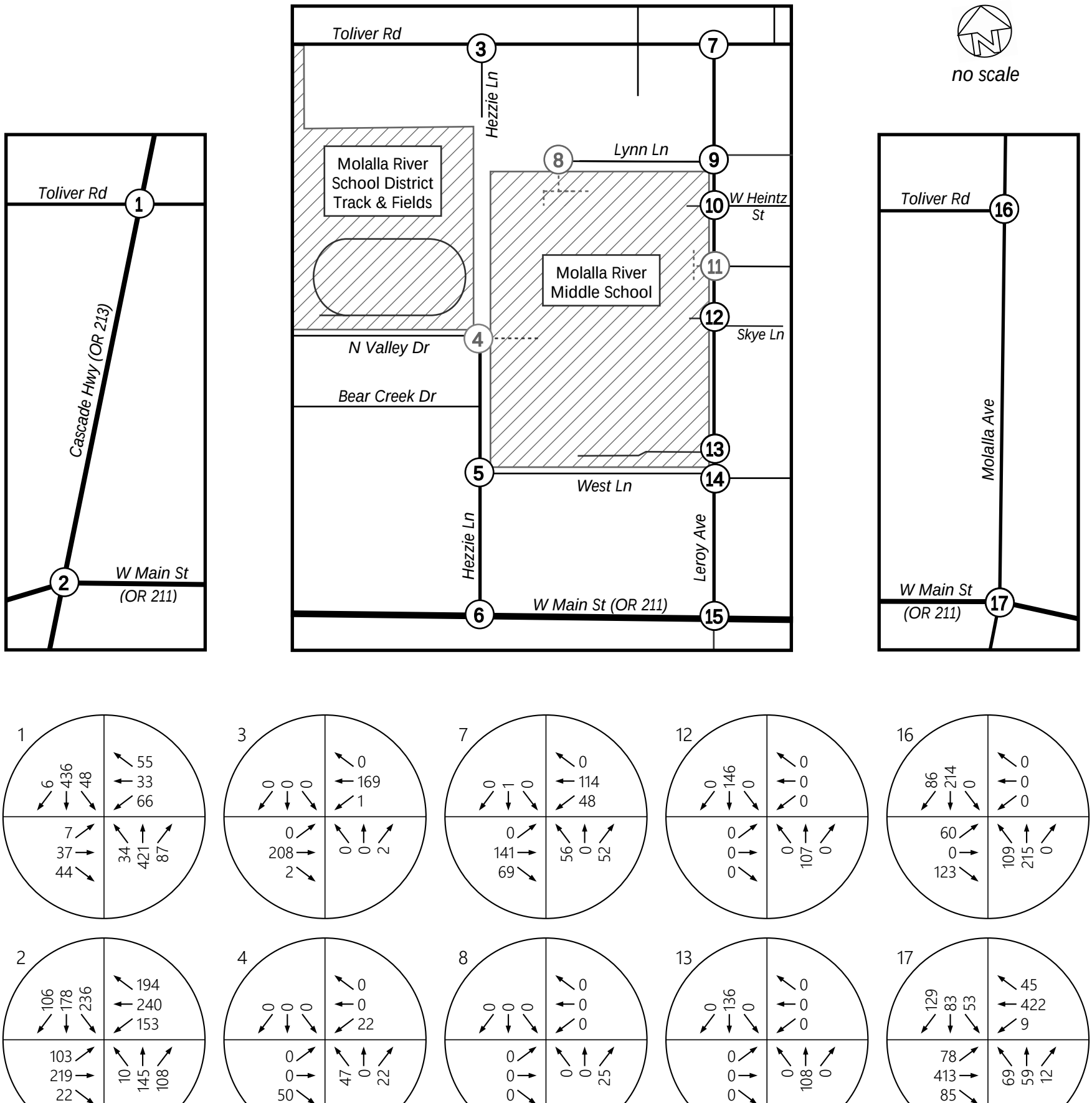


lancaster mobley

2030 BUILDOUT CONDITION
AM PEAK HOUR TRAFFIC VOLUMES

Figure 7a

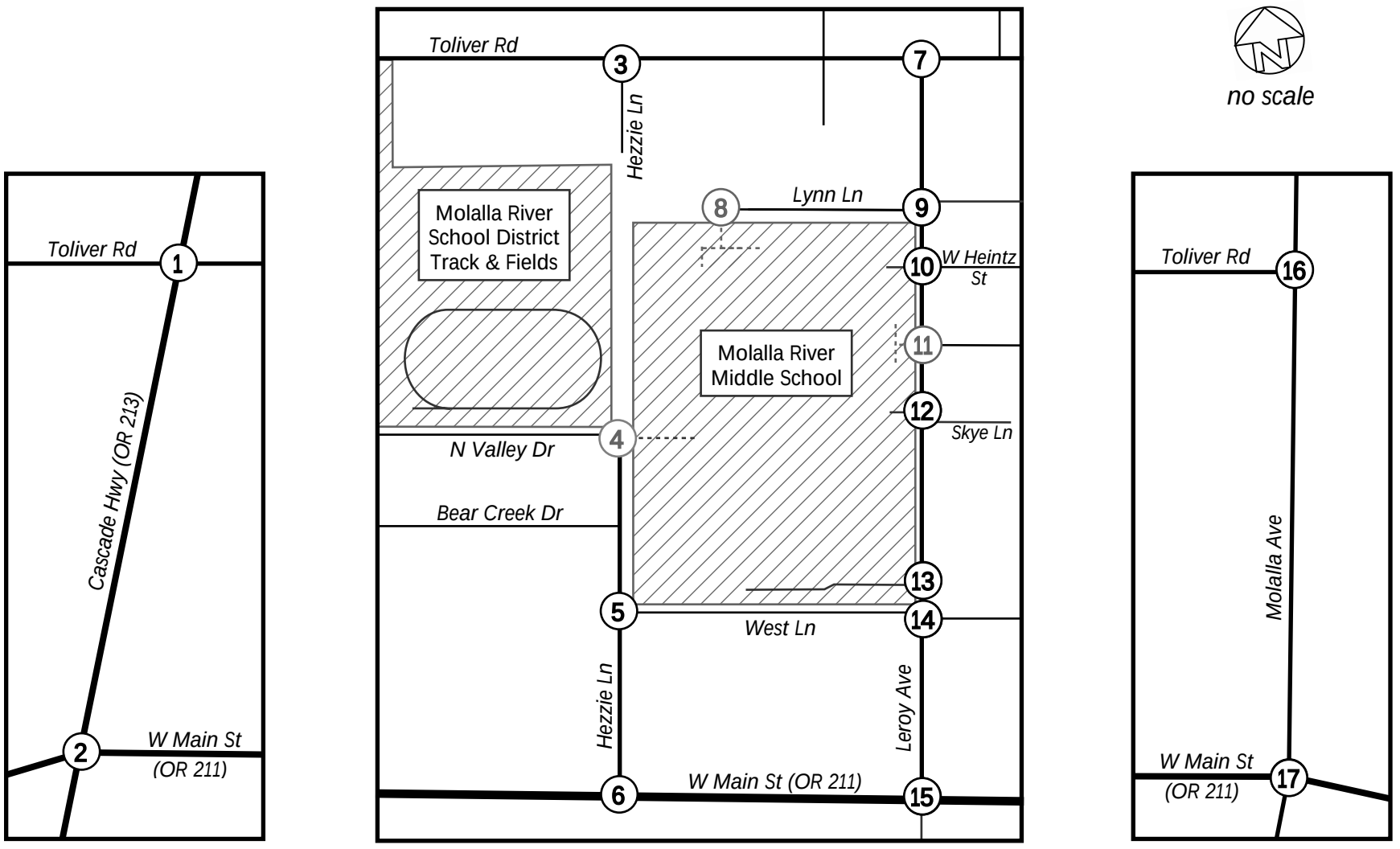
Molalla River Middle School Replacement Project

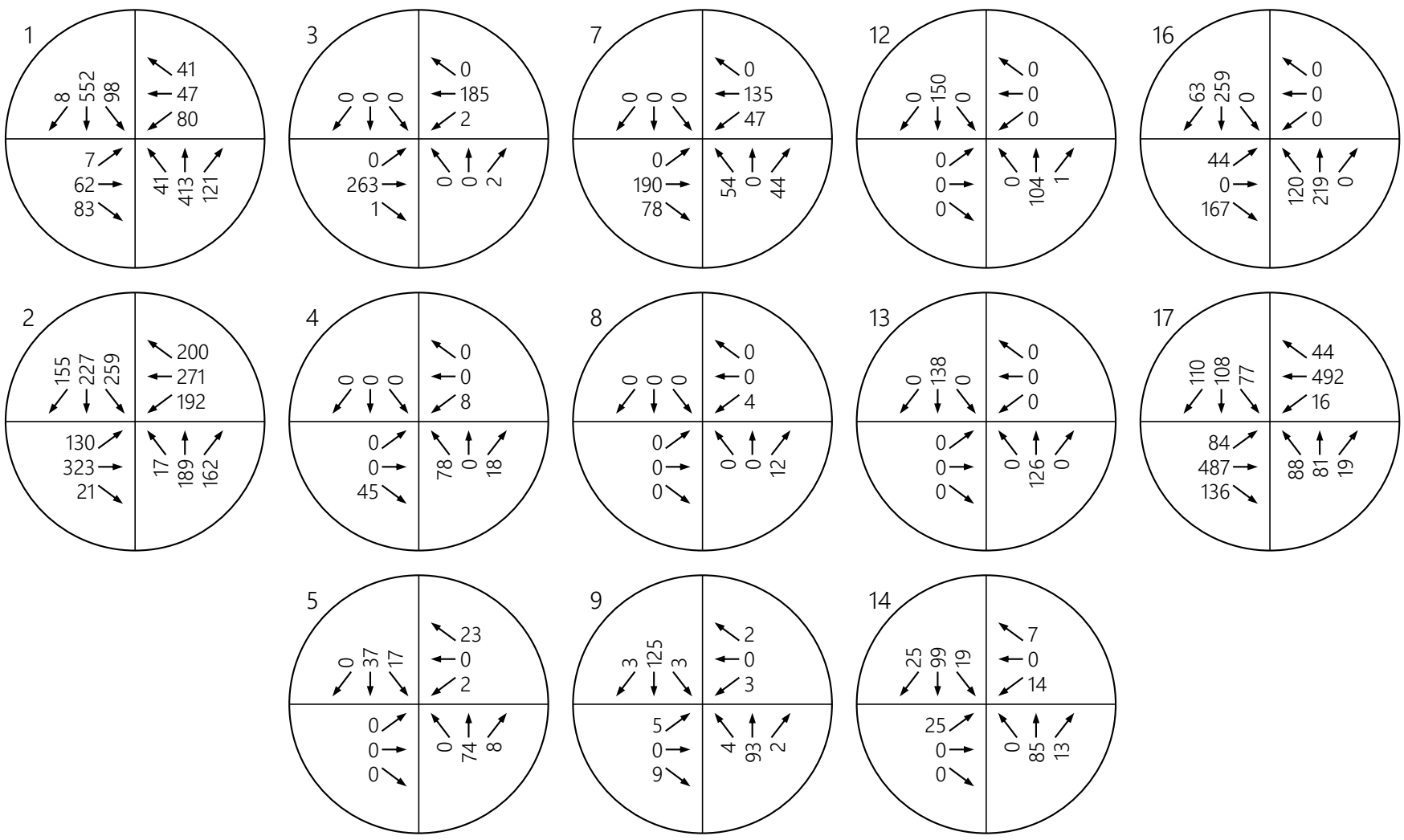


2030 BUILDOUT CONDITION
AFTERNOON PEAK HOUR TRAFFIC VOLUMES

Figure 7b

Molalla River Middle School Replacement Project


Toliver Rd
Hezzie Ln
Lynn Ln
Molalla River School District Track & Fields
Molalla River Middle School
W Heintz St
Skye Ln
N Valley Dr
Bear Creek Dr
West Ln
Hezzie Ln
Leroy Ave
W Main St (OR 211)
Toliver Rd
Cascade Hwy (OR 213)
W Main St (OR 211)
Toliver Rd
Molalla Ave
W Main St (OR 211)
no scale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0 138 0
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0 126 0
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44 492 16
84 487 136
88 81 19
5
0 37 17
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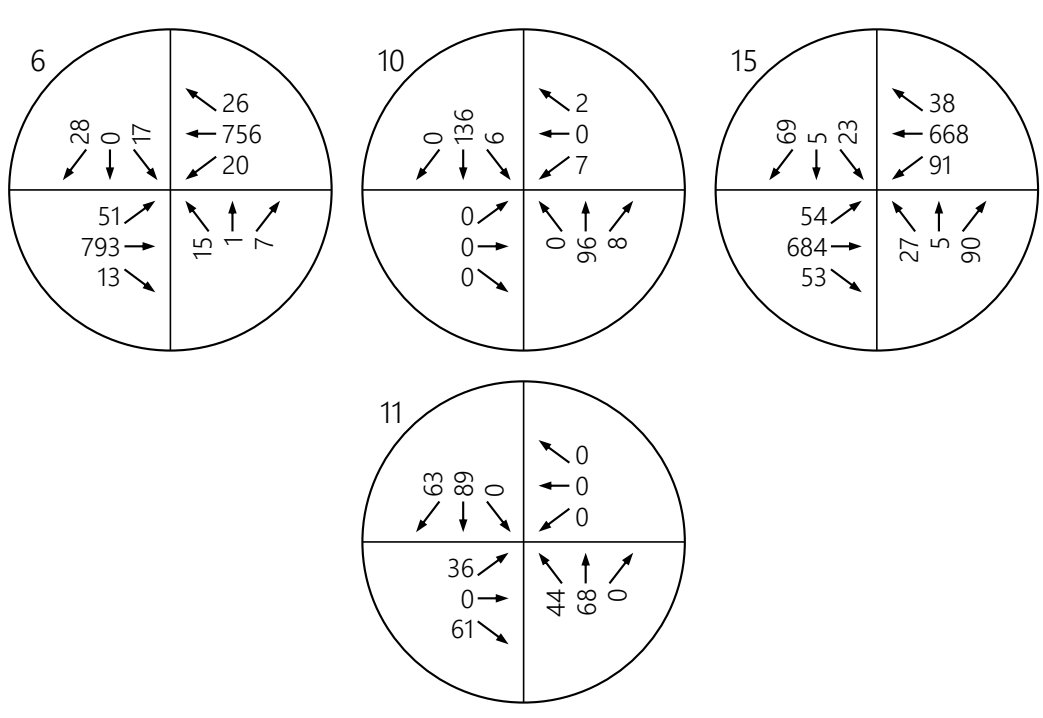
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0 96 8
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54 684 53
27 5 90
11
63 89 0
0 0 0
36 0 61
44 68 0

Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Data System, a review of approximately five years of the most recent available crash history (January 2019 through December 2023) was performed at the study intersections. The crash data was evaluated based on the number of crashes, the type of collisions, and the severity of the collisions. Crash severity is based on injuries sustained by people involved in the crash, and includes five categories:

- *PDO* – Property Damage Only
- *Injury C* – Possible Injury
- *Injury B* – Suspected Minor Injury
- *Injury A* – Suspected Serious Injury
- *Fatality*

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak hour represents approximately 10 percent of the average daily traffic (ADT) at the intersection.

The study intersections adhere to the crash analysis methodologies within ODOT's Analysis Procedures Manual (APM). According to *Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control* of the APM, intersections which experience crash rates in excess of their respective 90th percentile crash rates should be "flagged for further analysis". Crash rates in excess of 90th percentile crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

Table 7 provides a summary of crash types while Table 8 summarizes crash severities and rates for each of the study intersections. Only those locations with reported collisions are included in the tables. Detailed crash data is provided in Appendix C.

Table 7: Crash Type Summary

Intersection		Crash Type							Total Crashes
		Rear End	Turn	Angle	Side swipe	Fixed Object	Ped/ Bike	Other	
1	Toliver Rd Cascade Hwy S (OR 213)	6	5	2	0	0	0	1	14
2	W Main St (OR 211) & Cascade Hwy S (OR 213)	12	13	2	1	0	1	1	30
6	W Main St (OR 211) & Hezzie Ln	1	3	0	0	0	2	1	7
7	Toliver Rd & Leroy Ave	0	1	0	0	0	0	0	1
10	Existing North Access & Leroy Ave	0	1	0	0	0	0	0	1
15	W Main St (OR 211) & Leroy Ave	6	1	3	0	0	0	0	10
16	Toliver Rd & N Molalla Ave	0	3	0	0	0	0	0	3
17	W Main St (OR 211) & Molalla Ave	5	7	3	0	0	1	0	16

Table 8: Crash Severity and Rate Summary

Intersection		Severity					Total Crashes	PHEV	Crash Rate	90th % Rate
		PDO	C	B	A	Fatal				
1	Toliver Rd Cascade Hwy S (OR 213)	2	7	4	1	0	14	1,460	0.525	0.408
2	W Main St (OR 211) & Cascade Hwy S (OR 213)	14	6	9	1	0	30	1,920	0.856	0.860
6	W Main St (OR 211) & Hezzie Ln	0	1	4	2	0	7	1,500	0.256	0.408
7	Toliver Rd & Leroy Ave	0	0	1	0	0	1	500	0.110	0.293
10	Existing North Access/ Heintz St & Leroy Ave	0	1	0	0	0	1	230	0.238	0.408
15	W Main St (OR 211) & Leroy Ave	2	4	4	0	0	10	1,530	0.358	0.408
16	Toliver Rd & N Molalla Ave	3	0	0	0	0	3	770	0.213	0.293
17	W Main St (OR 211) & Molalla Ave	7	7	2	0	0	16	1,510	0.581	0.860

Crash Severity

Four of the crashes reported in the five-year analysis period resulted in a suspected serious injury (Injury A) but there were no reported fatalities. The crashes occurred at the following locations:

- Toliver Road & Cascade Highway (OR 213) – A turning collision was reported between a northbound motorcyclist and a southbound passenger vehicle making a left turn. The motorcycle driver sustained Type A injuries; there were no injuries reported in the vehicle. The driver of the vehicle failed to yield the right of way. The crash occurred at dawn in the year 2021 before the roundabout was completed.
- W Main Street (OR 211) & Cascade Highway (OR 213) – A turning collision was reported between a westbound traveling straight and a southbound vehicle making a left-turn movement. Both the driver and the passenger of the southbound vehicle sustained Type A injuries; a passenger in the other vehicle sustained Type C injuries. The turning vehicle did not yield the right of way. The crash occurred on a clear, dry, day in the year 2023.
- W Main Street (OR 211) & Hezzie Lane – A turning collision was reported between an eastbound vehicle turning left and a westbound vehicle traveling straight. The driver of the turning vehicle sustained Type A injuries. The driver of the through vehicle sustained no injuries. The cause was careless driving and passing at an intersection by the through-traveling vehicle. The crash occurred on a clear, dry, day in the year 2022.
- W Main Street (OR 211) & Hezzie Lane - A turning collision was reported between a northbound passenger vehicle turning left and a motorcyclist traveling eastbound. The motorcycle driver sustained Type A injuries; there were no injuries reported in the vehicle. The driver of the vehicle failed to yield the right of way. The crash occurred on a clear, dry, day in the year 2023.

Pedestrian and Bicycle Collisions

One of the reported crashes involved a bicyclist and three of the reported crashes involved a pedestrian:

- W Main Street (OR 211) & Cascade Highway (OR 213) – A pedestrian crossing Cascade Highway in the middle of the block was struck by a northbound vehicle. The pedestrian sustained Type B injuries. The cause was listed as the pedestrian in the roadway in non-reflective clothing and inattention. The crash occurred on a clear, dry, day in the year 2020.
- W Main Street (OR 211) & Hezzie Lane – A bicyclist traveling eastbound was struck by a vehicle making a southbound right-turn movement. The bicyclist sustained Type B injuries. The driver failed to yield the right-of-way to the bicyclist. The crash occurred on a clear, dry, day in the year 2022.
- W Main Street (OR 211) & Hezzie Lane – A pedestrian traveling northbound in the crosswalk was struck by an eastbound passenger vehicle. The pedestrian sustained Type B injuries. The driver failed to yield the right-of-way to the bicyclist. The crash occurred on a clear, dry, day in the year 2019.
- W Main St (OR 211) & Molalla Ave - A pedestrian traveling northbound in the crosswalk was struck by a passenger vehicle making a southbound left-turn movement. The pedestrian sustained Type C injuries. The driver failed to yield the right-of-way to the pedestrian. The crash occurred on a clear, dry, day in the year 2019

ODOT 90th Percentile Crash Rates

Intersection crash rates were calculated and one, Toliver Rd & Cascade Hwy S (OR 213) has a rate above the respective ODOT 90th percentile crash rates. However, the crash data does not reflect the effects of the roundabout which has been installed at the intersection to improve safety and operations.

ODOT Safety Priority Index System

The two intersections located on Cascade Highway (OR 213) were both listed in the 2023 ODOT Safety Priority Index System (SPIS) List:

- Toliver Road & Cascade Highway (OR 213) – The intersection was listed in the worst 5 percent based on crashes reported in the years 2020 through to 2022. A roundabout has been since been installed to improve the safety and operations at this intersection.
- W Main Street (OR 211) & Cascade Highway (OR 213) – The intersection was listed in the worst 10 percent based on crashes reported in the years 2020 through to 2022. The crash patterns at this intersection are consistent with the lane configuration, traffic control, and speeds on the roadways. No mitigation is recommended.

Conclusion

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections. No safety mitigation is recommended per the crash data analysis.

Sight Distance Evaluation

The replacement school has three proposed new accesses: one on Hezzie Lane, one on Leroy Avenue, and one on Lynn Lae. All will be constructed to meet intersection sight distance recommendations in the current AASHTO manual[2].

Site Access Warrant Analysis

Left-turn Lane Warrants

The Molalla Street standards include three cross-section for a major collector street. Two of these options are 2-lane cross sections and the other option is a 3-lane cross section with a two-way, left-turn lane.

Left-turn lane warrants were examined for northbound traffic at the new intersection of Leroy Avenue and the proposed new East Access. A left-turn refuge is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants used were developed from the *National Cooperative Highway Research Project's* (NCHRP) *Report 457*.[3] Turn lane warrants were evaluated based

[2] American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018.

[3] National Cooperative Highway Research Program, NCHRP Report 457 Engineering Study Guide for Evaluating Intersection Improvements, 2001.

on the number of advancing and opposing vehicles as well as the number of turning vehicles, the travel speed, and the number of through lanes.

The left-turn lane warrants were not met for the northbound approach of this intersection during either the morning, afternoon, or evening peak hours. However, if the roadway with has sufficient width to provide a left-turn plus the two travel lanes and bike lanes as shown in Exhibit 4 of the Molalla TSP, a left-turn lane should be considered.

Traffic Signal Warrants

ODOT's preliminary traffic signal warrants were examined for the unsignalized study intersections of W Main Street (OR 211) & Hezzie Lane to determine whether the installation of a new traffic signal will be warranted at the intersections by the project buildout year 2030. Based on the preliminary analysis, traffic signal warrants are not projected to be met for the intersection. Accordingly, no 'signalization is necessary or recommended.

Signal Warrant at Leroy Avenue

The Manual on Uniform Traffic Control Devices (MUTCD)[4] provides guidance on when to consider the installation of a traffic signal. At the right location, a traffic signal can provide for orderly movement of traffic, serve pedestrians trying to cross a busy street, and reduce the frequency of certain types of crashes (especially right-angle collisions). However, signals can add delay and congestion to the system, increase diversions to local streets, and increase the frequency of certain types of crashes (especially rear-end collisions). Therefore, the MUTCD recommends an engineering study of conditions and provides a series of factors, or warrants, which can be used to aid in deciding when a traffic signal should be considered. The ODOT Traffic Signal Policy and Guidelines require that one or more of the MUTCD traffic signal warrants shall be met to consider installation of a traffic signal on a state highway.

A traffic signal at the intersection of W Main Street (OR 211) and Leroy Avenue has been under consideration since the first approvals of Cascade Center. The 2019 study included a detailed warrant evaluation based on the volume criteria in the that demonstrated that thresholds for installation of a traffic signal were not met. The warrants were assessed against with the Cascade Place Multifamily study and the thresholds were not met.

Traffic Volume Estimates

Year 2025 count data was collected and year 2030 background traffic volumes were estimated by 1) seasonally adjusting the highway through traffic, 2) growing the existing volumes by a rate of 1.02 percent per year on the highway and 1.0 percent per year for other movements, and 3) adding the traffic from approved developments. Year 2030 buildout conditions were estimated by adding the reassigned school volumes to the background condition.

Since limited data is available for the approved developments outside of the peak hours, the existing hourly patterns were used to develop the 12-hour volume profile for the intersection based on the forecasts for morning, afternoon, and evening peak hours discussed earlier in this report.

[4] Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, 11th Edition, December 2023.

Warrant Assumptions

The City of Molalla has an estimated population of 10,103 in the year 2023 according to the US Census Bureau[5], which exceeds the minimum requirement for an intersection that lies within the built-up area of an isolated community having a population of less than 10,000. Furthermore, development directly surrounding the city could also be considered in this analysis. Therefore, the 70% warrant for a small community is not applicable at this intersection in any of the analyses.

W Main Street (OR 211) has a posted speed limit of 35 mph. Therefore, the 70% warrant for high-speed roadways (40 mph minimum) is not applicable at this intersection in any of the analyses.

At the intersection with Leroy Avenue, W Main Street (OR 211) has exclusive left-turn lanes. Although ODOT guidance in the APM suggests that this configuration could be counted as a two-lane roadway, the left-turn movement only accounts for 6 to 7 percent of the total volume; therefore, the warrants were evaluated assuming the highway was a one-lane roadway. However, the volumes on the approaches were conservatively assumed to include all highway movements.

Leroy Avenue includes a left-turn and a through-right lane on both approaches. ODOT guidance in the APM suggests that this configuration could be counted as a two-lane roadway. The guidance also requires that right turns be excluded from the calculation if they are below 85 percent of the available lane capacity, which is the case for Leroy Avenue. Therefore, the warrants were evaluated assuming Leroy Avenue was a one-lane roadway. However, the evaluations performed for Cascade Place Multifamily included both the left-turn and through volumes in the calculation. For consistency, the same assumption was made for this analysis.

Warrant Assessment

Chapter 4C of the MUTCD provides the guidance for determining whether a signal should be installed at an intersection. It includes nine warrants: three based on traffic volumes, two based on pedestrian volumes, and four others that consider crash history, proximity to a rail crossing, and network factors. Table 9 presents a summary of the warrant analysis.

Table 9: Warrant Summary for W Main Street/Leroy Avenue

Warrant		Criteria	Findings
p	Eight-Hour Vehicular Volume	Condition A, Minimum Vehicular Volume: 500 vehicles on major street and 150 vehicles on minor street for eight hours	Major street volumes exceed the threshold, but all minor street volumes are well below the threshold. *Warrant not met.*
		Condition B, Interruption of Continuous Traffic: 750 vehicles on major street and 75 vehicles on minor street for eight hours	Major street volumes exceed the threshold, but minor street volumes only exceed the threshold for two hours of the day. *Warrant not met.*
2	Four-Hour Vehicular Volume	Variable traffic volume thresholds based on a curve with minimum minor street volume of 80 vehicles for four hours	All plotted volumes fall below the curve. *Warrant not met.*

[5] US Department of Commerce, US Census Bureau Quick Facts, Molalla City https://www.census.gov/quickfacts/fact/table/molallacityoregon/PST045224

Table 9: Warrant Summary for W Main Street/Leroy Avenue

Warrant		Criteria	Findings
3	Peak Hour	Variable traffic volume thresholds based on a curve with minimum minor street volume of 100 vehicles for one hour	All plotted volumes fall below the curve. *Warrant not met.*
4	Pedestrian Volume	Variable volume thresholds based on a curve with minimum volume of 107 pedestrian crossings for four hours	Even with significant growth in pedestrian activity, crossing will fall well below the curve. *Warrant not met.*
		Variable volume thresholds based on a curve with minimum volume of 133 pedestrian crossings for one hour	Even with significant growth in pedestrian activity, crossings will fall well below the curve. *Warrant not met.*
5	School Crossing	Adequate gaps in traffic and a minimum volume of 20 school children crossing in one hour	Proposed development will not change the school children crossings warrant not met with other approved developments. *Warrant not met*.
6	Coordinated Signal System	Progressive movement in a coordinated signal system to maintain proper platooning of vehicles.	Existing signals on W Main Street are uncoordinated. *Warrant not relevant*.
7	Crash Experience	Total of pedestrian & angle crashes equals or exceeds 5 in one year or 6 in 3 years, plus the 80 percent volume thresholds from Warrant 1	Only 10 crashes reported in a 5-year analysis period with a total of 3 angle crashes and no pedestrian crashes. *Warrant not met.*
8	Roadway Network	Intersection must include two major routes, have 5 or more hours where the total entering volume exceeds 1,000 vehicles, and satisfy one of Warrants 1-3 within 5 years.	Total entering volumes meet the volume thresholds but Warrants 1-3 are not met. *Warrant not met*
9	Intersection Near a Grade Crossing	A railroad crossing must be located within 140 feet of the stop line for any approach.	There are no railroads located within at least a mile of this intersection. *Warrant not relevant.*

As demonstrated in Table 9, the warrants for a traffic signal are not met at the intersection of W Main Street (OR 211) and Leroy Avenue. A crosswalk with a rectangular rapid flashing beacon (RRFB) was installed on the west leg of the intersection by Cascade Center, which facilitates pedestrian crossings.

Safe Routes to School

Figure 4 of the Molalla TSP identifies the Safe Routes to School (SRTS) Plan for MRMS and other schools in the district. SRTS routes to MRMS include:

- Leroy Avenue – Continuous sidewalks on west side, limited sidewalks on east side
- Hezzie Lane – Continuous sidewalks on west side, limited sidewalks on east side

- Toliver Road – Continuous sidewalks on south side, limited sidewalks on north side
- W Heintz Street – No sidewalks, low volume roadway
- W Main Street (OR 211) – Continuous sidewalks or trail on both sides

Critical crossings are located at the following intersections:

- Toliver Road & Village Drive – Crosswalks striped on north and east legs of intersection
- Toliver Road & Wedgewood Drive – Crosswalks striped on north and west legs of intersection
- Toliver Road & Leroy Avenue – Crosswalks striped on the west and south legs of intersection (Note: The SRTS plan does not identify this location as a critical crossing but its location is critical to MRMS)
- Toliver Road & Stacy Lane – Crosswalks striped on south and east legs of intersection
- W Heintz Street & Leroy Avenue – Crosswalk striped on south leg of intersection
- West Lane/South Access & Leroy Avenue – Crosswalks striped on north leg of South Access and east leg of West Lane
- W Main Street (OR 211) & Hezzie Lane – Crosswalk striped with pedestrian-activated rectangular rapid flashing beacon (RRFB) on `east leg of intersection
- W Main Street (OR 211) & Leroy Avenue – Crosswalk striped with pedestrian-activated RRFB on west leg of intersection

Existing Count Data

Pedestrian and bicycle volumes are available at some of the critical crossings. These are summarized in Table 10. Striped crosswalks are highlighted in blue. The volumes include pedestrians as well as bicycles and scooters that used the crossing.

Table 10: Pedestrian + Bicycle Volumes at Crossings

Intersection		Pedestrians + Bicycles at Crossing – AM/Afternoon/PM			
		West	East	North	South
5	West Ln & Hezzie Ln	2/14/2	2/7/4	0/15/5	2/0/3
6	W Main St (OR 211) & Hezzie Ln	1/0/0	9/16/5	0/10/3	7/9/6
7	Toliver Rd & Leroy Ave	4/10/0	0/1/0	0/1/0	10/26/6
9	Lynn Ln & Leroy Ave	23/53/9	0/0/0	0/2/0	0/0/0
10	North Access/W Heintz & Leroy Ave	25/54/9*	0/0/1	0/1/0	7/10/3
13	South Access & Leroy Ave	12/57/9*	2/4/0	2/10/2	0/1/0
14	West Ln & Leroy Ave	9/29/11	2/4/1	0/0/0	1/0/8
15	W Main St (OR 211) & Leroy Ave	11/20/6	0/1/0	0/3/2	1/0/0

** School driveway crossings*

In general, pedestrians and bicyclists favored the striped crosswalks to other locations.

Proposed Improvements

Existing crossings at the following locations will be replaced with the proposed project:

- W Heintz Street & Leroy Avenue
- West Lane & Leroy Avenue

These locations will continue to experience high crossing activity with the school relocation to the north side of the property.

The proposed site plan includes adding crosswalks at the following locations:

- Lynn Lane & Leroy Avenue – West Crossing
- N Valley Drive/Proposed West Access & Hezzie Lane – East and South Crossings
- West Lane & Hezzie Lane – North Crossing

These new crossings align with the activity shown in Table 10 and the new access points to the school.

Conclusions

The proposed improvements are consistent with the SRTS Plan and will enhance the program with new striped crosswalks at locations where existing demand is present and future demand is anticipated.

On-Site Queuing

Existing Condition Observations

During the morning drop-off period, an estimated 188 vehicles dropped students off at the school based on driveway volumes and curbside observations. The following behaviors were observed:

- Parents pulled up to a curbside zone on Leroy Avenue north of the bus loading zone. No queuing was observed with this activity.
- Parents pulled into the north access and unloaded their student(s) into the parking lot north of the school.
- Parents pulled into the center access and did one of two things. Most pulled into the parking lot north of the school and into a parking space to allow their student(s) to exit the vehicle. However, some paused in the entrance to allow their student(s) to exit before turning into the parking lot. When this occurs, it causes some delay to vehicles on Leroy Avenue that are waiting to turn into the driveway.
- Parents pulled into the south access and unloaded their students along the sidewalk or pulled into a parking space to allow their student(s) to exit the vehicle.
- Parents traveling eastbound on West Lane paused in the travel lane to allow their student(s) to exit the vehicle.

During the afternoon pick-up period, an estimated 116 vehicles picked up students at the school based on driveway volumes. The following behaviors were observed:

- The curbside loading zone along Leroy Avenue is closed and used for school buses.
- Parents pulled into either the north or center access and parked in the lot north of the building until their student(s) were released from school.
- Parents pulled into the center access, turned around behind the school and queued up along the north side of the building until dismissal. Up to 6 vehicles were observed queuing along the building frontage.
- Parents parked in the lot south of the building school until their student(s) were released from school.
- Parents pulled queued along the south side of West Lane until their student(s) were released from school. Up to 7 vehicles were observed in the queue.

Although some parents were observed arriving before school was dismissed to pick up their students, many waited until after dismissal to arrive. This behavior reduces on-site queueing and congestion.

Future On-Site Queuing

The new school side will have three parking areas and a curbside loading zone:

- A lot north of the school buildings will be designated for staff and parent parking. It will have direct access via Lynn Lane and will also have access through main lot east the school buildings.

- The east lot will have some visitor parking and a curbside zone for drop-off/pick-up activity. As many as 10 parent vehicles can unload/load students along the curbside zone simultaneously. Stacking for approximately 40 vehicles will be provided in the parking lot.
- A lot on the south side of the building will support bus drop-off/pick-up activity and be used for community parking during the off hours. This lot is not anticipated to be used for parent drop-off or pick-up activities. It will take access from Hezzie Lane.

The year 2030 forecast of 560 students is estimated to generate 198 morning drop-off trips and 122 afternoon pick-up trips in and out of the school property. Based on the existing condition observations of drop-off and pick-up activity, these planned facilities appear adequate to accommodate the future demand.

Operational Analysis

An operational analysis was conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[6]. The Synchro/SimTraffic software was used for the analysis.

Two performance measures are assessed for intersection operations:

- The Level of service (LOS) is a measure based on average delay per vehicle that ranges from LOS A, which indicates little or no delay, to LOS F, which indicates a significant amount of congestion and delay.
- The volume to capacity (v/c) ratio is a measure that compares the traffic volume (demand) against the available capacity of an intersection, with v/c ratios above 1.0 indicating that an intersection is operating above capacity.

Performance Targets

Since the study intersections are under ODOT jurisdiction, the applicable performance targets for these facilities are established under the Oregon Highway Plan (OHP) and are based on the v/c ratio of the intersection. Since OR 213 and OR 211 are District Highways located in the City's Urban Growth Boundary with speed limits between 35 and 45 mph, the target maximum allowable v/c ratio is 0.90.

For the study intersections under ODOT jurisdiction, the applicable performance targets are established in Table 6 of the OHP[7] and are based on the v/c ratio of the intersection. Since OR 213 and OR 211 are District Highways located in the City's Urban Growth Boundary and one leg of OR 211 has a posted speed of 45 mph, the target maximum allowable v/c ratio is 0.90 at the intersection of the two highways. East of Cascade Highway (OR 213), W Main Street (OR 211) has a posted speed of 35 mph or less and intersections along this segment should have target maximum allowable v/c ratio of 0.95.

The City of Molalla TSP, Development Code, or Public Works Standards contain no performance thresholds.

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 11. Detailed calculations as well as tables showing the relationship between delay and LOS are included in Appendix D.

[6] Transportation Research Board, *Highway Capacity Manual 7th Edition*, 2022.
[7] Oregon Department of Transportation, 1999 Oregon Highway Plan, Including amendments November 1999 through May 2015, 1999.

Table 11: Capacity Analysis Summary

Intersection & Condition	Morning Peak Hour			Afternoon Peak Hour			Evening Peak Hour		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
1. Toliver Road & Cascade Highway (OR 213)									
2025 Existing	0.44	A	7	0.48	A	8	0.62	A	10
2030 Background	0.48	A	7	0.51	A	8	0.68	B	11
2030 Buildout	0.48	A	7	0.51	A	8	0.68	B	11
2. W Main Street (OR 211) & Cascade Highway (OR 213)									
2025 Existing	0.39	B	15	0.47	B	16	0.63	B	19
2030 Background	0.44	B	16	0.53	B	18	0.69	C	21
2030 Buildout	0.44	B	16	0.53	B	18	0.69	C	21
3. Toliver Road & Hezzie Lane									
2025 Existing	0.01	B	12	0.01	A	10	0.01	B	11
2030 Background	0.01	B	12	0.01	A	10	0.01	B	11
2030 Buildout	0.01	B	12	0.01	A	10	0.01	B	11
4. Proposed West Access & Hezzie Lane									
2030 Buildout	0.09	A	7	0.10	A	7	0.21	A	8
5. West Lane & Hezzie Lane									
2025 Existing	0.05	A	9	0.04	A	9	0.05	A	9
2030 Background	0.05	A	9	0.04	A	9	0.05	A	9
2030 Buildout	0.03	A	9	0.07	A	9	0.04	A	9
6. W Main Street (OR 211) & Hezzie Lane									
2025 Existing	0.16	D	28	0.11	E	41	0.28	F	89
2030 Background	0.24	E	42	0.18	F	61	0.45	F	162
2030 Buildout	0.25	E	41	0.18	F	63	0.48	F	162
7. Toliver Road & Leroy Avenue									
2025 Existing	0.45	B	11	0.28	A	9	0.54	B	12
2030 Background	0.51	B	12	0.30	A	9	0.59	B	13
2030 Buildout	0.51	B	12	0.30	A	9	0.59	B	13
8. Lynn Lane & Proposed North Access									
2030 Buildout	0.04	A	7	0.04	A	8	0.01	A	8

Table 11: Capacity Analysis Summary

Intersection & Condition	Morning Peak Hour			Afternoon Peak Hour			Evening Peak Hour		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
9. Lynn Lane & Leroy Avenue									
2025 Existing	0.02	B	13	0.01	B	11	0.02	B	11
2030 Background	0.03	B	14	0.01	B	11	0.02	B	11
2030 Buildout	0.03	B	15	0.08	B	11	0.05	B	11
10. Existing North Access & Leroy Avenue									
2025 Existing	0.19	B	14	0.13	B	12	0.06	B	12
2030 Background	0.22	C	16	0.14	B	12	0.06	B	13
11. Proposed East Access & Leroy Avenue									
2030 Buildout	0.94	F	61	0.43	C	17	0.37	C	15
12. Existing Center Access & Leroy Avenue									
2025 Existing	0.04	B	13	0.04	B	12	0.13	B	13
2030 Background	0.04	B	13	0.04	B	12	0.14	B	13
13. Existing South Access & Leroy Avenue									
2025 Existing	0.05	B	13	0.01	B	11	0.01	A	10
2030 Background	0.06	B	14	0.01	B	11	0.01	A	10
14. West Lane & Leroy Avenue									
2025 Existing	0.26	B	14	0.16	B	12	0.09	B	12
2030 Background	0.29	B	15	0.18	B	13	0.10	B	12
2030 Buildout	0.08	C	17	0.11	B	13	0.10	B	13
15. W Main Street (OR 211) & Leroy Avenue									
2025 Existing	0.19	D	25	0.15	E	42	0.52	F	132
2030 Background	0.35	E	46	0.37	F	87	1.18	F	>200
2030 Buildout	0.39	F	55	0.35	F	80	1.23	F	>200
16. Toliver Road & N Molalla Avenue									
2025 Existing	0.49	C	18	0.44	C	17	0.51	C	18
2030 Background	0.60	C	23	0.52	C	21	0.60	C	23
2030 Buildout	0.60	C	23	0.52	C	21	0.60	C	23

Table 11: Capacity Analysis Summary

Intersection & Condition	Morning Peak Hour			Afternoon Peak Hour			Evening Peak Hour		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
W Main St (OR 211) & Molalla Ave									
2025 Existing	0.47	B	10	0.57	B	11	0.62	B	12
2030 Background	0.55	B	11	0.65	B	13	0.70	B	14
2030 Buildout	0.55	B	111	0.65	B	13	0.70	B	14

BOLDED *results indicate operation above acceptable jurisdictional standards.*

As shown in Table 11, three study intersections are projected to operate with LOS F conditions and long delays; all others will operate below targets with generally low delays.

W Main Street (OR 211) & Hezzie Lane

Long delays are anticipated for traffic turning left from Hezzie Lane onto the highway; however, the intersection has v/c ratio well below the ODOT performance threshold for peak hours and forecast conditions. Preliminary signal warrants are not met at this location. Therefore, no mitigation is necessary or recommended at this intersection.

Future Site Access & Leroy Avenue

The analysis results in Table 11 reflect a single exit lane from the parking lot and no separate left-turn lanes on Leroy Avenue because warrants are not met. Under existing conditions, this lane configuration may not be adequate to accommodate the concentration of school traffic on a single driveway. Therefore, an alternative configuration with the following characteristics was evaluated:

- Separate left-turn and right-turn lanes for exiting traffic are provided at the driveway exit.
- A northbound left-turn lane on Leroy Avenue is striped at the school driveway to accommodate the inbound traffic demand.
- A two-way, left-turn lane is striped on Leroy Avenue north of the site access to allow some drivers to make a two-stage left-turn movement when exiting the school driveway.

The results of the analysis are presented in Table 12.

Table 12: Analysis Comparison at Site Access with Left-Turn Lanes

Intersection & Scenario	Morning Peak Hour			Afternoon Peak Hour			Evening Peak Hour		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
10. Proposed East Access & Leroy Avenue									
No Additional Lanes	0.94	F	61	0.43	C	17	0.37	C	15
With Left-Turn Lanes	0.44	B	15	0.22	B	14	0.17	B	14

The addition of a separate left-lane exit lane and left-turn lanes on Leroy Avenue will significantly improve operations of school driveway, particularly in the morning peak hour. Therefore, turn lanes should be considered even if the warrants are not met.

W Main Street (OR 211) & Leroy Avenue

Long delays are anticipated for traffic turning left from Leroy Avenue the shopping center driveway onto the highway, with v/c ratios indicating that demand will exceed capacity under background and buildout conditions. In some analysis periods, conditions are anticipated to improve with construction of the new school due to the different access orientation. In some analysis periods, conditions are slightly worse with the new school.

The HCM methodologies for evaluating intersection operations rely on theoretical estimates of capacity to estimate the v/c ratio and delay. While they are an excellent tool for operations evaluation, the HCM does not reflect systemic conditions and the influence of activity upstream or downstream from each intersection. For example, a traffic signal affects the flow of vehicles on a roadway. When the signal turns green, a "platoon" of closely spaced vehicles travels through the intersection. When the signal turns red, gaps in traffic flow between the platoons are created. Vehicles waiting at stop signs on side streets use these gaps to turn onto or cross a major roadway.

An alternative tool for estimating intersection delay are traffic simulations, which are also used for estimating queuing in a study network. This simulations capture the effects of the traffic signals on the flow of traffic past unsignalized intersections. Five network simulation runs were conducted using the Synchro/SimTraffic software and the average delays were calculated. The results are summarized Table 13 for the intersection of W Main Street (OR 211) and Leroy Avenue. Detailed delay reports are included in Appendix D.

Table 13: Simulated Delays at W Main Street/Leroy Avenue

Approach/Movement		2030 Background Delays (s)			2030 Buildout Delays (s)		
		Morning	Afternoon	Evening	Morning	Afternoon	Evening
Northbound	Left	22	23	57	18	27	41
	Through/Right	8	11	15	9	11	15
Southbound	Left	16	23	40	16	25	47
	Through/Right	7	10	13	9	11	12
Eastbound	Left	6	7	7	5	5	8
	Through/Right	1	1	1	1	1	1
Westbound	Left	4	6	8	4	6	7
	Through/Right	2	3	3	2	3	3

Note: Simulation are based on random arrival patterns; thus, calculated delays may fluctuate up or down slightly for each scenario.

As shown in Table 13, the delays from the traffic simulations are lower than those estimated using the theoretical capacity calculations from the HCM. During the evening peak hour, delays for the southbound left-turn movements are estimated to be below 60 seconds for both the year 2030 background and buildout conditions. These results demonstrate that the intersection will not be failing without a traffic signal as indicated in the HCM analysis.

For the intersection of OR 211 (W Main Street) & Leroy Avenue, the forecast delays are better represented by traffic simulations rather than HCM methodologies because they capture how the traffic signals on OR 211 (W Main Street) at OR 213 and at Molalla Avenue affect the traffic conditions at Leroy Avenue. Under 2030 background and buildout conditions, simulated scenarios demonstrate that the intersection can accommodate the forecast demand without a traffic signal.

Queueing Analysis

In accordance with the ODOT Analysis Procedures Manual (APM), an analysis of projected queuing was conducted for the study intersections. The 95th percentile queue lengths were estimated based on the same Synchro/SimTraffic simulations used for the delay calculations. The 95th percentile queue is a statistical measurement which indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may theoretically never be met or observed in the field.

The 95th percentile queue lengths reported in the simulation are presented in Table 14 for the morning and evening peak hours. Reported queue lengths were rounded up to the nearest 25 feet, equivalent to an average vehicle length. Detailed queuing analysis reports are included in Appendix D.

Table 14: 95th Percentile Queueing Analysis Summary

Intersection /Movement	Available Storage (ft)	2023 Background Queue (ft)			2023 Buildout Queue (ft)		
		Morning	Afternoon	Evening	Morning	Afternoon	Evening
1. Toliver Road & Cascade Highway (OR 213)							
EB Approach	105	50	75	100	50	50	75
WB Approach	325	75	75	75	75	75	75
NB Approach	460	125	150	225	100	100	225
SB Approach	280	75	125	325	75	125	300
2. OR 211 (W Main Street) & OR 213							
EB Left	250	75	100	175	75	100	175
WB Left	260	100	150	200	100	125	175
WB Right	310	125	125	100	150	100	125
NB Left	260	50	25	50	25	25	50
NB Right	235	50	75	100	75	75	100
SB Left	230	100	200	275	100	200	250
3. Toliver Road & Hezzie Lane							
NB Approach	150	25	25	25	25	25	25
4. Proposed West Access & Hezzie Lane							
WB Approach	120	-	-	-	50	75	50

Table 14: 95th Percentile Queueing Analysis Summary

Intersection /Movement	Available Storage (ft)	2023 Background Queue (ft)			2023 Buildout Queue (ft)		
		Morning	Afternoon	Evening	Morning	Afternoon	Evening
5. West Lane & Hezzie Lane							
WB Approach	800	50	50	50	50	50	50
6. W Main Street (OR 211) & Hezzie Lane							
EB Left	175	50	50	75	25	50	75
WB Left	150	25	50	50	25	50	50
NB Left	50	50	50	75	50	50	75
NB Through-Right	N/A	50	50	50	50	50	50
SB Left	25	50	50	50	50	50	50
SB Through-Right	450	75	50	50	50	75	50
7. Toliver Road & Leroy Avenue							
EB Approach	225	100	100	100	75	100	100
WB Approach	135	100	75	100	100	75	100
NB Approach	350	75	75	75	50	75	75
8. Lynn Lane & Proposed North Access							
EB Approach	400	-	-	-	-	50	50
9. Lynn Lane & Leroy Avenue							
EB Approach	400	25	25	25	25	50	50
10. Existing North Access & Leroy Avenue							
EB Approach	N/A	75	75	50	-	-	-
WB Approach	350	50	50	50	-	-	-
11. Proposed East Access & Leroy Avenue							
EB Approach	N/A	-	-	-	150	75	75
12. Existing Center Access & Leroy Avenue							
EB Approach	N/A	25	50	50	-	-	-
13. Existing South Access & Leroy Avenue							
EB Approach	N/A	25	25	25	-	-	-
14. West Lane & Leroy Avenue							
EB Approach	800	75	75	50	25	50	50
WB Approach	800	50	50	50	50	50	50

Table 14: 95th Percentile Queueing Analysis Summary

Intersection /Movement	Available Storage (ft)	2023 Background Queue (ft)			2023 Buildout Queue (ft)		
		Morning	Afternoon	Evening	Morning	Afternoon	Evening
15. W Main Street (OR 211) & Leroy Avenue							
EB Left	150	50	50	75	75	50	75
WB Left	150	50	75	75	50	75	75
NB Left	130	50	50	75	50	50	75
NB Through-Right	220	50	75	75	50	75	100
SB Left	120	75	50	75	75	50	75
SB Through-Right	415	75	100	100	75	75	75
16. Toliver Road & N Molalla Avenue							
EB Approach	400	100	100	125	125	125	125
NB Left	75	50	75	75	50	75	75
17. W Main Street (OR 211) & Molalla Avenue							
EB Left	115	100	100	**150**	100	**125**	**150**
EB Right	170	50	75	125	50	75	125
WB Left	105	50	50	75	50	50	75

Note: Simulations are based on random arrival patterns; thus, calculated delays may fluctuate up or down slightly for each scenario.
BOLDED *text indicates queue extends beyond available lane storage.*

As shown in Table 14, the 95th percentile queues at the study intersections can generally be accommodated by the available vehicle storage space under all scenarios. There are a few locations where a queue may occasionally block a driveway or extend into the deceleration portion of a striped turn lane but no queuing hazards were identified and the proposed project will not significantly impact queuing.

Queues in the northbound and southbound lane of Leroy Avenue are estimated at 50 to 100 feet, which is consistent with the simulation delays presented in Table 13. These results demonstrate that the intersection will not be failing without a traffic signal as indicated in the HCM analysis.

Conclusions

Key findings of this study include:

- No significant trends or crash patterns were identified at any of the study intersections. Accordingly, no specific safety mitigation is recommended.
- Adequate sight distance will be provided at the new site accesses to ensure safe operation of the intersections Hezzie Lane and Leroy Avenue.
- The left-turn lane warrants were not met on Leroy Avenue for the northbound approach to the new site driveway during either the morning and afternoon peak hours. However, if the roadway with has sufficient width to provide a left-turn plus the two travel lane and bike lanes as shown in Exhibit 4 of the Molalla TSP, a left-turn lane should be considered.
- The projected traffic demand at the intersection of W Main Street (OR 211) & Hezzie Lane does not meet the ODOT preliminary traffic signal warrant thresholds. No signal is recommended with the school replacement project.
- Detailed analysis of traffic signal warrants at the intersection of W Main Street (OR 211) at Leroy Avenue shows the proposed development will not trigger the criteria for installation of a traffic signal at this location. No signal is recommended with the school replacement project.
- The proposed improvements are consistent with the Safe Routes to School Plan and will enhance the program with new striped crosswalks at locations where existing demand is present and future demand is anticipated.
- Based on the existing condition observations of drop-off and pick-up activity, the planned parking and loading facilities appear adequate to accommodate the future demand.
- All study intersections are projected to meet ODOT standards except for W Main Street (OR 211) and Leroy Avenue. Three study intersections are projected to operate with LOS F conditions and long delays; all others will operate below targets with generally low delays:
    - Long delays are anticipated for traffic turning left from Hezzie Lane onto W Main Street (OR 211); however, the intersection has v/c ratio well below the ODOT performance threshold for peak hours and forecast conditions. Therefore, no mitigation is necessary or recommended at this intersection.
    - The analysis of the new site access on Leroy Avenue was based on a single exit lane from the parking lot and no separate left-turn lanes on Leroy Avenue because warrants are not met. The addition of separate left- and right-turn lane exit lanes and left-turn lanes on Leroy Avenue would significantly improve operations of school driveway, particularly in the morning peak hour. Therefore, turn lanes should be considered even if they warrants are not met.
    - Standard analysis methodologies show long delays and over capacity conditions at the intersection of W Main Street (OR 211) & Leroy Avenue under background and buildout conditions. However, conditions at the Leroy Avenue intersection can be better represented by traffic simulations rather than HCM methodologies because they consider how the traffic signals on OR 211 (W Main Street)

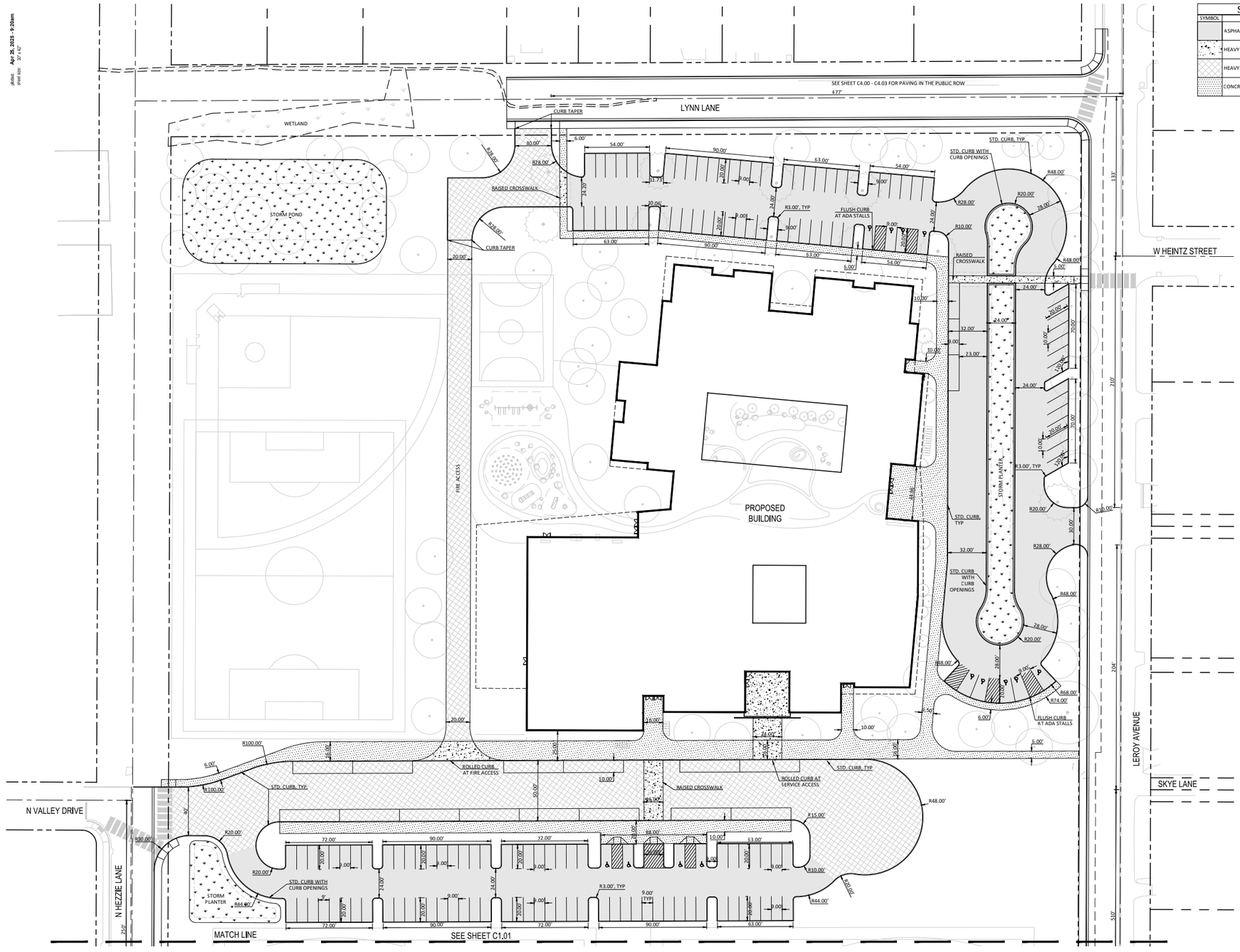
at OR 213 and at Molalla Avenue affect the traffic flow past Leroy Avenue. Simulated scenarios demonstrate that the intersection can accommodate the forecast demand without a traffic signal.

- The 95th percentile queues at the study intersections can generally be accommodated by the available vehicle storage space under all scenarios. No queuing hazards were identified and the proposed project will not significantly impact queuing.

Appendix A – Site Information

Site Plan

plotted: Apr 25, 2025 - 9:20am
sheet size: 30" x 42"



SHEET LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	HEAVY CONCRETE PAVEMENT
	HEAVY ASPHALT PAVEMENT (BUS/FIRE)
	CONCRETE SIDEWALK

FACILITY AREAS	
PROPOSED BUILDING	94,000 SF
FIELDS	322,000 SF
PARKING NORTH	24,000 SF
PARKING EAST	24,800 SF
PARKING SOUTH	27,250 SF
BUS/FIRE LANES	47,500 SF

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

opsis

Opsis Architecture LLP
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503.525.9511 | info@opsisarch.com
opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **PROGRESS SET**

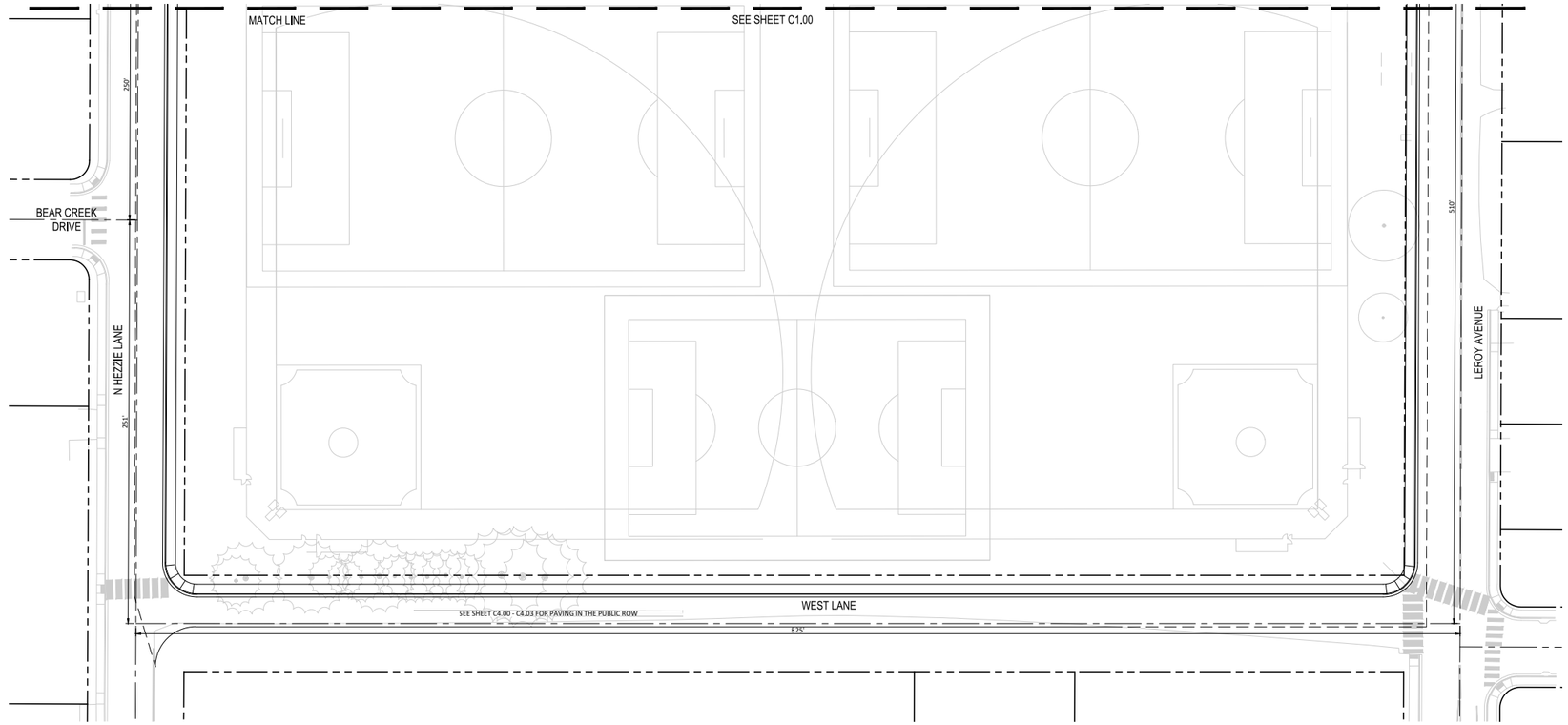
Date: **04/25/2025**

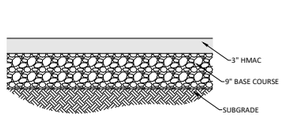
Sheet Title
PAVING PLAN - NORTH

Sheet No.
C1.00

Job No.
4924-01

plotted: Apr 25, 2025 - 9:20am
sheet size: 30" x 42"

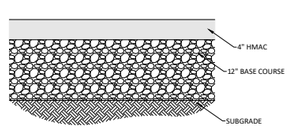




NOTES:

1. THE AC SHOULD CONSIST OF 1/2-INCH HOT MIX ASPHALT CONCRETE (HMAC).
2. MAXIMUM LIFT THICKNESS IS 3".
3. AGGREGATE BASE SHALL BE COMPACTED TO 91% OF THE MAXIMUM RICE DENSITY DETERMINED IN ACCORDANCE WITH ASTM D2041.

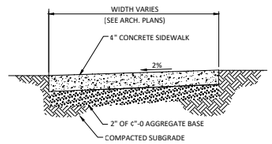
1 ASPHALT PAVEMENT SECTION
NTS



NOTES:

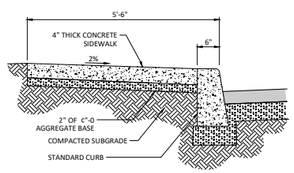
1. THE AC SHOULD CONSIST OF 1/2-INCH HOT MIX ASPHALT CONCRETE (HMAC).
2. MAXIMUM LIFT THICKNESS IS 3".
3. AGGREGATE BASE SHALL BE COMPACTED TO 91% OF THE MAXIMUM RICE DENSITY DETERMINED IN ACCORDANCE WITH ASTM D2041.

2 HEAVY ASPHALT PAVEMENT SECTION
NTS



NOTE:
1. CONCRETE SHALL BE 3000 PSI, SLUMP RANGE 3" TO 5".

IN LANDSCAPE

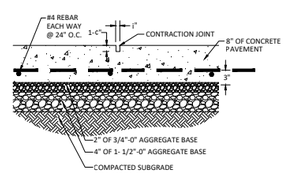


NOTES:

1. CONCRETE SHALL BE 3000 PSI, SLUMP RANGE 3" TO 5".

AT STANDARD 6" CURB

3 CONCRETE SIDEWALK
NTS



NOTES:

1. CONCRETE SHALL BE 4000 PSI, SLUMP RANGE 3" TO 5".
2. INSTALL CONTRACTION JOINTS AT 10' O.C. BOTH DIRECTION.
3. REBAR TO HAVE A TENSILE YIELD STRENGTH OF 60,000 PSI.
4. AGGREGATE BASE AND THE UPPER 12" OF THE SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557.

4 HEAVY CONCRETE PAVEMENT SECTION
NTS

N

SCALE: 1" = 30'
SHEET SIZE: 30X42

0 30 60

opsis

Opsis Architecture LLP
975 SE Main St., Portland, OR 97214
503.525.9511 | info@opsisarch.com
opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

STANDRIDGE
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Revisions to Sheet

No.	Revision	Date

Status: **PROGRESS SET**

Date: **04/25/2025**

Sheet Title
PAVING PLAN - SOUTH

Sheet No.
C1.01

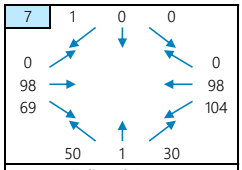
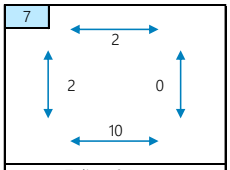
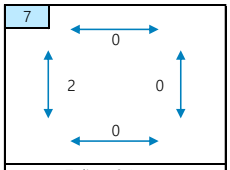
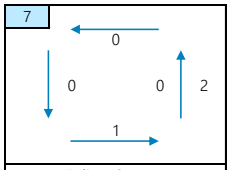
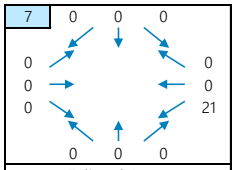
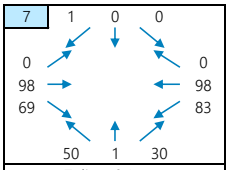
Job No.
4924-01

Appendix B – Volumes

Traffic Counts

In-Process Trips

AM PEAK HOUR

2025 Existing Vehicles	2025 Existing Pedestrians	2025 Existing Bikes in Xwalk	2025 Existing Bikes in Road	2025 Buses	2025 Other
					
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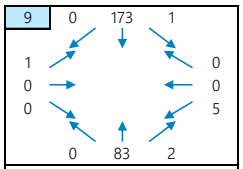	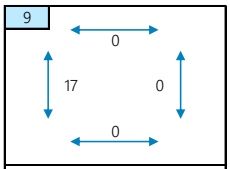	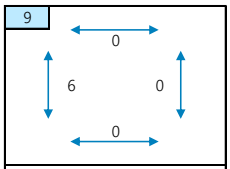	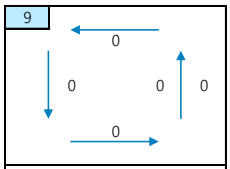	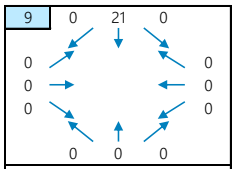	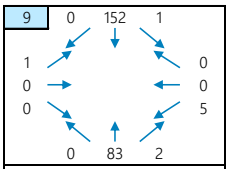
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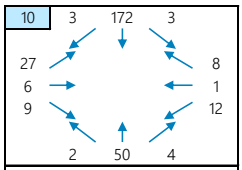	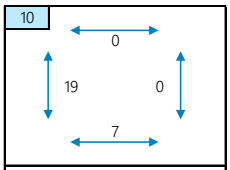	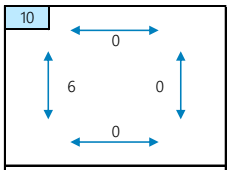	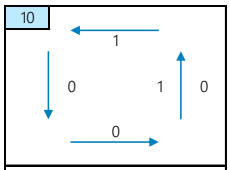	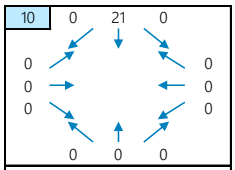	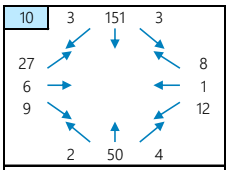
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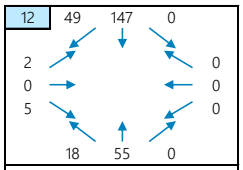	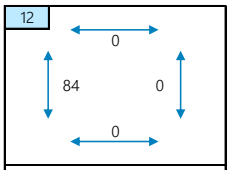	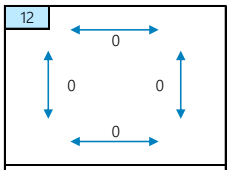	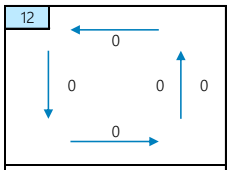	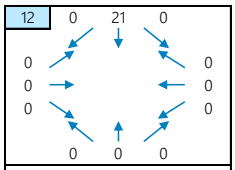	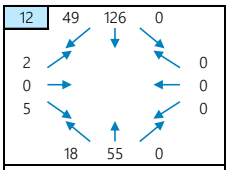
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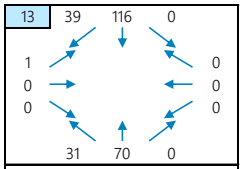	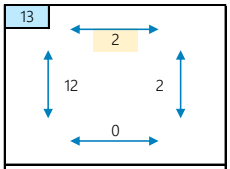	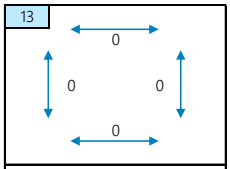	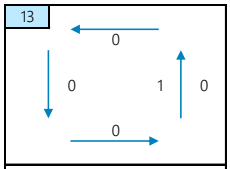	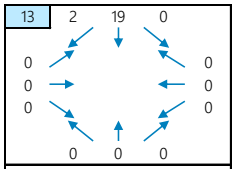	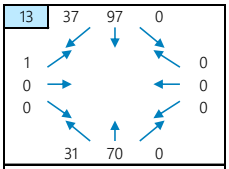
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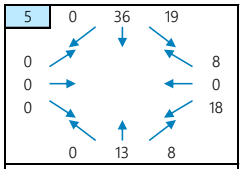	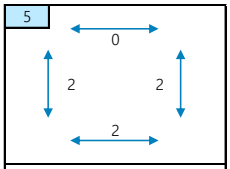	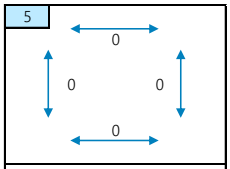	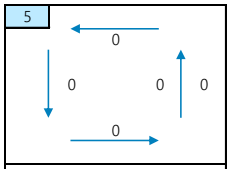	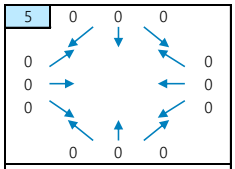	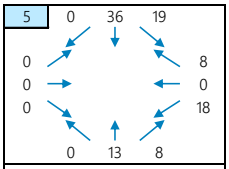
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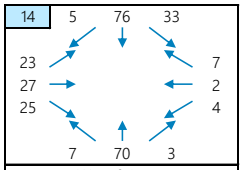	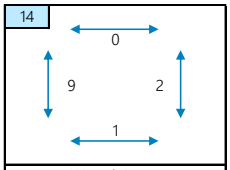	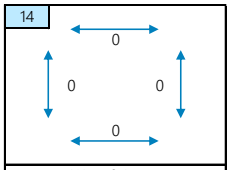	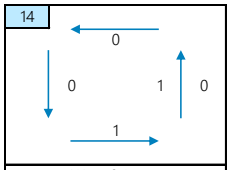	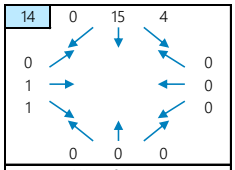	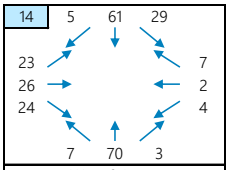
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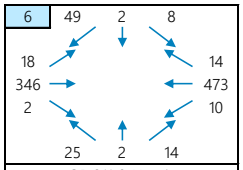	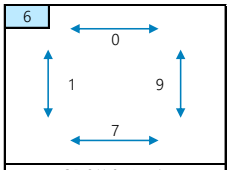	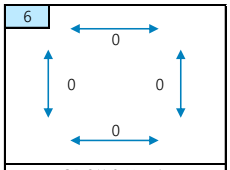	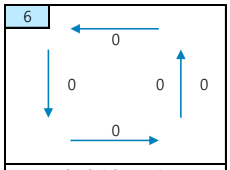	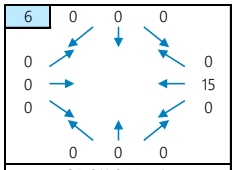	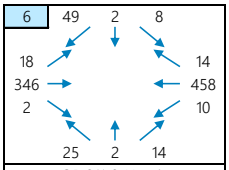
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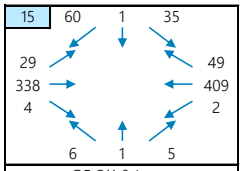
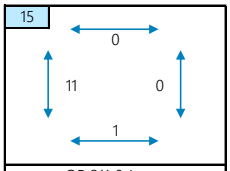
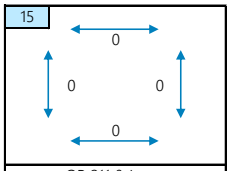
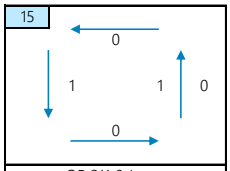
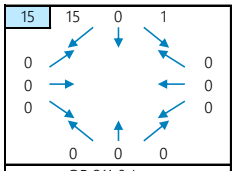
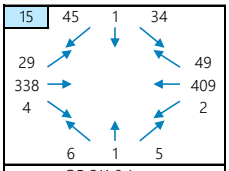
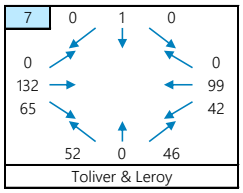
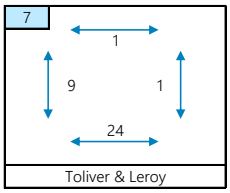
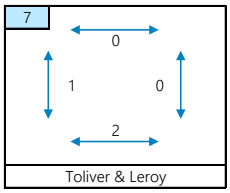
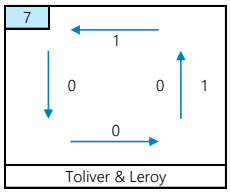
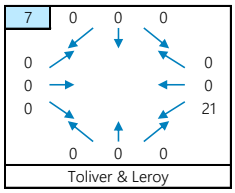
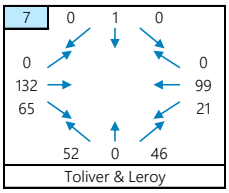
					
OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy

AFTERNOON PEAK HOUR

2025 Existing Vehicles	2025 Existing Pedestrians	2025 Existing Bikes in Xwalk	2025 Existing Bikes in Road	2025 Buses	2025 Other
					
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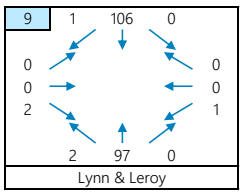	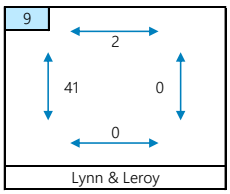	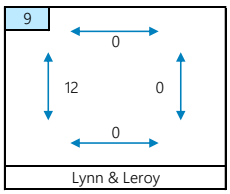	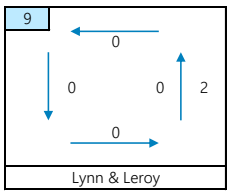	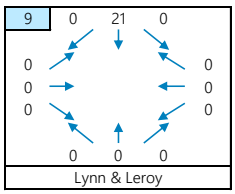	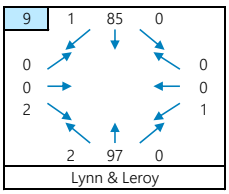
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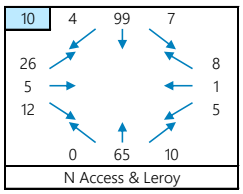	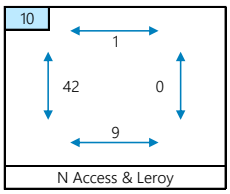	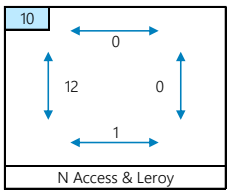	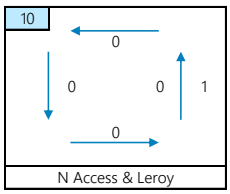	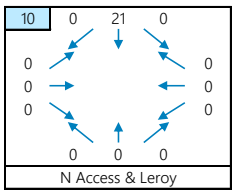	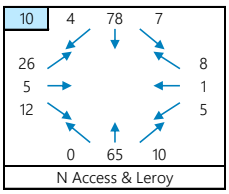
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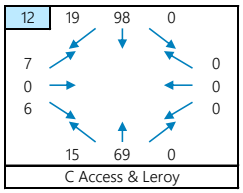	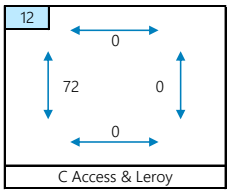	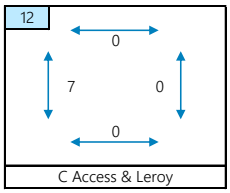	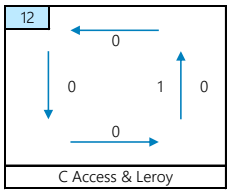	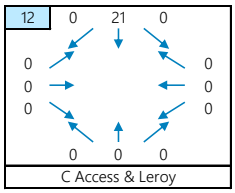	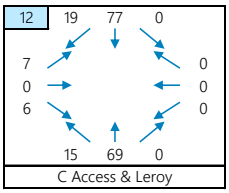
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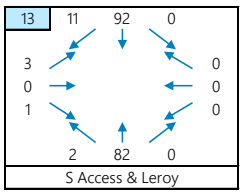	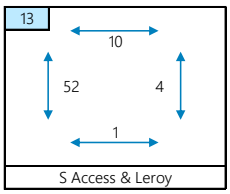	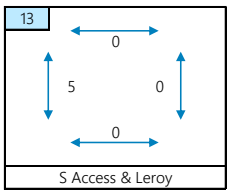	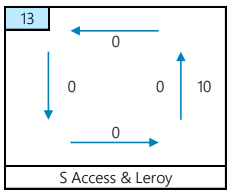	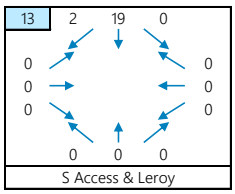	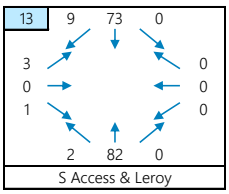
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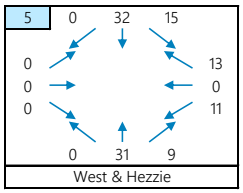
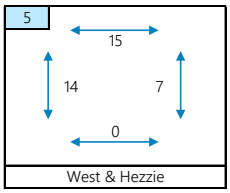
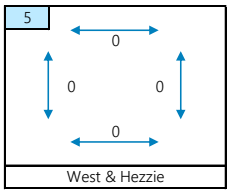
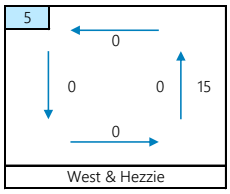
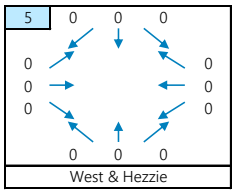
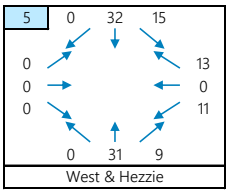
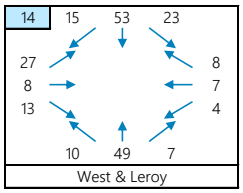
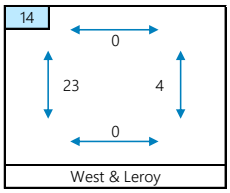
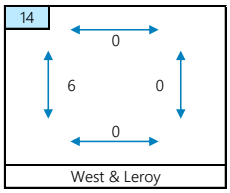
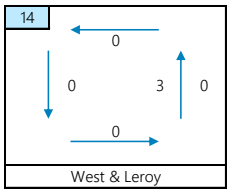
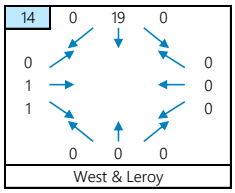
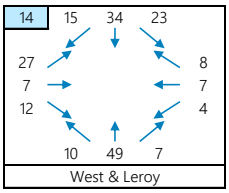
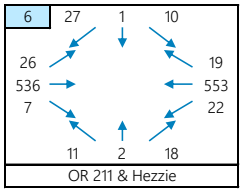
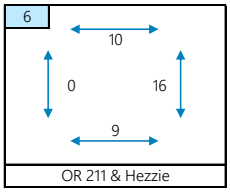
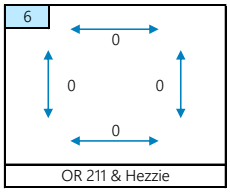
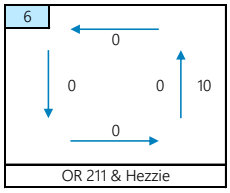
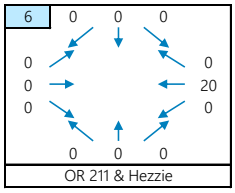
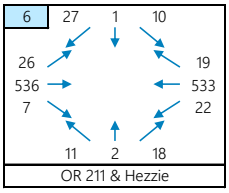
					
West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie
					
West & Leroy	West & Leroy	West & Leroy	West & Leroy	West & Leroy	West & Leroy
					
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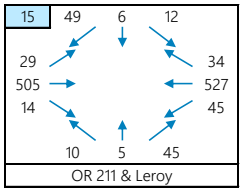
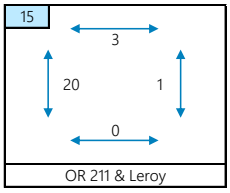
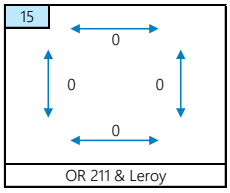
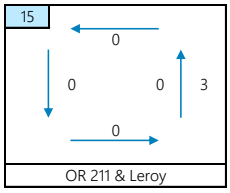
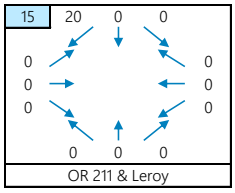
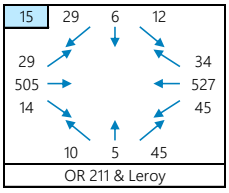
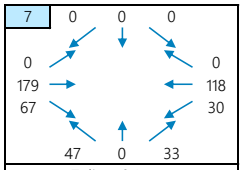
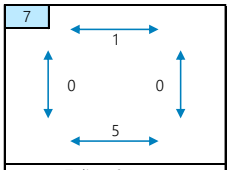
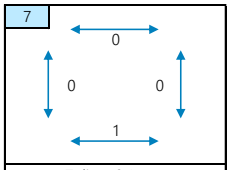
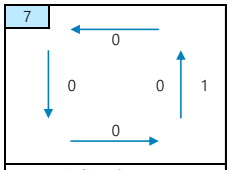
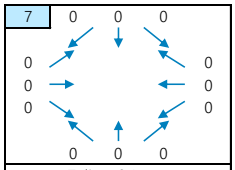
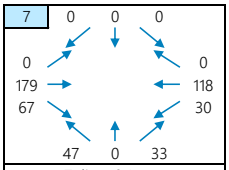
					
OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy

PM PEAK HOUR

2025 Existing Vehicles	2025 Existing Pedestrians	2025 Existing Bikes in Xwalk	2025 Existing Bikes in Road	2025 Buses	2025 Other
					
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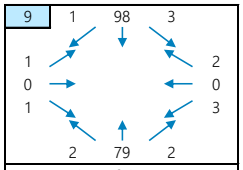
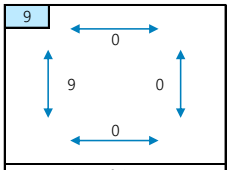
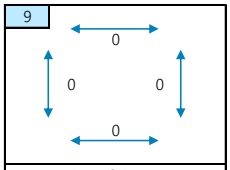
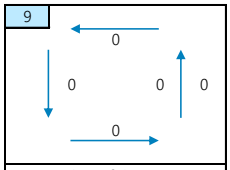
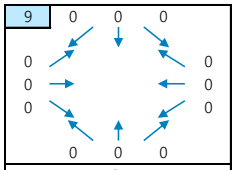
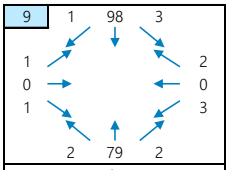
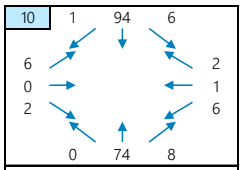
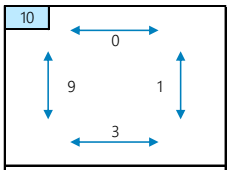
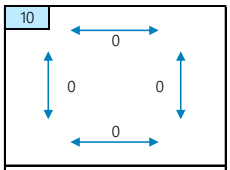
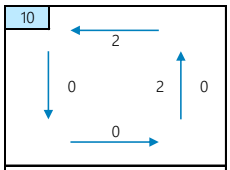
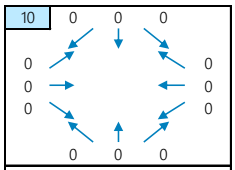
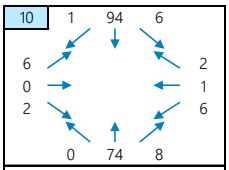
					
Lynn & Leroy	Lynn & Leroy	Lynn & Leroy	Lynn & Leroy	Lynn & Leroy	Lynn & Leroy
					
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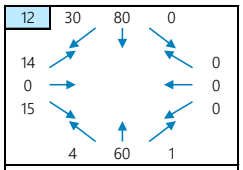	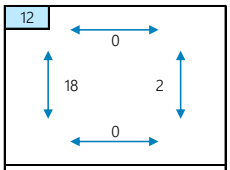	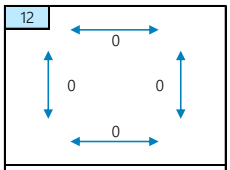	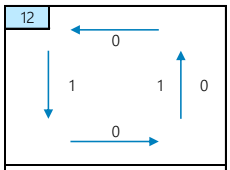	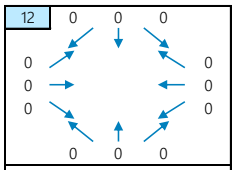	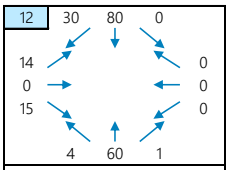
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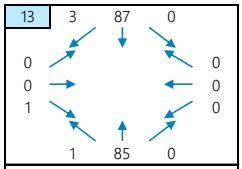	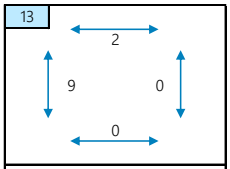	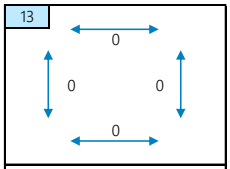	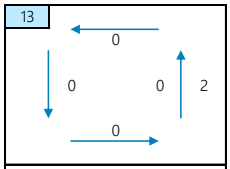	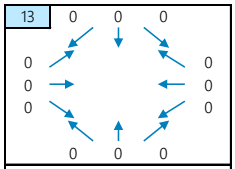	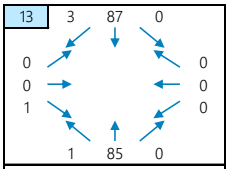
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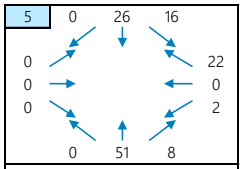
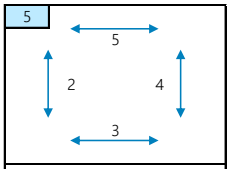
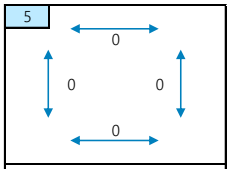
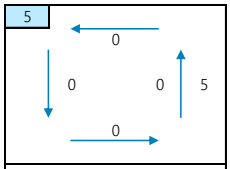
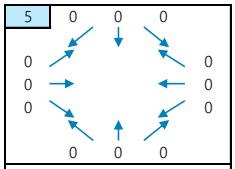
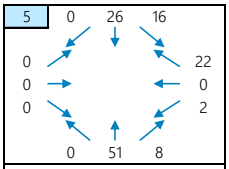
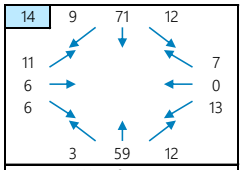
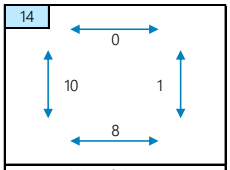
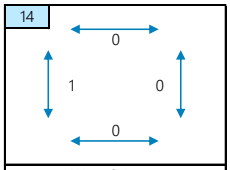
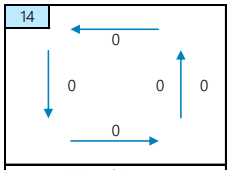
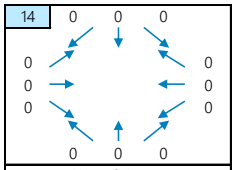
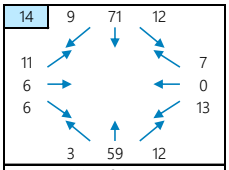
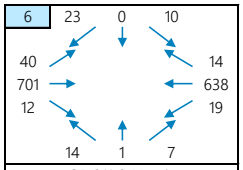
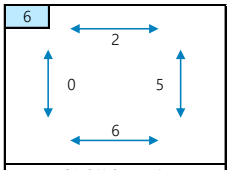
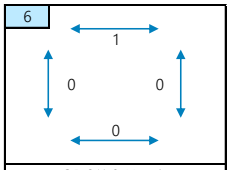
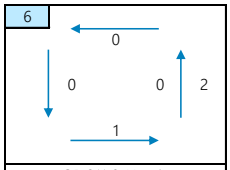
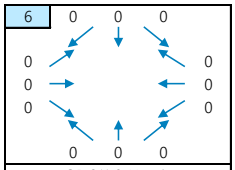
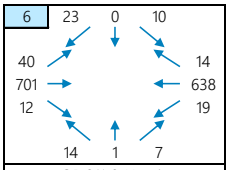
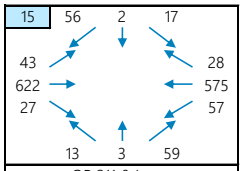
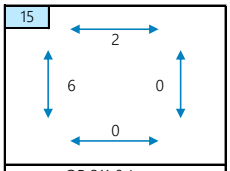
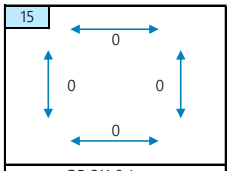
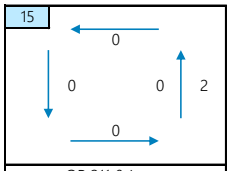
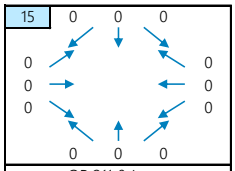
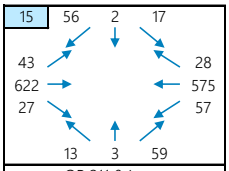
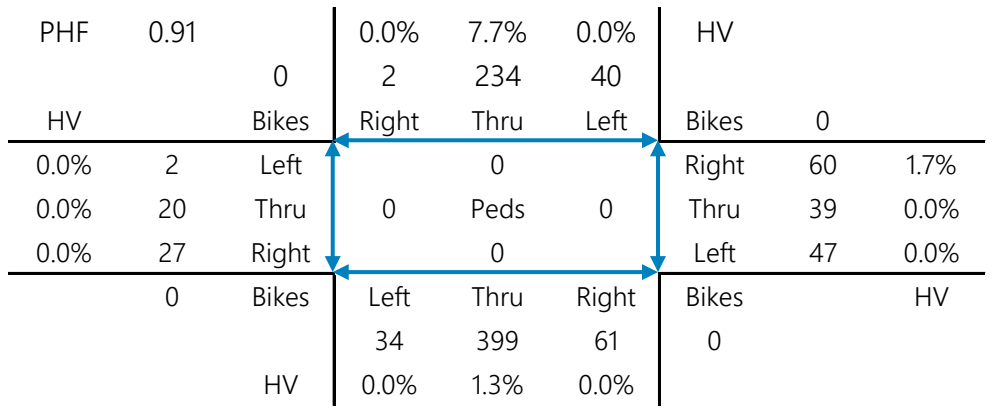
					
West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie	West & Hezzie
					
West & Leroy	West & Leroy	West & Leroy	West & Leroy	West & Leroy	West & Leroy
					
OR 211 & Hezzie	OR 211 & Hezzie	OR 211 & Hezzie	OR 211 & Hezzie	OR 211 & Hezzie	OR 211 & Hezzie
					
OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy	OR 211 & Leroy

All Traffic Data Services

MORNING PEAK HOUR

1 OR 213 & TOLIVER ROAD AM
Tuesday, April 15, 2025

Peak Hour
06:55 AM - 07:55 AM
Peak 15-Minutes
07:15 AM - 07:30 AM



Traffic Counts - All Vehicles

	TOLIVER ROAD Eastbound			TOLIVER ROAD Westbound			OR 213 Northbound			OR 213 Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
6:30 AM	0	0	0	5	4	6	2	40	1	2	13	1	74	953	217
6:35 AM	0	4	1	5	4	8	5	32	3	4	11	0	77	943	214
6:40 AM	2	1	1	3	5	5	5	28	3	2	10	1	66	936	212
6:45 AM	0	2	0	1	6	6	2	31	3	1	19	0	71	958	228
6:50 AM	1	1	5	4	5	2	2	27	5	2	20	1	75	963	231
6:55 AM	0	3	6	1	2	4	0	38	6	1	21	0	82	965	227
7:00 AM	0	1	1	2	3	1	3	32	7	4	19	1	74	950	242
7:05 AM	0	0	1	6	2	5	2	33	3	2	17	0	71		242
7:10 AM	0	5	2	9	4	3	5	30	7	10	22	0	97		257
7:15 AM	0	0	0	4	6	5	0	33	5	6	15	0	74		266
7:20 AM	1	1	1	6	6	6	4	33	7	2	18	1	86		256
7:25 AM	1	2	1	3	4	12	1	48	13	3	18	0	106		240
7:30 AM	0	0	1	0	6	4	5	28	2	2	16	0	64		222
7:35 AM	0	2	5	3	1	5	3	26	3	1	21	0	70		234
7:40 AM	0	1	5	9	1	4	5	30	5	4	24	0	88		241
7:45 AM	0	3	2	3	3	4	2	34	3	2	20	0	76		220
7:50 AM	0	2	2	1	1	7	4	34	0	3	23	0	77		
7:55 AM	0	2	3	5	4	4	3	10	5	3	28	0	67		

Peak Rolling Hour Flow Rates

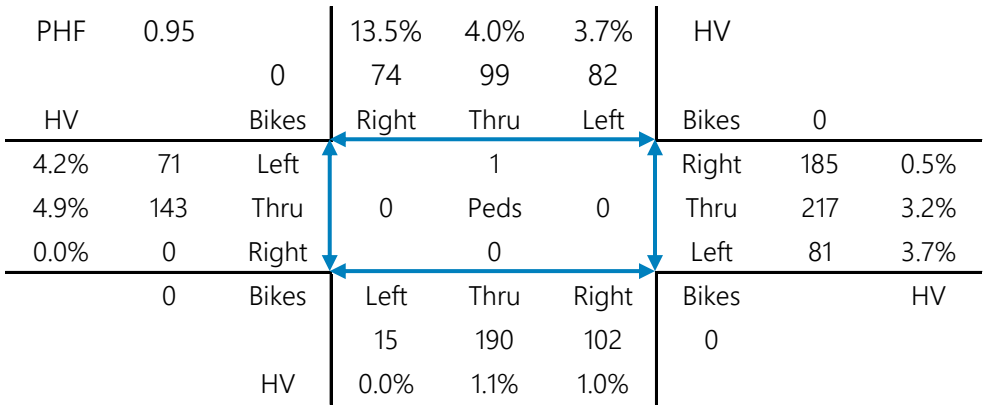
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	1	0	5	0	0	18	0	24
Lights	2	20	26	45	38	48	34	384	46	37	208	2	890
Mediums	0	0	1	2	1	11	0	10	15	3	8	0	51
Total	2	20	27	47	39	60	34	399	61	40	234	2	965
Pedestrians		0			0			0			0		0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.7%			1.0%			6.5%		2.5%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	1.3%	0.0%	0.0%	7.7%	0.0%	2.5%
Peak Hour Factor (PHF)		1.75			0.70			0.86			1.10		0.91
Peak Hour Factor (PHF)	0.25	1.67	3.38	0.90	0.61	0.65	1.70	0.88	0.61	0.91	1.15	0.50	0.91

All Traffic Data Services

MORNING PEAK HOUR

2 OR 213 & OR 211 AM
Tuesday, April 15, 2025

Peak Hour
06:50 AM - 07:50 AM
Peak 15-Minutes
07:05 AM - 07:20 AM



Traffic Counts - All Vehicles

	OR 211 Eastbound			OR 211 Westbound			OR 213 Northbound			OR 213 Southbound					
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	7	12	0	3	22	17	1	16	8	2	6	7	101	1,234	289
6:35 AM	5	10	0	4	22	22	1	11	4	5	6	5	95	1,227	278
6:40 AM	8	16	0	14	15	9	0	11	8	5	3	4	93	1,233	284
6:45 AM	8	7	0	4	11	11	3	17	11	5	9	4	90	1,250	301
6:50 AM	7	13	0	10	17	9	0	17	12	7	6	3	101	1,259	300
6:55 AM	10	14	0	2	16	12	1	24	7	11	9	4	110	1,256	308
7:00 AM	5	7	0	4	13	13	3	15	6	7	11	5	89	1,243	313
7:05 AM	4	16	0	11	25	10	1	16	8	5	7	6	109		331
7:10 AM	7	10	0	12	14	19	1	16	6	4	14	12	115		322
7:15 AM	7	11	0	6	20	21	2	16	11	2	4	7	107		331
7:20 AM	5	9	0	4	18	25	0	4	12	11	2	10	100		318
7:25 AM	9	14	0	10	16	19	2	30	7	3	8	6	124		319
7:30 AM	3	12	0	10	19	14	2	6	10	7	7	4	94		305
7:35 AM	5	15	0	1	19	12	1	14	7	9	10	8	101		310
7:40 AM	2	7	0	6	15	18	2	22	10	8	14	6	110		307
7:45 AM	7	15	0	5	25	13	0	10	6	8	7	3	99		294
7:50 AM	2	10	1	9	10	9	0	22	8	13	5	9	98		
7:55 AM	4	14	0	6	17	7	1	13	5	12	15	3	97		

Peak Rolling Hour Flow Rates

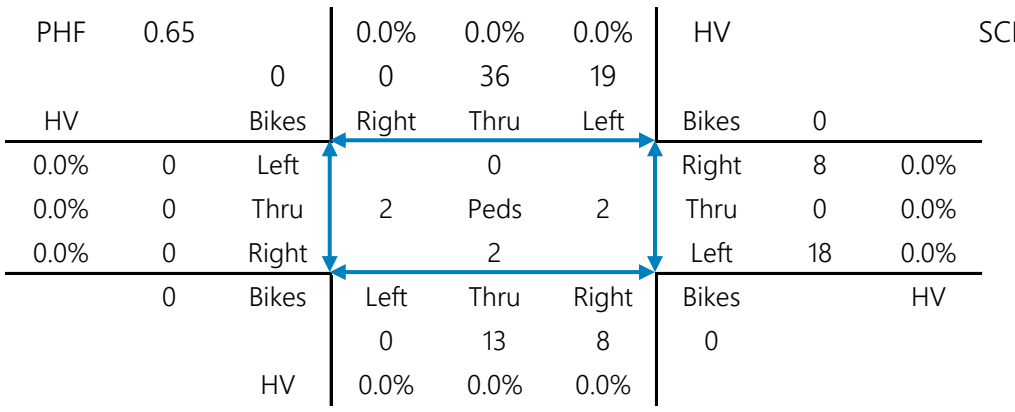
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	3	7	0	3	7	1	0	2	1	3	4	10	41
Lights	65	130	0	74	202	165	14	186	93	73	90	63	1,155
Mediums	3	6	0	4	8	19	1	2	8	6	5	1	63
Total	71	143	0	81	217	185	15	190	102	82	99	74	1,259
Pedestrians		0			0			0			1		1
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		4.7%			2.3%			1.0%			6.7%		3.3%
Heavy Vehicle Percentage	4.2%	4.9%	0.0%	3.7%	3.2%	0.5%	0.0%	1.1%	1.0%	3.7%	4.0%	13.5%	3.3%
Peak Hour Factor (PHF)		0.97			0.88			1.00			1.05		0.95
Peak Hour Factor (PHF)	0.99	0.97	0.00	0.70	0.92	0.93	0.94	0.99	1.02	1.86	0.99	0.74	0.95

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

5 N HEZZIE LN & WEST LN AM
Tuesday, April 15, 2025

Peak Hour
06:50 AM - 07:50 AM
Peak 15-Minutes
07:10 AM - 07:25 AM



Traffic Counts - All Vehicles

Time	WEST LN Eastbound Left	Thru	Right	WEST LN Westbound Left	Thru	Right	N HEZZIE LN Northbound Left	Thru	Right	N HEZZIE LN Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	89	13
6:35 AM	0	0	0	0	0	0	0	1	1	0	5	0	7	98	13
6:40 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	96	10
7:40 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	97	15
6:50 AM	0	0	0	0	0	0	0	1	1	0	2	0	4	102	16
6:55 AM	0	0	0	0	0	0	0	2	0	2	4	0	8	100	20
7:00 AM	0	0	0	0	0	0	0	1	0	2	1	0	4	96	29
7:05 AM	0	0	0	2	0	0	0	1	0	2	3	0	8		35
7:10 AM	0	0	0	2	0	1	0	2	2	4	6	0	17		39
7:15 AM	0	0	0	1	0	1	0	0	2	3	3	0	10		32
7:20 AM	0	0	0	4	0	1	0	2	2	1	2	0	12		34
7:25 AM	0	0	0	5	0	1	0	1	1	1	1	0	10		27
7:30 AM	0	0	0	3	0	2	0	1	0	1	5	0	12		21
7:35 AM	0	0	0	1	0	1	0	0	0	0	3	0	5		17
7:40 AM	0	0	0	0	0	0	0	0	0	1	3	0	4		15
7:45 AM	0	0	0	0	0	1	0	2	0	2	3	0	8		15
7:50 AM	0	0	0	0	0	0	0	0	0	0	2	0	3		
7:55 AM	0	0	0	0	0	0	0	1	0	0	3	0	4		

Peak Rolling Hour Flow Rates

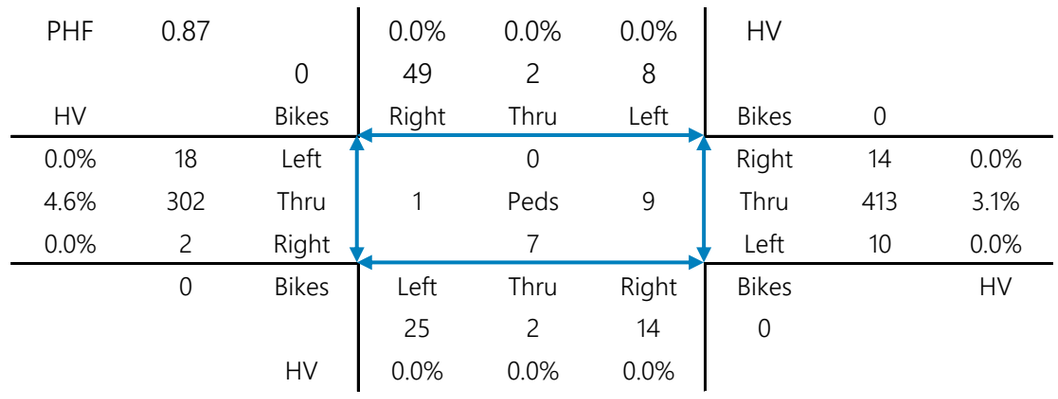
Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	18	0	8	0	13	8	19	36	0	102
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	18	0	8	0	13	8	19	36	0	102
Pedestrians		2			2			2			0		6
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.00			0.65			0.53			0.72		0.65
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.64	0.00	0.67	0.00	0.81	0.33	0.59	0.82	0.00	0.65

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

8 HEZZIE LN & W MAIN ST AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM (Common Peak)
Peak 15-Minutes
07:25 AM - 07:40 AM



Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			HEZZIE LN			HEZZIE LN					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
6:30 AM	0	15	0	0	39	0	2	0	1	0	0	5	62	803	177
6:35 AM	0	21	0	0	33	0	2	0	0	0	0	2	58	823	181
6:40 AM	0	17	0	0	30	0	2	0	2	3	0	3	57	850	185
6:45 AM	0	31	0	0	25	1	2	1	2	1	1	2	66	859	186
6:50 AM	2	19	0	1	31	0	2	1	1	1	1	3	62	859	178
6:55 AM	0	18	0	0	37	0	0	0	0	1	0	2	58	862	176
7:00 AM	0	22	1	1	28	0	2	0	1	0	0	3	58	867	197
7:05 AM	1	24	0	0	31	0	0	0	2	0	0	2	60		220
7:10 AM	2	26	0	1	38	2	4	0	2	1	0	3	79		242
7:15 AM	4	27	0	2	38	2	3	0	0	2	0	3	81		243
7:20 AM	2	23	0	1	35	4	4	0	2	0	0	11	82		244
7:25 AM	4	25	0	2	41	1	0	0	3	0	0	4	80		247
7:30 AM	1	26	0	2	39	2	3	0	1	0	0	8	82		233
7:35 AM	2	33	0	0	42	1	2	0	0	1	0	4	85		217
7:40 AM	0	28	1	0	28	1	3	0	0	1	0	4	66		197
7:45 AM	0	24	0	0	35	1	2	0	1	1	0	2	66		194
7:50 AM	1	30	0	0	29	1	1	0	0	0	0	3	65		
7:55 AM	4	24	0	0	30	3	0	0	2	0	0	0	63		

Peak Rolling Hour Flow Rates

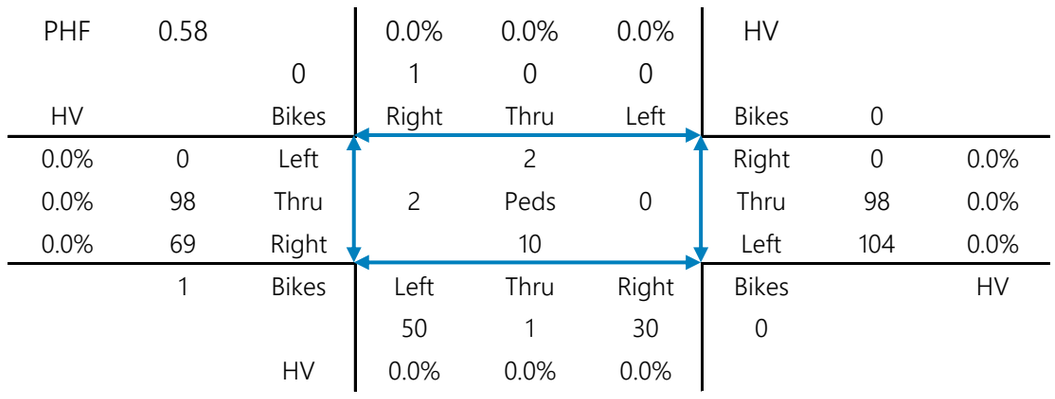
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	14	0	0	13	0	0	0	0	0	0	0	27
Lights	18	273	2	10	374	14	25	2	14	8	2	49	791
Mediums	0	15	0	0	26	0	0	0	0	0	0	0	41
Total	18	302	2	10	413	14	25	2	14	8	2	49	859
Pedestrians		1			9			7			0		17
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage	0.0%	4.6%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%
Peak Hour Factor (PHF)		0.88			0.84			1.14			0.87		0.87
Peak Hour Factor (PHF)	0.64	0.90	#DIV/0!	0.63	0.85	0.88	1.25	#DIV/0!	0.88	2.00	#DIV/0!	0.77	0.87

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

7 LEROY AVE & TOLIVER RD AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM
Peak 15-Minutes
07:15 AM - 07:30 AM



Traffic Counts - All Vehicles

	TOLIVER RD Eastbound			TOLIVER RD Westbound			LEROY AVE Northbound			LEROY AVE Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
6:30 AM	0	3	1	3	6	0	1	0	0	0	0	0	14	407	36
6:35 AM	0	0	3	2	3	0	2	0	0	0	0	0	10	432	44
6:40 AM	0	4	1	1	4	0	2	0	0	0	0	0	12	440	52
6:45 AM	0	5	2	1	13	0	1	0	0	0	0	0	22	451	63
6:50 AM	0	6	4	0	5	0	2	0	1	0	0	0	18	447	68
6:55 AM	0	12	1	3	5	0	2	0	0	0	0	0	23	446	78
7:00 AM	0	10	5	3	6	0	1	1	1	0	0	0	27	446	112
7:05 AM	0	8	4	4	6	0	3	0	3	0	0	0	28		151
7:10 AM	0	8	14	19	8	0	5	0	3	0	0	0	57		184
7:15 AM	0	8	12	21	12	0	5	0	7	0	0	1	66		196
7:20 AM	0	9	11	17	8	0	12	0	4	0	0	0	61		169
7:25 AM	0	14	10	25	7	0	5	0	8	0	0	0	69		126
7:30 AM	0	6	3	8	13	0	7	0	2	0	0	0	39		80
7:35 AM	0	5	1	2	7	0	3	0	0	0	0	0	18		59
7:40 AM	0	7	2	1	8	0	4	0	1	0	0	0	23		58
7:45 AM	0	5	2	1	6	0	4	0	0	0	0	0	18		58
7:50 AM	0	8	1	1	6	0	1	0	0	0	0	0	17		
7:55 AM	0	8	1	0	10	0	4	0	0	0	0	0	23		

Peak Rolling Hour Flow Rates

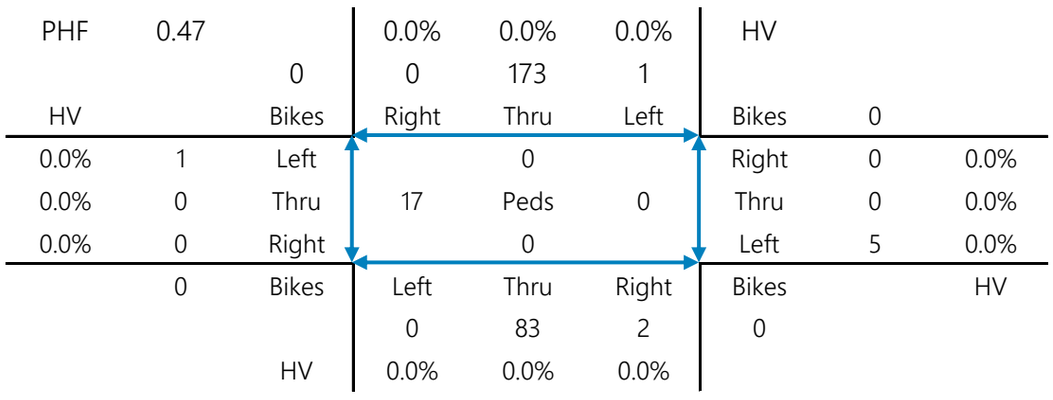
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	91	69	84	93	0	50	1	29	0	0	1	418
Mediums	0	7	0	20	5	0	0	0	1	0	0	0	33
Total	0	98	69	104	98	0	50	1	30	0	0	1	451
Pedestrians		2			0			10			2		14
Bicycles on Road	0	1	0	0	0	0	0	0	0	0	0	0	1
Bicycles on Crosswalk		2			0			0			0		2
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.65			0.56			0.49			0.25		0.58
Peak Hour Factor (PHF)	0.00	0.79	0.52	0.41	0.91	0.00	0.57	#DIV/0!	0.39	0.00	0.00	0.25	0.58

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

6 LEROY AVE & LYNN LN AM
Thursday, January 16, 2025

Peak Hour
06:50 AM - 07:50 AM
Peak 15-Minutes
07:15 AM - 07:30 AM



Traffic Counts - All Vehicles

Time	LYNN LN Eastbound Left	Thru	Right	LYNN LN Westbound Left	Thru	Right	LEROY AVE Northbound Left	Thru	Right	LEROY AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	5	241	16
6:35 AM	1	0	0	0	0	0	0	1	0	0	5	0	7	255	15
6:40 AM	0	0	0	0	0	0	0	2	0	0	2	0	4	256	15
6:45 AM	0	0	0	0	0	0	0	1	0	0	3	0	4	262	17
6:50 AM	0	0	0	0	0	0	0	3	0	0	4	0	7	265	24
6:55 AM	0	0	0	0	0	0	0	2	0	0	4	0	6	261	31
7:00 AM	0	0	0	1	0	0	0	3	1	0	6	0	11	260	66
7:05 AM	0	0	0	0	0	0	0	5	0	0	9	0	14		104
7:10 AM	1	0	0	1	0	0	0	8	0	0	31	0	41		134
7:15 AM	0	0	0	0	0	0	0	13	0	0	36	0	49		142
7:20 AM	0	0	0	1	0	0	0	16	0	1	26	0	44		112
7:25 AM	0	0	0	0	0	0	0	14	0	0	35	0	49		76
7:30 AM	0	0	0	0	0	0	0	7	0	0	12	0	19		37
7:35 AM	0	0	0	1	0	0	0	3	1	0	3	0	8		25
7:40 AM	0	0	0	1	0	0	0	6	0	0	3	0	10		20
7:45 AM	0	0	0	0	0	0	0	3	0	0	4	0	7		15
7:50 AM	0	0	0	0	0	0	0	1	0	0	2	0	3		
7:55 AM	0	0	0	0	0	0	0	4	0	0	1	0	5		

Peak Rolling Hour Flow Rates

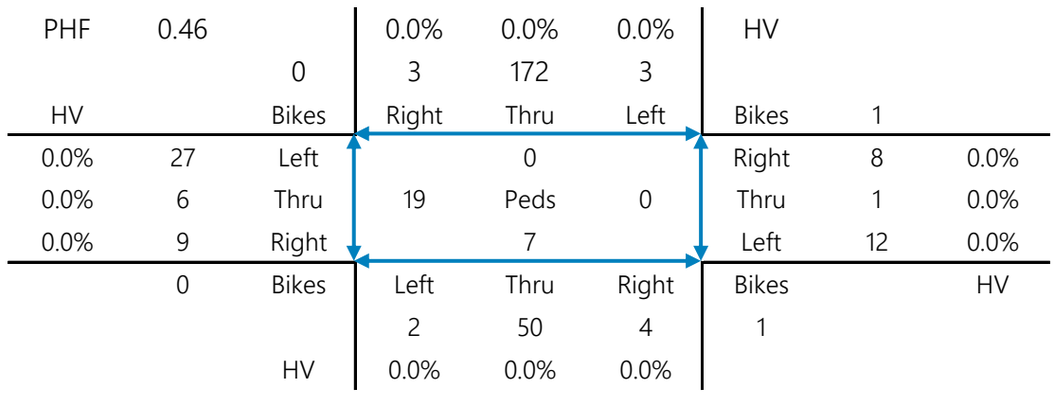
Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	1	0	0	5	0	0	0	82	2	0	154	0	244
Mediums	0	0	0	0	0	0	0	1	0	1	19	0	21
Total	1	0	0	5	0	0	0	83	2	1	173	0	265
Pedestrians		17			0			0			0		17
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		6			0			0			0		6
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		#DIV/0!			1.25			0.49			0.44		0.47
Peak Hour Factor (PHF)	#DIV/0!	0.00	0.00	1.25	0.00	0.00	0.00	0.48	#DIV/0!	0.25	0.45	0.00	0.47

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

5 LEROY AVE & MOLALLA RIVER MS NORTH AM
Thursday, January 16, 2025

Peak Hour
06:50 AM - 07:50 AM
Peak 15-Minutes
07:15 AM - 07:30 AM



Traffic Counts - All Vehicles

Time	MOLALLA RIVER MS NORTH Eastbound Left	Thru	Right	MOLALLA RIVER MS NORTH Westbound Left	Thru	Right	LEROY AVE Northbound Left	Thru	Right	LEROY AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	5	268	15
6:35 AM	0	0	0	0	0	0	0	1	0	0	5	0	6	286	15
6:40 AM	0	0	0	0	0	1	0	1	0	0	2	0	4	289	16
6:45 AM	0	0	0	1	0	0	0	1	0	0	3	0	5	295	18
6:50 AM	0	0	0	0	0	0	0	3	0	0	4	0	7	297	26
6:55 AM	0	0	0	0	0	1	0	1	0	0	4	0	6	294	35
7:00 AM	1	0	1	0	0	1	1	2	0	0	7	0	13	293	73
7:05 AM	2	0	0	1	0	1	0	2	1	0	9	0	16		117
7:10 AM	4	1	1	2	0	0	0	4	1	0	30	1	44		149
7:15 AM	5	2	2	2	0	1	1	7	1	0	36	0	57		162
7:20 AM	4	2	3	1	0	0	0	12	0	1	25	0	48		128
7:25 AM	8	0	1	4	1	0	0	6	1	0	35	1	57		89
7:30 AM	2	1	1	1	0	1	0	4	0	0	12	1	23		42
7:35 AM	0	0	0	1	0	1	0	3	0	0	4	0	9		26
7:40 AM	1	0	0	0	0	0	0	5	0	0	4	0	10		21
7:45 AM	0	0	0	0	0	2	0	1	0	2	2	0	7		16
7:50 AM	0	0	0	0	0	0	1	1	0	0	2	0	4		
7:55 AM	0	0	0	0	0	0	0	4	0	0	1	0	5		

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	27	6	9	12	1	7	2	50	4	3	153	3	277
Mediums	0	0	0	0	0	1	0	0	0	0	19	0	20
Total	27	6	9	12	1	8	2	50	4	3	172	3	297
Pedestrians		19			0			7			0		26
Bicycles on Road	0	0	0	1	0	0	0	1	0	0	0	0	2
Bicycles on Crosswalk		6			0			0			0		6
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.39			0.58			0.50			0.45		0.46
Peak Hour Factor (PHF)	0.40	0.38	0.38	0.43	0.25	2.00	0.50	0.50	0.50	0.75	0.45	0.75	0.46

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

4 LEROY AVE & MOLALLA RIVER MS CENTER AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM
Peak 15-Minutes
07:15 AM - 07:30 AM

	PHF	0.47		0.0%	0.0%	0.0%	HV		
			0	49	147	0			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	2	Left		0		Right	0	0.0%
	0.0%	0	Thru	84	Peds	0	Thru	0	0.0%
	0.0%	5	Right		0		Left	0	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				18	55	0	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	MOLALLA RIVER MS CENTER			MOLALLA RIVER MS CENTER			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
6:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	5	251	15
6:35 AM	0	0	0	0	0	0	0	1	0	0	5	0	6	267	15
6:40 AM	0	0	0	0	0	0	1	1	0	0	2	0	4	269	17
6:45 AM	0	0	0	0	0	0	0	1	0	0	3	1	5	276	21
6:50 AM	0	0	0	0	0	0	1	3	0	0	2	2	8	273	25
6:55 AM	0	0	0	0	0	0	3	1	0	0	2	2	8	268	36
7:00 AM	0	0	0	0	0	0	0	3	0	0	3	3	9	267	67
7:05 AM	0	0	1	0	0	0	2	3	0	0	9	4	19		109
7:10 AM	0	0	0	0	0	0	2	6	0	0	22	9	39		139
7:15 AM	1	0	0	0	0	0	3	8	0	0	29	10	51		148
7:20 AM	1	0	2	0	0	0	4	11	0	0	23	8	49		120
7:25 AM	0	0	0	0	0	0	2	8	0	0	32	6	48		79
7:30 AM	0	0	1	0	0	0	0	3	0	0	14	3	23		42
7:35 AM	0	0	0	0	0	0	1	3	0	0	3	1	8		21
7:40 AM	0	0	1	0	0	0	0	5	0	0	5	0	11		16
7:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	2		12
7:50 AM	0	0	0	0	0	0	0	1	0	0	1	1	3		
7:55 AM	0	0	0	0	0	0	0	5	0	0	2	0	7		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	2	0	5	0	0	0	18	55	0	0	128	49	257
Mediums	0	0	0	0	0	0	0	0	0	0	19	0	19
Total	2	0	5	0	0	0	18	55	0	0	147	49	276
Pedestrians		84			0			0			0		84
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.44			0.00			0.51			0.45		0.47
Peak Hour Factor (PHF)	0.25	0.00	0.63	0.00	0.00	0.00	0.50	0.51	0.00	0.00	0.44	0.51	0.47

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

3 LEROY AVE & MOLALLA RIVER MS SOUTH AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM
Peak 15-Minutes
07:15 AM - 07:30 AM

PHF	0.47		0.0%	0.0%	0.0%	HV			
		0	39	116	0				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	1	Left		0		Right	0	0.0%	
0.0%	0	Thru	12	Peds	2	Thru	0	0.0%	
0.0%	0	Right		0		Left	0	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			31	70	0	1			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	MOLALLA RIVER MS SOUTH			MOLALLA RIVER MS SOUTH			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
6:30 AM	0	0	0	0	0	0	0	1	0	0	3	1	5	225	15
6:35 AM	0	0	0	0	0	0	0	1	0	0	2	2	5	247	14
6:40 AM	0	0	0	0	0	0	0	2	0	0	2	1	5	251	15
6:45 AM	0	0	0	0	0	0	0	1	0	0	3	0	4	257	17
6:50 AM	0	0	0	0	0	0	0	4	0	0	2	0	6	256	18
6:55 AM	0	0	0	0	0	0	1	4	0	0	2	0	7	253	34
7:00 AM	0	0	0	0	0	0	1	2	0	0	0	2	5	251	56
7:05 AM	1	0	0	0	0	0	4	6	0	0	8	3	22		93
7:10 AM	0	0	0	0	0	0	3	7	0	0	13	6	29		125
7:15 AM	0	0	0	0	0	0	4	10	0	0	22	6	42		137
7:20 AM	0	0	0	0	0	0	9	16	0	0	25	4	54		122
7:25 AM	0	0	0	0	0	0	4	7	0	0	16	14	41		77
7:30 AM	0	0	0	0	0	0	4	6	0	0	13	4	27		47
7:35 AM	0	0	0	0	0	0	1	3	0	0	5	0	9		23
7:40 AM	0	0	0	0	0	0	0	4	0	0	7	0	11		17
7:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3		11
7:50 AM	0	0	0	0	0	0	0	2	0	0	1	0	3		
7:55 AM	0	0	0	0	0	0	0	4	0	0	1	0	5		

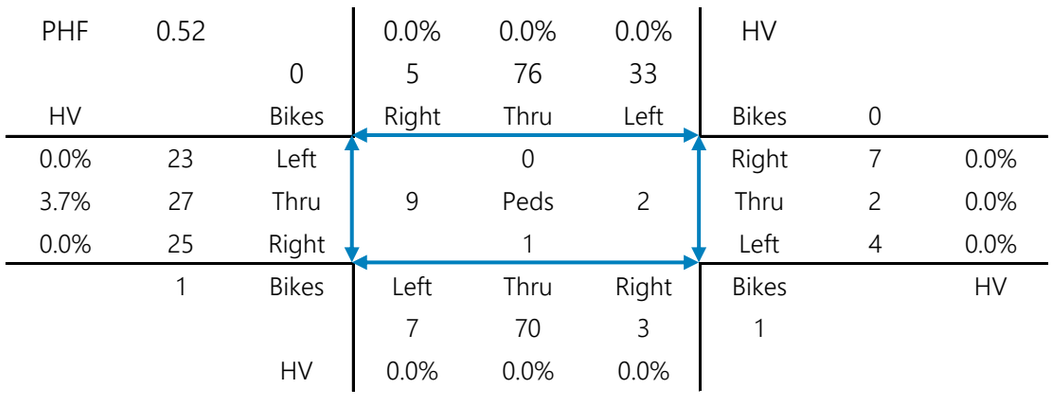
Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	1	0	0	0	0	0	31	70	0	0	99	38	239
Mediums	0	0	0	0	0	0	0	0	0	0	17	1	18
Total	1	0	0	0	0	0	31	70	0	0	116	39	257
Pedestrians		12			2			0			0		14
Bicycles on Road	0	0	0	0	0	0	0	1	0	0	0	0	1
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		#DIV/0!			0.00			0.51			0.45		0.47
Peak Hour Factor (PHF)	#DIV/0!	0.00	0.00	0.00	0.00	0.00	0.46	0.53	0.00	0.00	0.46	0.41	0.47

All Traffic Data Services

2 LEROY AVE & WEST LN AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM
Peak 15-Minutes
07:15 AM - 07:30 AM



SCHOOL PEAK HOUR - MORNING

Traffic Counts - All Vehicles

Time	WEST LN Eastbound Left	Thru	Right	WEST LN Westbound Left	Thru	Right	LEROY AVE Northbound Left	Thru	Right	LEROY AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	0	0	0	0	0	0	0	1	0	0	3	1	5	243	17
6:35 AM	0	0	0	1	0	0	2	1	1	0	2	1	8	270	18
6:40 AM	0	0	0	0	0	0	0	2	0	0	2	0	4	276	18
6:45 AM	0	1	1	0	0	0	0	1	0	0	3	0	6	282	26
6:50 AM	0	0	0	1	0	0	1	4	0	0	1	0	8	280	29
6:55 AM	0	1	3	0	0	1	1	4	0	0	2	0	12	277	47
7:00 AM	1	2	2	0	0	0	0	3	1	0	0	0	9	271	67
7:05 AM	2	4	3	0	0	1	1	6	1	0	6	2	26		100
7:10 AM	3	3	4	1	0	1	1	6	0	7	6	0	32		131
7:15 AM	2	2	3	0	0	1	0	11	1	6	15	0	42		135
7:20 AM	7	3	1	1	1	2	1	15	0	10	14	2	57		125
7:25 AM	4	4	5	0	0	1	0	6	0	4	11	1	36		82
7:30 AM	3	5	2	0	1	0	1	7	0	6	7	0	32		56
7:35 AM	0	2	1	1	0	0	1	4	0	0	5	0	14		28
7:40 AM	1	0	0	0	0	0	0	3	0	0	6	0	10		18
7:45 AM	0	0	0	1	0	0	0	1	0	0	1	1	4		14
7:50 AM	0	0	1	0	0	0	0	2	0	0	0	1	4	School vs Non	
7:55 AM	0	0	1	0	0	1	0	3	0	0	0	1	6	School	
Peak Hour Average	1.92	2.25	2.08		0.17		0.58					0.42		in	out
Other Average	0.00	0.00	0.33		0.00		0.33					0.83		50%	95%

Peak Rolling Hour Flow Rates

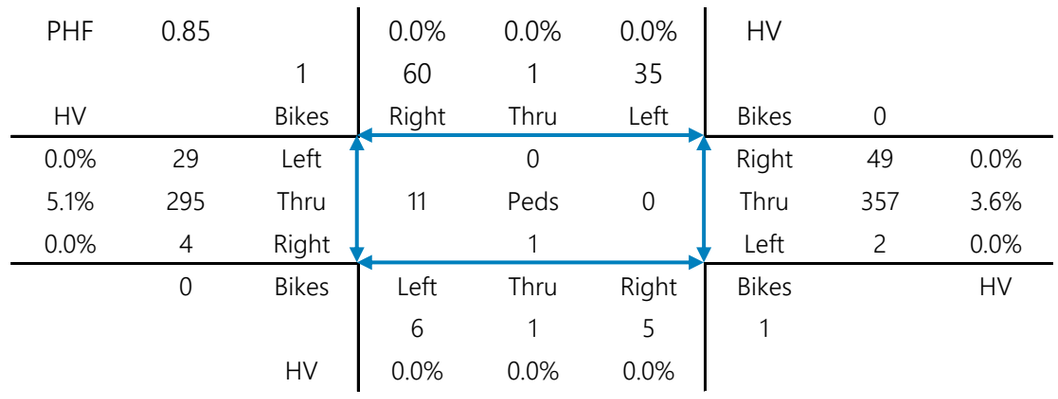
Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	1	0	0	0	0	0	0	0	0	0	0	1
Lights	23	25	25	2	2	7	7	70	3	29	64	5	262
Mediums	0	1	0	2	0	0	0	0	0	4	12	0	19
Total	23	27	25	4	2	7	7	70	3	33	76	5	282
Pedestrians		9			2			1			0		12
Bicycles on Road	0	1	0	0	0	0	0	1	0	0	0	0	2
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Peak Hour Factor (PHF)		0.60			0.54			0.59			0.45		0.52
Peak Hour Factor (PHF)	0.44	0.75	0.69	1.00	0.50	0.44	1.75	0.55	0.75	0.41	0.48	0.42	0.52

All Traffic Data Services

SCHOOL PEAK HOUR - MORNING

1 LEROY AVE & W MAIN ST AM
Thursday, January 16, 2025

Peak Hour
06:45 AM - 07:45 AM (Common Peak)
Peak 15-Minutes
07:15 AM - 07:30 AM



Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
6:30 AM	0	15	0	0	36	0	1	1	1	1	0	1	56	782	162
6:35 AM	2	17	0	1	30	2	0	0	0	0	0	2	54	805	168
6:40 AM	0	22	1	1	23	1	1	0	0	2	0	1	52	830	175
6:45 AM	0	32	1	0	23	1	1	1	1	0	0	2	62	844	184
6:50 AM	2	20	1	2	28	3	1	0	0	2	0	2	61	841	168
6:55 AM	1	17	1	0	34	4	1	0	1	1	0	1	61	845	182
7:00 AM	1	18	0	0	22	3	0	0	0	1	0	1	46	847	189
7:05 AM	5	27	0	0	29	3	1	0	1	6	0	3	75	843	227
7:10 AM	4	20	0	0	33	3	0	0	0	2	0	6	68	830	236
7:15 AM	6	27	0	0	27	6	0	0	2	5	0	11	84	820	247
7:20 AM	5	22	0	0	30	11	0	0	0	5	1	10	84	796	242
7:25 AM	0	25	0	0	33	6	0	0	0	4	0	11	79	766	237
7:30 AM	2	26	1	0	37	4	0	0	0	3	0	6	79	743	224
7:35 AM	3	27	0	0	37	3	1	0	0	3	0	5	79	727	204
7:40 AM	0	34	0	0	24	2	1	0	0	3	0	2	66	709	190
7:45 AM	0	24	0	0	31	1	0	0	0	0	0	3	59	706	187
7:50 AM	1	27	2	1	32	1	0	0	1	0	0	0	65	729	
7:55 AM	0	25	0	1	31	3	1	0	1	0	0	1	63	736	

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	15	0	0	13	0	0	0	0	0	0	0	28
Lights	29	264	4	2	332	49	6	1	5	34	1	47	774
Mediums	0	16	0	0	12	0	0	0	0	1	0	13	42
Total	29	295	4	2	357	49	6	1	5	35	1	60	844
Pedestrians		11			0			1			0		12
Bicycles on Road	0	0	0	0	0	0	1	0	0	0	0	1	2
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		4.6%			3.2%			0.0%			0.0%		3.3%
	0.0%	5.1%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
Peak Hour Factor (PHF)		0.96			0.90			1.50			0.51		0.85
Peak Hour Factor (PHF)	0.66	1.00	#DIV/0!	#DIV/0!	0.99	0.53	#DIV/0!	#DIV/0!	0.63	0.63	0.25	0.47	0.85

All Traffic Data Services

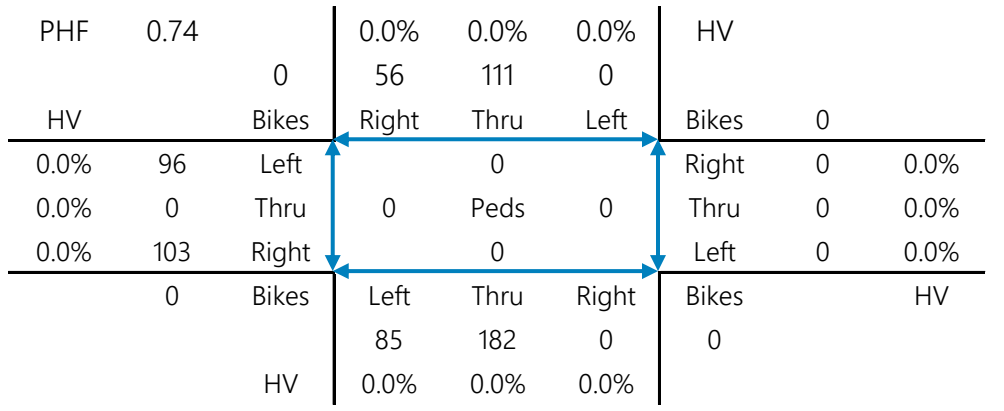
MORNING PEAK HOUR

4 N MOLALLA AVE & TOLIVER ROAD AM

Tuesday, April 15, 2025

Peak Hour
07:00 AM - 08:00 AM

Peak 15-Minutes
07:10 AM - 07:25 AM



Traffic Counts - All Vehicles

Time	TOLIVER ROAD Eastbound Left	Thru	Right	TOLIVER ROAD Westbound Left	Thru	Right	N MOLALLA AVE Northbound Left	Thru	Right	N MOLALLA AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
6:30 AM	4	0	6	0	0	0	7	21	0	0	7	0	45	567	98
6:35 AM	2	0	5	0	0	0	3	9	0	0	3	0	22	568	78
6:40 AM	0	0	7	0	0	0	3	11	0	0	8	2	31	581	81
6:45 AM	0	0	2	0	0	0	1	8	0	0	9	5	25	591	88
6:50 AM	1	0	2	0	0	0	2	11	0	0	9	0	25	615	105
6:55 AM	14	0	4	0	0	0	1	12	0	0	6	1	38	624	144
7:00 AM	6	0	6	0	0	0	3	14	0	0	12	1	42	633	174
7:05 AM	13	0	6	0	0	0	5	26	0	0	10	4	64		212
7:10 AM	15	0	9	0	0	0	11	21	0	0	7	5	68		215
7:15 AM	12	0	6	0	0	0	18	22	0	0	11	11	80		207
7:20 AM	17	0	7	0	0	0	9	21	0	0	8	5	67		173
7:25 AM	7	0	9	0	0	0	10	17	0	0	7	10	60		141
7:30 AM	6	0	7	0	0	0	6	12	0	0	9	6	46		122
7:35 AM	1	0	9	0	0	0	1	14	0	0	5	5	35		125
7:40 AM	3	0	12	0	0	0	7	11	0	0	8	0	41		124
7:45 AM	3	0	11	0	0	0	6	8	0	0	19	2	49		130
7:50 AM	5	0	10	0	0	0	5	8	0	0	3	3	34		
7:55 AM	8	0	11	0	0	0	4	8	0	0	12	4	47		

Peak Rolling Hour Flow Rates

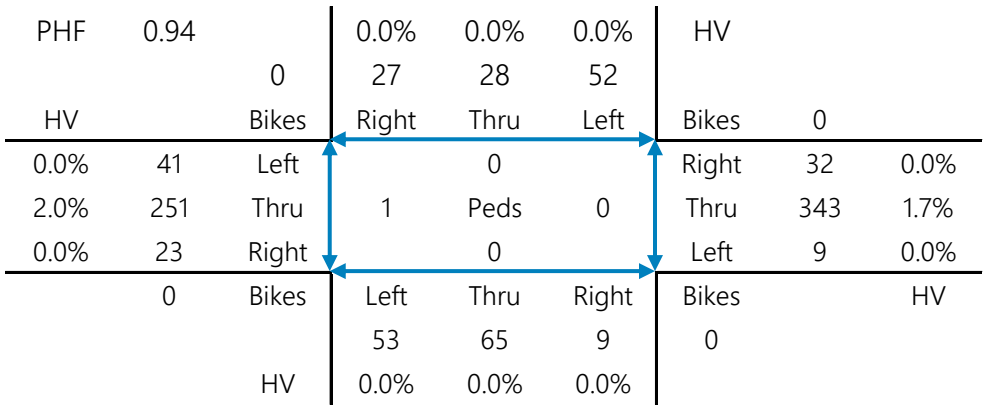
Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	89	0	100	0	0	0	69	178	0	0	108	54	598
Mediums	7	0	3	0	0	0	16	4	0	0	3	2	35
Total	96	0	103	0	0	0	85	182	0	0	111	56	633
Pedestrians		0			0			0			0		0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		1			2			2			0		5
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.75			0.00			0.65			0.89		0.74
Peak Hour Factor (PHF)	0.55	0.00	1.17	0.00	0.00	0.00	0.56	0.71	0.00	0.00	1.07	0.67	0.74

All Traffic Data Services

MORNING PEAK HOUR

3 S MOLALLA AVE & OR 211 AM
Tuesday, April 15, 2025

Peak Hour
06:55 AM - 07:55 AM
Peak 15-Minutes
07:30 AM - 07:45 AM



Traffic Counts - All Vehicles

	OR 211 Eastbound			OR 211 Westbound			S MOLALLA AVE Northbound			N MOLALLA AVE Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
6:30 AM	1	19	1	0	25	3	5	8	0	3	0	4	69	846	179
6:35 AM	2	18	3	0	25	1	2	2	0	1	1	0	55	860	178
6:40 AM	3	15	4	0	20	4	3	3	0	1	0	2	55	878	189
6:45 AM	5	14	2	1	31	2	4	3	2	1	2	1	68	916	211
6:50 AM	3	16	1	1	27	3	4	5	0	0	6	0	66	923	210
6:55 AM	5	24	4	0	25	2	5	6	0	2	4	0	77	933	225
7:00 AM	4	13	4	1	20	3	5	4	0	6	2	5	67	931	222
7:05 AM	8	15	2	0	28	1	8	9	3	3	1	3	81		235
7:10 AM	1	20	1	0	26	2	8	5	0	4	5	2	74		240
7:15 AM	5	25	1	0	28	0	4	11	0	6	0	0	80		234
7:20 AM	1	24	2	0	29	4	4	8	1	5	5	3	86		237
7:25 AM	3	25	2	1	27	2	2	1	1	3	0	1	68		224
7:30 AM	2	26	0	3	30	3	5	5	1	5	1	2	83		249
7:35 AM	5	16	0	0	31	2	3	6	0	4	3	3	73		241
7:40 AM	3	31	1	1	37	6	2	5	2	2	1	2	93		244
7:45 AM	2	17	4	1	25	3	5	2	1	8	2	5	75		226
7:50 AM	2	15	2	2	37	4	2	3	0	4	4	1	76		
7:55 AM	2	22	2	0	29	4	5	4	2	1	4	0	75		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	5	0	0	6	0	0	0	0	0	0	0	11
Lights	38	231	20	9	318	31	51	63	9	52	27	27	876
Mediums	3	15	3	0	19	1	2	2	0	0	1	0	46
Total	41	251	23	9	343	32	53	65	9	52	28	27	933
Pedestrians		1			0			0			0		1
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			1		1
Heavy Vehicle Percentage		1.6%			1.6%			0.0%			0.0%		1.2%
Heavy Vehicle Percentage	0.0%	2.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%
Peak Hour Factor (PHF)		0.94			0.85			1.09			1.16		0.94
Peak Hour Factor (PHF)	1.03	0.86	5.75	0.56	0.88	0.73	1.33	1.02	0.75	1.18	1.40	0.96	0.94

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

1 OR 213 & TOLIVER ROAD Noon
Tuesday, April 15, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:50 PM - 03:05 PM

PHF	0.87		0.0%	2.0%	0.0%	HV		
		0	6	392	46			
HV		Bikes	Right	Thru	Left	Bikes	0	
0.0%	7	Left		0		Right	52	0.0%
0.0%	33	Thru	0	Peds	0	Thru	22	0.0%
0.0%	42	Right		0		Left	63	0.0%
	0	Bikes	Left	Thru	Right	Bikes		HV
			32	381	83	0		
		HV	0.0%	2.1%	1.2%			

Traffic Counts - All Vehicles

	TOLIVER ROAD Eastbound			TOLIVER ROAD Westbound			OR 213 Northbound			OR 213 Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
1:30 PM	0	1	1	11	2	5	4	25	6	2	28	0	85	1,041	232
1:35 PM	1	2	1	4	3	3	0	24	5	3	28	0	74	1,064	234
1:40 PM	0	3	4	2	1	2	2	16	5	3	34	0	73	1,092	234
1:45 PM	1	2	0	4	0	1	1	36	6	5	31	0	87	1,111	253
1:50 PM	1	1	6	3	1	2	0	26	4	3	27	0	74	1,098	269
1:55 PM	0	2	4	2	1	1	4	28	10	6	34	0	92	1,136	280
2:00 PM	0	3	3	5	2	1	3	40	11	7	27	1	103	1,165	276
2:05 PM	0	1	1	1	3	3	2	26	9	6	33	0	85	1,162	257
2:10 PM	1	2	4	8	2	3	2	25	10	2	27	1	88	1,169	257
2:15 PM	0	3	3	3	2	8	3	21	7	3	30	0	84	1,192	280
2:20 PM	0	1	2	3	3	6	3	27	3	2	34	1	85	1,189	304
2:25 PM	2	7	2	6	1	3	1	29	9	3	48	0	111	1,224	321
2:30 PM	0	4	2	8	2	5	3	47	5	4	26	1	108	1,228	302
2:35 PM	1	2	4	3	0	6	1	40	1	9	33	2	102		268
2:40 PM	0	0	3	7	3	5	4	36	10	2	22	0	92		278
2:45 PM	0	3	4	4	1	1	3	27	3	3	25	0	74		307
2:50 PM	3	4	3	9	1	3	4	31	8	5	40	1	112		333
2:55 PM	0	2	9	9	2	2	3	39	10	6	39	0	121		313
3:00 PM	0	4	5	2	2	7	3	33	8	1	35	0	100		303
3:05 PM	0	0	2	6	2	2	4	29	9	2	36	0	92		284
3:10 PM	0	5	7	4	0	3	7	26	7	2	47	2	111		312
3:15 PM	1	1	6	6	2	1	3	21	5	4	31	0	81		316
3:20 PM	1	4	3	7	2	0	2	35	7	10	49	0	120		
3:25 PM	2	5	6	7	1	5	5	37	8	1	38	0	115		

Peak Rolling Hour Flow Rates

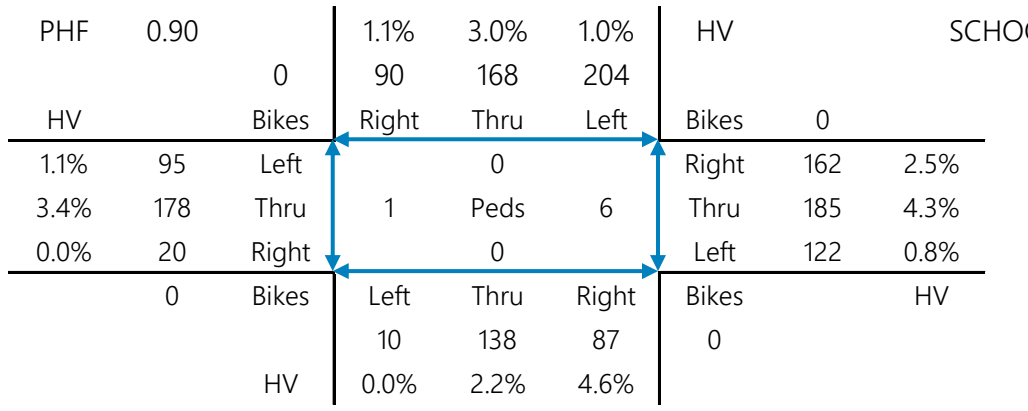
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	8	1	0	8	0	17
Lights	6	32	40	62	22	47	31	360	79	45	373	3	1,100
Mediums	1	1	2	1	0	5	1	13	3	1	11	3	42
Total	7	33	42	63	22	52	32	381	83	46	392	6	1,159
Pedestrians		0			0			0			0		0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			1.8%			1.8%		1.5%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	1.2%	0.0%	2.0%	0.0%	1.5%
Peak Hour Factor (PHF)		0.68			0.93			0.89			0.87		0.87
Peak Hour Factor (PHF)	0.58	0.83	0.62	0.79	1.10	1.08	0.80	0.92	0.80	0.96	0.86	1.50	0.87

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

2 OR 213 & OR 211 Noon
Tuesday, April 15, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:45 PM - 03.:00 PM



Traffic Counts - All Vehicles

Time	OR 211 Eastbound Left	Thru	Right	OR 211 Westbound Left	Thru	Right	OR 213 Northbound Left	Thru	Right	OR 213 Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
1:30 PM	9	11	0	14	13	7	3	7	1	11	13	13	102	1,327	302
1:35 PM	9	15	0	6	16	9	1	9	12	11	6	9	103	1,361	311
1:40 PM	9	15	0	5	14	8	1	7	2	19	7	10	97	1,367	294
1:45 PM	6	15	1	9	12	12	1	19	9	12	8	7	111	1,388	324
1:50 PM	8	5	0	7	13	13	1	5	3	14	11	6	86	1,409	339
1:55 PM	10	19	1	9	11	8	1	23	12	14	10	9	127	1,452	356
2:00 PM	8	15	1	7	10	12	1	12	15	18	17	10	126	1,471	327
2:05 PM	6	12	2	10	12	15	1	5	7	17	10	6	103	1,461	326
2:10 PM	2	7	4	7	13	16	4	10	7	11	6	9	98	1,494	337
2:15 PM	5	16	1	16	22	11	0	9	10	19	10	6	125	1,535	374
2:20 PM	12	16	4	12	10	12	0	14	0	17	11	6	114	1,539	385
2:25 PM	11	17	1	9	13	12	1	13	9	27	14	8	135	1,583	380
2:30 PM	10	16	1	11	19	18	0	10	9	15	16	11	136	1,572	363
2:35 PM	5	9	2	10	11	16	0	12	6	17	14	7	109		359
2:40 PM	10	16	1	10	18	12	0	15	3	14	15	4	118		379
2:45 PM	13	18	1	6	17	12	1	12	13	14	16	9	132		407
2:50 PM	8	13	0	7	14	13	0	17	13	18	17	9	129		391
2:55 PM	7	21	2	15	22	17	0	12	4	17	22	7	146		398
3:00 PM	6	17	1	9	14	8	3	9	6	18	17	8	116		391
3:05 PM	14	21	1	15	19	10	0	11	15	18	6	6	136		404
3:10 PM	7	16	2	12	18	15	2	8	10	14	18	17	139		426
3:15 PM	3	10	2	19	22	9	2	11	7	13	19	12	129		411
3:20 PM	4	18	0	14	13	17	2	18	14	29	21	8	158		
3:25 PM	10	19	0	11	5	15	2	12	11	15	14	10	124		

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	1	6	0	1	8	4	0	3	4	2	5	1	35
Lights	90	163	19	117	164	148	10	133	79	189	160	86	1,358
Mediums	4	9	1	4	13	10	0	2	4	13	3	3	66
Total	95	178	20	122	185	162	10	138	87	204	168	90	1,459
Pedestrians		1			6			0			0		7
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		2.4%			2.8%			3.0%			1.7%		2.4%
Heavy Vehicle Percentage	1.1%	3.4%	0.0%	0.8%	4.3%	2.5%	0.0%	2.2%	4.6%	1.0%	3.0%	1.1%	2.4%
Peak Hour Factor (PHF)		0.88			0.95			0.82			0.90		0.90
Peak Hour Factor (PHF)	0.85	0.86	1.67	1.09	0.87	0.96	2.50	0.84	0.73	1.04	0.76	0.90	0.90

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

5 N HEZZIE LN & WEST LN Noon
Tuesday, April 15, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:20 PM - 02:35 PM

PHF	0.75		0.0%	0.0%	0.0%	HV			
		0	0	32	15				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	0	Left		15		Right	13	0.0%	
0.0%	0	Thru	14	Peds	7	Thru	0	0.0%	
0.0%	0	Right		0		Left	11	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			0	31	9	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	WEST LN			WEST LN			N HEZZIE LN			N HEZZIE LN					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
1:30 PM	0	0	0	0	0	1	0	5	0	0	2	0	8	89	20
1:35 PM	0	0	0	0	0	1	0	1	0	1	3	0	6	92	13
1:40 PM	0	0	0	0	0	0	0	2	1	0	3	0	6	93	11
1:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	93	15
1:50 PM	0	0	0	0	0	1	0	3	0	0	0	0	4	104	20
1:55 PM	0	0	0	0	0	0	0	4	1	1	4	0	10	110	23
2:00 PM	0	0	0	0	0	0	0	2	0	0	3	0	6	111	18
2:05 PM	0	0	0	0	0	0	0	5	0	1	0	0	7	112	22
2:10 PM	0	0	0	0	0	1	0	0	0	0	4	0	5	112	30
2:15 PM	0	0	0	1	0	0	0	4	2	0	3	0	10	114	36
2:20 PM	0	0	0	6	0	0	0	1	4	1	3	0	15	116	37
2:25 PM	0	0	0	1	0	1	0	2	1	3	3	0	11	109	29
2:30 PM	0	0	0	2	0	2	0	3	0	1	3	0	11	108	24
2:35 PM	0	0	0	0	0	0	0	2	1	2	2	0	7		25
2:40 PM	0	0	0	0	0	0	0	2	0	1	3	0	6		28
2:45 PM	0	0	0	1	0	2	0	5	1	0	3	0	12		33
2:50 PM	0	0	0	0	0	3	0	3	0	2	2	0	10		28
2:55 PM	0	0	0	0	0	4	0	1	0	2	4	0	11		25
3:00 PM	0	0	0	0	0	0	0	3	0	2	2	0	7		21
3:05 PM	0	0	0	0	0	1	0	3	1	0	2	0	7		26
3:10 PM	0	0	0	0	0	0	0	2	0	0	5	0	7		27
3:15 PM	0	0	0	1	0	1	0	4	1	2	3	0	12		30
3:20 PM	0	0	0	2	0	0	0	4	1	0	1	0	8		
3:25 PM	0	0	0	0	0	5	0	2	1	1	1	0	10		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	10	0	13	0	30	9	15	31	0	108
Mediums	0	0	0	1	0	0	0	1	0	0	1	0	3
Total	0	0	0	11	0	13	0	31	9	15	32	0	111
Pedestrians		14			7			0			15		36
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		#DIV/0!			0.50			0.91			0.84		0.75
Peak Hour Factor (PHF)	#DIV/0!	#DIV/0!	#DIV/0!	0.31	#DIV/0!	1.08	#DIV/0!	1.29	0.45	0.75	0.89	#DIV/0!	0.75

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

8 HEZZIE LN & W MAIN ST Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:20 PM - 02:35 PM

	PHF	0.90		0.0%	0.0%	0.0%	HV		
			0	27	1	10			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	26	Left		10		Right	19	0.0%
	2.6%	468	Thru	0	Peds	16	Thru	483	2.1%
	0.0%	7	Right		9		Left	22	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				11	2	18	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			HEZZIE LN			HEZZIE LN					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	2	44	0	0	33	0	1	0	0	1	0	3	84	1,012	239
1:35 PM	2	46	0	0	32	1	0	0	0	1	0	2	84	1,008	227
1:40 PM	2	37	1	0	28	0	1	0	0	1	0	1	71	1,019	222
1:45 PM	1	31	0	0	38	0	1	0	0	1	0	0	72	1,034	236
1:50 PM	0	36	1	3	35	1	2	0	1	0	0	0	79	1,057	249
1:55 PM	1	38	0	2	38	0	4	0	1	0	0	1	85	1,074	235
2:00 PM	1	37	1	3	42	0	0	0	0	1	0	0	85	1,086	241
2:05 PM	2	34	0	2	22	2	0	0	2	0	0	1	65	1,094	227
2:10 PM	2	40	1	1	41	1	1	1	1	0	0	2	91	1,137	287
2:15 PM	1	24	0	0	40	2	1	0	2	1	0	0	71	1,149	296
2:20 PM	3	56	0	3	52	1	1	1	0	1	0	7	125	1,171	305
2:25 PM	2	44	0	3	40	1	1	0	3	2	0	4	100	1,155	275
2:30 PM	1	33	1	0	40	0	0	0	3	0	1	1	80	1,159	261
2:35 PM	1	46	0	0	43	2	0	0	2	0	0	1	95		276
2:40 PM	0	33	1	3	44	1	2	0	0	1	0	1	86		277
2:45 PM	4	37	1	2	41	3	2	0	1	1	0	3	95		288
2:50 PM	4	37	0	3	46	1	1	0	1	0	0	3	96		286
2:55 PM	0	38	0	4	45	2	2	0	2	2	0	2	97		298
3:00 PM	6	46	3	1	29	3	0	0	1	2	0	2	93		304
3:05 PM	0	40	1	2	57	1	2	0	1	2	0	2	108		304
3:10 PM	1	41	2	4	48	0	1	0	1	1	0	4	103		305
3:15 PM	2	49	1	0	38	1	1	0	0	0	0	1	93		306
3:20 PM	3	59	0	0	42	2	2	0	0	0	0	1	109		
3:25 PM	1	47	0	2	49	1	0	0	1	1	0	2	104		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	12	0	0	10	0	0	0	0	0	0	0	22
Lights	26	437	7	20	451	19	11	2	17	10	1	25	1,026
Mediums	0	19	0	2	22	0	0	0	1	0	0	2	46
Total	26	468	7	22	483	19	11	2	18	10	1	27	1,094
Pedestrians		0			16			9			10		35
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		2.4%			1.9%			0.0%			0.0%		2.0%
Heavy Vehicle Percentage	0.0%	2.6%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%
Peak Hour Factor (PHF)		0.89			0.94			0.86			0.59		0.90
Peak Hour Factor (PHF)	1.08	0.88	1.75	0.92	0.91	2.38	1.38	0.50	0.75	0.83	0.25	0.56	0.90

All Traffic Data Services

7 LEROY AVE & TOLIVER RD Noon
Thursday, January 16, 2025

Common Peak Hour
2:05 PM - 3:05 PM
Peak 15-Minutes
02:15 PM - 02:30 PM

SCHOOL PEAK HOUR - AFTERNOON

	PHF	0.82		0.0%	0.0%	0.0%	HV		
			0	0	1	0			
	HV		Bikes	Right	Thru	Left	Bikes	1	
	0.0%	0	Left		1		Right	0	0.0%
	0.0%	132	Thru	9	Peds	1	Thru	99	0.0%
	0.0%	65	Right		24		Left	42	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				52	0	46	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	TOLIVER RD Eastbound			TOLIVER RD Westbound			LEROY AVE Northbound			LEROY AVE Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	15	3	6	4	0	1	0	3	0	0	0	32	356	78
1:35 PM	0	12	3	3	4	0	3	0	1	0	0	0	26	358	62
1:40 PM	0	6	4	0	6	0	2	0	2	0	0	0	20	360	59
1:45 PM	0	5	1	2	5	0	2	0	1	0	0	0	16	376	69
1:50 PM	0	8	3	3	6	0	3	0	0	0	0	0	23	395	68
1:55 PM	0	8	7	4	6	0	5	0	0	0	0	0	30	413	75
2:00 PM	0	4	3	3	3	0	0	0	2	0	0	0	15	417	75
2:05 PM	0	5	7	9	5	0	3	0	1	0	0	0	30	437	100
2:10 PM	0	13	6	3	5	0	2	0	1	0	0	0	30	443	122
2:15 PM	0	12	15	4	9	0	0	0	0	0	0	0	40	450	134
2:20 PM	0	10	10	3	2	0	10	0	17	0	0	0	52	439	128
2:25 PM	0	8	11	2	4	0	7	0	10	0	0	0	42	431	104
2:30 PM	0	13	3	0	10	0	4	0	4	0	0	0	34	465	98
2:35 PM	0	9	0	3	9	0	5	0	1	0	1	0	28		99
2:40 PM	0	9	2	5	16	0	3	0	1	0	0	0	36		112
2:45 PM	0	10	3	2	13	0	4	0	3	0	0	0	35		110
2:50 PM	0	14	4	3	12	0	7	0	1	0	0	0	41		110
2:55 PM	0	15	1	3	6	0	4	0	5	0	0	0	34		105
3:00 PM	0	14	3	5	8	0	3	0	2	0	0	0	35		108
3:05 PM	0	9	0	0	18	0	8	0	1	0	0	0	36		102
3:10 PM	0	13	0	2	10	0	10	0	2	0	0	0	37		110
3:15 PM	0	10	3	2	9	0	5	0	0	0	0	0	29		149
3:20 PM	0	19	4	1	14	0	5	0	1	0	0	0	44		
3:25 PM	0	33	15	0	17	0	3	0	8	0	0	0	76		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	132	44	42	95	0	51	0	46	0	1	0	411
Mediums	0	0	21	0	4	0	1	0	0	0	0	0	26
Total	0	132	65	42	99	0	52	0	46	0	1	0	437
Pedestrians		9			1			24			1		35
Bicycles on Road	0	0	0	1	0	0	0	0	0	0	0	0	1
Bicycles on Crosswalk		1			0			2			0		3
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.75			1.47			0.56			#DIV/0!		0.82
Peak Hour Factor (PHF)	#DIV/0!	1.10	0.45	1.17	1.65	#DIV/0!	0.76	#DIV/0!	0.43	#DIV/0!	#DIV/0!	#DIV/0!	0.82

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

6 LEROY AVE & LYNN LN Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:15 PM - 02:30 PM

	PHF	0.57		0.0%	0.0%	0.0%	HV		
			0	1	106	0			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	0	Left		2		Right	0	0.0%
	0.0%	0	Thru	41	Peds	0	Thru	0	0.0%
	0.0%	2	Right		0		Left	1	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				2	97	0	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	LYNN LN			LYNN LN			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	0	0	0	0	0	0	4	0	0	9	0	13	196	30
1:35 PM	0	0	0	0	0	0	0	4	0	0	5	0	9	194	24
1:40 PM	0	0	0	0	0	0	0	4	1	0	3	0	8	192	23
1:45 PM	0	0	0	0	0	0	0	3	0	0	4	0	7	198	30
1:50 PM	0	0	0	0	0	0	0	2	0	0	6	0	8	202	33
1:55 PM	0	0	0	0	0	0	0	5	0	0	10	0	15	207	45
2:00 PM	0	0	0	0	0	0	0	2	0	0	8	0	10	204	44
2:05 PM	0	0	0	1	0	0	0	4	0	0	15	0	20	210	54
2:10 PM	0	0	0	0	0	0	0	3	0	0	11	0	14	197	83
2:15 PM	0	0	1	0	0	0	1	0	0	0	18	0	20	197	92
2:20 PM	0	0	1	0	0	0	1	33	0	0	14	0	49	186	83
2:25 PM	0	0	0	0	0	0	0	10	0	0	13	0	23	149	41
2:30 PM	0	0	0	0	0	0	0	9	0	0	1	1	11	150	32
2:35 PM	0	0	0	0	0	0	0	4	0	0	3	0	7		32
2:40 PM	0	0	0	0	0	0	0	5	0	0	9	0	14		38
2:45 PM	0	0	0	0	0	0	0	6	0	0	5	0	11		36
2:50 PM	0	0	0	0	0	0	0	8	0	0	5	0	13		41
2:55 PM	0	0	0	0	0	0	0	7	0	0	4	0	12		35
3:00 PM	0	0	0	0	0	0	0	8	0	0	8	0	16		37
3:05 PM	0	0	0	0	0	0	0	7	0	0	0	0	7		30
3:10 PM	0	0	0	0	0	0	0	12	0	0	2	0	14		35
3:15 PM	0	0	0	0	0	0	0	5	0	0	4	0	9		45
3:20 PM	0	0	0	0	0	0	0	8	0	0	4	0	12		
3:25 PM	0	0	0	0	0	0	0	9	0	0	15	0	24		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	1	1	0	0	2	96	0	0	85	1	186
Mediums	0	0	1	0	0	0	0	1	0	0	21	0	23
Total	0	0	2	1	0	0	2	97	0	0	106	1	209
Pedestrians		41			0			0			2		43
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		12			0			0			0		12
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.25			#DIV/0!			0.55			0.59		0.57
Peak Hour Factor (PHF)	#DIV/0!	#DIV/0!	0.25	#DIV/0!	#DIV/0!	#DIV/0!	0.25	0.56	#DIV/0!	#DIV/0!	0.59	#DIV/0!	0.57

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

5 LEROY AVE & MOLALLA RIVER MS NORTH Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:15 PM - 02:30 PM

PHF	0.55		0.0%	0.0%	0.0%	HV			
		0	4	99	7				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	26	Left		1		Right	8	0.0%	
0.0%	5	Thru	42	Peds	0	Thru	1	0.0%	
0.0%	12	Right		9		Left	5	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			0	65	10	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	MOLALLA RIVER MS NORTH			MOLALLA RIVER MS NORTH			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	0	0	0	0	1	0	3	2	1	8	0	15	227	33
1:35 PM	0	0	0	1	0	1	0	4	0	0	5	0	11	226	25
1:40 PM	0	0	0	0	0	0	0	4	0	0	3	0	7	223	22
1:45 PM	1	0	0	0	0	0	0	2	0	0	4	0	7	230	31
1:50 PM	0	0	0	0	0	1	0	1	1	0	4	1	8	234	38
1:55 PM	0	0	0	0	0	0	0	5	0	1	8	2	16	239	54
2:00 PM	0	0	0	3	1	0	0	2	1	0	7	0	14	236	53
2:05 PM	1	0	0	2	0	0	0	3	1	0	16	1	24	242	59
2:10 PM	0	0	0	0	1	1	0	3	0	1	7	2	15	225	98
2:15 PM	0	1	0	0	0	0	0	0	1	0	17	1	20	225	110
2:20 PM	14	3	6	1	0	0	0	20	2	3	14	0	63	215	104
2:25 PM	5	1	2	1	0	1	0	4	1	0	12	0	27	164	49
2:30 PM	3	0	2	0	0	0	0	6	1	0	2	0	14	161	36
2:35 PM	2	0	1	0	0	0	0	2	0	0	3	0	8		33
2:40 PM	0	0	0	0	0	0	0	5	0	0	9	0	14		38
2:45 PM	0	0	0	0	0	2	0	4	0	0	5	0	11		37
2:50 PM	0	0	0	0	0	3	0	5	1	1	3	0	13		46
2:55 PM	1	0	0	1	0	1	0	5	1	2	2	0	13		40
3:00 PM	0	0	1	0	0	0	0	8	2	0	9	0	20		42
3:05 PM	0	0	0	0	0	0	0	7	0	0	0	0	7		32
3:10 PM	0	0	0	0	0	0	0	12	1	0	2	0	15		37
3:15 PM	0	0	0	0	0	1	0	4	1	0	4	0	10		46
3:20 PM	0	0	0	0	0	0	0	8	0	2	1	1	12		
3:25 PM	1	0	0	0	0	0	0	8	0	3	12	0	24		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	25	5	12	5	1	8	0	65	10	7	77	4	219
Mediums	1	0	0	0	0	0	0	0	0	0	22	0	23
Total	26	5	12	5	1	8	0	65	10	7	99	4	242
Pedestrians		42			0			9			1		52
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		12			0			1			0		13
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.34			1.17			0.67			0.59		0.55
Peak Hour Factor (PHF)	0.34	0.25	0.38	0.63	#DIV/0!	2.00	#DIV/0!	0.68	0.63	0.58	0.58	1.00	0.55

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

4 LEROY AVE & MOLALLA RIVER MS CENTER Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:15 PM - 02:30 PM

PHF	0.57		0.0%	0.0%	0.0%	HV			
		0	19	98	0				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	7	Left		0		Right	0	0.0%	
0.0%	0	Thru	72	Peds	0	Thru	0	0.0%	
0.0%	6	Right		0		Left	0	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			15	69	0	1			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	MOLALLA RIVER MS CENTER			MOLALLA RIVER MS CENTER			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	0	0	0	0	0	0	5	0	0	9	0	14	204	28
1:35 PM	0	0	0	0	0	0	0	4	0	0	4	0	8	205	23
1:40 PM	1	0	0	0	0	0	1	3	0	0	1	0	6	204	22
1:45 PM	0	0	0	0	0	0	1	2	0	0	6	0	9	210	30
1:50 PM	0	0	0	0	0	0	1	2	0	0	4	0	7	211	37
1:55 PM	0	0	0	0	0	0	1	5	0	0	6	2	14	213	53
2:00 PM	1	0	1	0	0	0	3	2	0	0	6	3	16	209	52
2:05 PM	0	0	0	0	0	0	1	4	0	0	13	5	23	214	54
2:10 PM	0	0	0	0	0	0	2	3	0	0	7	1	13	200	88
2:15 PM	0	0	0	0	0	0	2	1	0	0	11	4	18	201	94
2:20 PM	4	0	4	0	0	0	5	20	0	0	20	4	57	195	91
2:25 PM	0	0	1	0	0	0	2	3	0	0	12	1	19	150	41
2:30 PM	1	0	1	0	0	0	2	6	0	0	4	1	15	152	34
2:35 PM	0	0	0	0	0	0	0	3	0	0	3	1	7		29
2:40 PM	1	0	0	0	0	0	0	3	0	0	7	1	12		31
2:45 PM	1	0	0	0	0	0	1	3	0	0	5	0	10		29
2:50 PM	0	0	0	0	0	0	0	6	0	0	3	0	9		40
2:55 PM	0	0	0	0	0	0	0	6	0	0	4	0	10		40
3:00 PM	0	0	0	0	0	0	0	11	0	0	9	1	21		44
3:05 PM	0	0	0	0	0	0	0	8	0	0	1	0	9		35
3:10 PM	1	0	1	0	0	0	0	11	0	0	1	0	14		38
3:15 PM	0	0	1	0	0	0	0	5	0	0	6	0	12		45
3:20 PM	1	0	1	0	0	0	1	8	0	0	1	0	12		
3:25 PM	2	0	1	0	0	0	0	6	0	0	12	0	21		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	7	0	6	0	0	0	14	69	0	0	76	19	191
Mediums	0	0	0	0	0	0	1	0	0	0	22	0	23
Total	7	0	6	0	0	0	15	69	0	0	98	19	214
Pedestrians		72			0			0			0		72
Bicycles on Road	0	0	0	0	0	0	0	1	0	0	0	0	1
Bicycles on Crosswalk		7			0			0			0		7
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.36			#DIV/0!			0.64			0.56		0.57
Peak Hour Factor (PHF)	0.44	#DIV/0!	0.30	#DIV/0!	#DIV/0!	#DIV/0!	0.42	0.72	#DIV/0!	#DIV/0!	0.57	0.53	0.57

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

3 LEROY AVE & MOLALLA RIVER MS SOUTH Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:20 PM - 02:35 PM

PHF	0.57		0.0%	0.0%	0.0%	HV			
		0	11	92	0				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	3	Left		10		Right	0	0.0%	
0.0%	0	Thru	52	Peds	4	Thru	0	0.0%	
0.0%	1	Right		1		Left	0	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			2	82	0	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	MOLALLA RIVER MS SOUTH			MOLALLA RIVER MS SOUTH			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	0	1	0	0	0	0	5	0	0	6	0	12	188	31
1:35 PM	0	0	1	0	0	0	0	7	0	0	5	0	13	189	29
1:40 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	182	24
1:45 PM	0	0	0	0	0	0	1	2	0	0	5	2	10	186	31
1:50 PM	0	0	0	0	0	0	1	3	0	0	4	0	8	186	35
1:55 PM	0	0	0	0	0	0	1	6	0	0	5	1	13	186	42
2:00 PM	0	0	0	0	0	0	1	7	0	0	5	1	14	183	43
2:05 PM	0	0	0	0	0	0	0	3	0	0	8	4	15	191	41
2:10 PM	0	0	0	0	0	0	2	5	0	0	4	3	14	182	67
2:15 PM	0	0	0	0	0	0	0	7	0	0	5	0	12	184	83
2:20 PM	0	0	0	0	0	0	0	20	0	0	20	1	41	183	84
2:25 PM	0	0	1	0	0	0	0	6	0	0	22	1	30	152	49
2:30 PM	1	0	0	0	0	0	0	7	0	0	4	1	13	140	29
2:35 PM	0	0	0	0	0	0	0	3	0	0	3	0	6		26
2:40 PM	0	0	0	0	0	0	0	3	0	0	6	1	10		28
2:45 PM	0	0	0	0	0	0	0	4	0	0	6	0	10		28
2:50 PM	0	0	0	0	0	0	0	6	0	0	2	0	8		40
2:55 PM	0	0	0	0	0	0	0	6	0	0	4	0	10		38
3:00 PM	2	0	0	0	0	0	0	12	0	0	8	0	22		44
3:05 PM	0	0	0	0	0	0	0	5	0	0	1	0	6		33
3:10 PM	1	0	1	0	0	0	0	12	0	0	2	0	16		37
3:15 PM	0	0	0	0	0	0	0	5	0	0	6	0	11		39
3:20 PM	0	0	0	0	0	0	0	8	0	0	2	0	10		
3:25 PM	0	0	0	0	0	0	0	5	0	0	13	0	18		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	3	0	1	0	0	0	2	81	0	0	72	9	168
Mediums	0	0	0	0	0	0	0	1	0	0	20	2	23
Total	3	0	1	0	0	0	2	82	0	0	92	11	191
Pedestrians		52			4			1			10		67
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		5			0			0			0		5
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.50			#DIV/0!			0.64			0.53		0.57
Peak Hour Factor (PHF)	0.75	#DIV/0!	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.62	#DIV/0!	#DIV/0!	0.50	0.92	0.57

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

2 LEROY AVE & WEST LN Noon
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:20 PM - 02:35 PM

PHF	0.51		0.0%	0.0%	0.0%	HV			
		0	15	53	23				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	27	Left		0		Right	8	0.0%	
0.0%	8	Thru	23	Peds	4	Thru	7	0.0%	
0.0%	13	Right		0		Left	4	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			10	49	7	3			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	WEST LN Eastbound			WEST LN Westbound			LEROY AVE Northbound			LEROY AVE Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	0	0	1	0	0	0	0	4	0	2	3	1	11	219	34
1:35 PM	0	0	0	1	0	1	0	6	2	1	6	0	17	223	32
1:40 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	213	26
1:45 PM	0	0	1	0	0	0	0	3	0	1	2	2	9	218	35
1:50 PM	0	1	1	1	0	0	0	4	0	0	4	0	11	223	39
1:55 PM	0	0	0	1	0	1	1	6	0	0	3	2	15	222	42
2:00 PM	1	0	0	0	0	0	0	6	0	0	4	2	13	218	43
2:05 PM	1	0	0	1	0	1	3	2	0	0	5	1	14	225	43
2:10 PM	1	1	0	0	0	2	3	5	0	0	3	1	16	218	83
2:15 PM	0	0	1	0	1	1	1	6	0	0	1	2	13	218	107
2:20 PM	13	3	5	0	3	1	3	5	3	2	9	7	54	216	109
2:25 PM	3	2	4	1	0	0	0	3	0	19	8	0	40	174	62
2:30 PM	3	1	2	0	0	1	0	2	1	0	4	0	15	153	33
2:35 PM	0	0	0	0	0	0	0	3	1	0	3	0	7		32
2:40 PM	1	0	0	0	2	0	0	2	0	0	5	1	11		35
2:45 PM	1	0	0	2	1	1	0	2	1	2	2	2	14		35
2:50 PM	0	1	1	0	0	0	0	6	0	0	2	0	10		41
2:55 PM	2	0	0	0	0	1	0	3	1	0	4	0	11		38
3:00 PM	2	0	0	0	0	0	0	10	0	0	7	1	20		43
3:05 PM	1	0	0	0	0	0	1	4	0	0	1	0	7		34
3:10 PM	3	0	0	0	0	0	0	9	1	0	3	0	16		39
3:15 PM	1	0	0	0	0	0	0	4	0	0	6	0	11		42
3:20 PM	1	0	0	1	0	0	0	7	1	0	2	0	12	School vs Non	
3:25 PM	1	0	0	0	0	0	0	5	0	0	11	2	19	School	
School Peak Hour Average	2.25	0.67	1.08		0.58		0.83					1.25		in	out
Other Average	0.67	0.08	0.25		0.00		0.17					0.75		74%	80%

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	27	7	13	2	7	8	10	48	6	4	53	14	199
Mediums	0	1	0	2	0	0	0	1	1	19	0	1	25
Total	27	8	13	4	7	8	10	49	7	23	53	15	224
Pedestrians		23			4			0			0		27
Bicycles on Road	0	0	0	0	0	0	0	2	1	0	0	0	3
Bicycles on Crosswalk		6			0			0			0		6
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		0.33			0.79			0.97			0.46		0.51
Peak Hour Factor (PHF)	0.36	0.33	0.30	1.00	0.58	1.00	0.83	1.23	0.44	0.27	0.63	0.54	0.51

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

1 LEROY AVE & W MAIN ST AM
Thursday, January 16, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
04:25 PM - 04:40 PM

PHF	0.93		0.0%	0.0%	0.0%	HV			
		0	49	6	12				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	29	Left		3		Right	34	0.0%	
2.7%	441	Thru	20	Peds	1	Thru	460	2.2%	
0.0%	14	Right		0		Left	45	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			10	5	45	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
1:30 PM	2	40	0	4	30	1	0	0	3	0	1	2	83	1,084	265
1:35 PM	5	42	2	10	30	0	0	3	4	0	0	5	101	1,094	255
1:40 PM	1	39	1	3	25	1	1	0	6	3	0	1	81	1,095	243
1:45 PM	2	30	0	5	29	0	0	0	5	1	0	1	73	1,111	256
1:50 PM	3	31	1	4	35	4	0	0	5	1	1	4	89	1,126	275
1:55 PM	2	36	1	4	30	9	2	0	3	1	0	6	94	1,140	270
2:00 PM	1	31	4	1	43	3	1	1	4	0	0	3	92	1,146	266
2:05 PM	3	37	0	3	23	5	0	0	9	0	1	3	84	1,150	256
2:10 PM	1	35	0	1	40	5	0	0	4	1	1	2	90	1,175	289
2:15 PM	2	25	0	3	43	6	0	1	0	1	0	1	82	1,202	297
2:20 PM	8	45	0	2	42	1	2	0	4	4	0	9	117	1,208	308
2:25 PM	2	43	0	1	32	2	0	0	5	2	0	11	98	1,202	293
2:30 PM	0	36	2	4	40	3	0	0	2	2	1	3	93	1,222	292
2:35 PM	1	46	1	3	44	1	0	0	3	1	1	1	102		287
2:40 PM	1	33	1	2	49	2	0	0	4	0	0	5	97		288
2:45 PM	0	36	1	7	38	1	1	0	2	0	1	1	88		291
2:50 PM	2	34	1	4	44	5	4	2	4	0	0	3	103		299
2:55 PM	2	37	4	9	37	1	0	0	3	0	1	6	100		305
3:00 PM	7	34	4	6	28	2	3	2	5	1	0	4	96		322
3:05 PM	2	34	2	4	49	3	4	1	5	1	0	4	109		314
3:10 PM	3	39	1	7	49	7	0	0	8	0	0	3	117		316
3:15 PM	0	40	2	3	36	2	0	0	2	0	0	3	88		317
3:20 PM	5	45	4	4	35	5	0	0	8	1	0	4	111		
3:25 PM	1	40	4	6	44	2	3	0	8	2	0	8	118		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	12	0	0	10	0	0	0	0	0	0	0	22
Lights	29	409	14	45	429	32	10	5	45	12	6	47	1,083
Mediums	0	20	0	0	21	2	0	0	0	0	0	2	45
Total	29	441	14	45	460	34	10	5	45	12	6	49	1,150
Pedestrians		20			1			0			3		24
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		2.5%			1.9%			0.0%			0.0%		1.9%
Heavy Vehicle Percentage	0.0%	2.7%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%
Peak Hour Factor (PHF)		0.89			1.06			1.15			0.52		0.93
Peak Hour Factor (PHF)	0.73	0.89	1.75	1.61	1.01	1.42	1.25	#DIV/0!	1.02	0.38	1.50	0.53	0.93

All Traffic Data Services

4 N MOLALLA AVE & TOLIVER ROAD Noon
Tuesday, April 15, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:40 PM - 02:55 PM

SCHOOL PEAK HOUR - AFTERNOON

PHF	0.78		0.0%	1.1%	0.0%	HV		
		0	78	187	0			
HV		Bikes	Right	Thru	Left	Bikes	0	
0.0%	57	Left		0		Right	0	0.0%
0.0%	0	Thru	0	Peds	12	Thru	0	0.0%
0.0%	117	Right		5		Left	0	0.0%
	0	Bikes	Left	Thru	Right	Bikes		HV
			104	166	0	0		
		HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	TOLIVER ROAD			TOLIVER ROAD			N MOLALLA AVE			N MOLALLA AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
1:30 PM	3	0	5	0	0	0	4	4	0	0	13	2	31	499	106
1:35 PM	0	0	7	0	0	0	6	13	0	0	9	4	39	536	106
1:40 PM	3	0	9	0	0	0	5	7	0	0	12	0	36	551	100
1:45 PM	4	0	5	0	0	0	3	4	0	0	15	0	31	593	110
1:50 PM	1	0	7	0	0	0	4	5	0	0	13	3	33	636	126
1:55 PM	4	0	4	0	0	0	4	15	0	0	17	2	46	677	136
2:00 PM	5	0	3	0	0	0	3	17	0	0	18	1	47	697	123
2:05 PM	6	0	6	0	0	0	5	13	0	0	10	3	43	710	124
2:10 PM	2	0	9	0	0	0	9	5	0	0	6	2	33	722	124
2:15 PM	2	0	8	0	0	0	10	9	0	0	16	3	48	747	160
2:20 PM	5	0	11	0	0	0	3	8	0	0	11	5	43	747	180
2:25 PM	11	0	7	0	0	0	11	25	0	0	14	1	69	752	191
2:30 PM	10	0	12	0	0	0	5	22	0	0	16	3	68	737	200
2:35 PM	7	0	10	0	0	0	5	7	0	0	16	9	54		206
2:40 PM	5	0	8	0	0	0	13	16	0	0	19	17	78		226
2:45 PM	6	0	12	0	0	0	8	16	0	0	22	10	74		214
2:50 PM	1	0	11	0	0	0	8	11	0	0	25	18	74		200
2:55 PM	1	0	12	0	0	0	12	22	0	0	16	3	66		181
3:00 PM	1	0	11	0	0	0	15	12	0	0	16	4	60		173
3:05 PM	0	0	10	0	0	0	10	10	0	0	20	5	55		161
3:10 PM	2	0	10	0	0	0	12	14	0	0	13	7	58		154
3:15 PM	1	0	13	0	0	0	12	12	0	0	8	2	48		150
3:20 PM	2	0	5	0	0	0	12	12	0	0	13	4	48		
3:25 PM	4	0	17	0	0	0	8	12	0	0	11	2	54		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	2
Lights	54	0	115	0	0	0	101	147	0	0	182	76	675
Mediums	3	0	2	0	0	0	3	19	0	0	3	2	32
Total	57	0	117	0	0	0	104	166	0	0	187	78	709
Pedestrians		0			12			5			0		17
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.8%		0.3%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.3%
Peak Hour Factor (PHF)		1.01			#DIV/0!			0.94			0.60		0.78
Peak Hour Factor (PHF)	1.19	#DIV/0!	0.94	#DIV/0!	#DIV/0!	#DIV/0!	0.90	0.97	#DIV/0!	#DIV/0!	0.71	0.43	0.78

All Traffic Data Services

SCHOOL PEAK HOUR - AFTERNOON

3 S MOLALLA AVE & OR 211 Noon
Tuesday, April 15, 2025

Peak Hour
2:05 PM - 3:05 PM (Common Peak)
Peak 15-Minutes
02:50 PM - 03:05 PM

	PHF	0.90		0.0%	0.0%	2.0%	HV		
			0	105	79	50			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	56	Left		5		Right	43	0.0%
	2.3%	344	Thru	5	Peds	3	Thru	354	2.5%
	0.0%	62	Right		3		Left	9	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				52	56	11	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	OR 211			OR 211			S MOLALLA AVE			N MOLALLA AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
1:30 PM	3	35	7	2	22	2	3	7	1	6	4	7	100	1,110	265
1:35 PM	0	22	1	0	28	1	4	4	1	4	4	6	75	1,113	250
1:40 PM	4	33	3	3	21	2	4	4	1	4	6	5	90	1,141	279
1:45 PM	4	24	4	2	27	2	3	2	0	6	4	7	85	1,160	285
1:50 PM	6	30	3	0	37	6	2	5	0	4	5	6	104	1,171	291
1:55 PM	4	25	6	1	21	5	1	8	4	5	9	7	96	1,191	289
2:00 PM	5	18	8	0	25	5	4	9	1	3	4	9	91	1,202	281
2:05 PM	6	39	5	3	26	3	2	3	0	1	8	6	102	1,221	276
2:10 PM	2	30	4	1	23	2	6	7	1	4	4	4	88	1,222	265
2:15 PM	1	25	0	0	25	4	7	2	2	4	6	10	86	1,258	279
2:20 PM	3	25	5	0	28	3	7	4	1	4	5	6	91	1,298	296
2:25 PM	8	27	10	0	33	3	4	4	1	1	9	2	102	1,314	308
2:30 PM	11	31	7	0	25	4	1	5	1	3	5	10	103	1,313	315
2:35 PM	1	35	6	0	28	4	6	5	3	3	6	6	103		308
2:40 PM	6	28	6	2	37	2	3	5	0	5	4	11	109		329
2:45 PM	6	20	6	1	28	2	2	4	1	7	6	13	96		327
2:50 PM	5	36	3	0	34	5	3	6	0	7	9	16	124		341
2:55 PM	2	28	5	2	33	3	7	5	1	5	9	7	107		320
3:00 PM	5	20	5	0	34	8	4	6	0	6	8	14	110		337
3:05 PM	4	28	7	0	34	4	2	3	0	5	7	9	103		353
3:10 PM	6	34	4	0	39	6	6	7	0	4	10	8	124		357
3:15 PM	7	34	4	0	44	5	5	6	0	8	7	6	126		334
3:20 PM	4	34	11	0	34	4	3	8	0	3	2	4	107		
3:25 PM	3	34	9	2	23	2	1	4	1	6	9	7	101		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	8	0	0	9	0	0	0	0	1	0	0	18
Lights	54	320	60	9	332	40	51	54	11	49	76	104	1,160
Mediums	2	16	2	0	13	3	1	2	0	0	3	1	43
Total	56	344	62	9	354	43	52	56	11	50	79	105	1,221
Pedestrians		5			3			3			5		16
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		2			0			7			1		10
Heavy Vehicle Percentage		1.7%			2.2%			0.0%			0.4%		1.5%
Heavy Vehicle Percentage	0.0%	2.3%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	1.5%
Peak Hour Factor (PHF)		1.06			0.85			0.93			0.72		0.90
Peak Hour Factor (PHF)	1.17	1.02	1.19	1.13	0.88	0.67	0.93	0.82	2.75	0.69	0.76	0.71	0.90

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

1 OR 213 & TOLIVER ROAD Noon
Tuesday, April 15, 2025

Peak Hour
04:20 PM - 05:20 PM
Peak 15-Minutes
04:30 PM - 04:45 PM

PHF	0.92		0.0%	0.8%	0.0%	HV		
		0	8	498	93			
HV		Bikes	Right	Thru	Left	Bikes	0	
0.0%	7	Left		0		Right	39	0.0%
0.0%	57	Thru	0	Peds	0	Thru	34	0.0%
0.0%	79	Right		0		Left	76	0.0%
	0	Bikes	Left	Thru	Right	Bikes		HV
			39	373	115	0		
		HV	0.0%	1.9%	0.0%			

Traffic Counts - All Vehicles

	TOLIVER ROAD Eastbound			TOLIVER ROAD Westbound			OR 213 Northbound			OR 213 Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
4:00 PM	0	1	1	9	4	3	5	25	11	2	43	0	104	1,381	333
4:05 PM	0	6	2	9	2	8	2	33	10	9	44	1	126	1,402	344
4:10 PM	0	3	7	4	0	5	3	38	8	7	27	0	103	1,400	321
4:15 PM	0	9	3	10	2	5	2	25	7	5	47	0	115	1,399	342
4:20 PM	0	5	7	3	2	3	6	26	10	5	36	0	103	1,421	361
4:25 PM	2	5	6	6	3	4	2	40	9	8	35	3	124	1,414	382
4:30 PM	1	8	5	10	3	2	4	29	13	9	49	1	134	1,403	386
4:35 PM	0	3	4	10	3	4	4	26	13	11	46	0	124	1,377	358
4:40 PM	0	5	8	6	4	1	4	25	12	10	53	0	128	1,363	322
4:45 PM	1	1	8	7	5	4	2	34	8	3	33	0	106	1,337	320
4:50 PM	1	5	5	10	2	1	3	14	5	5	37	0	88	1,338	339
4:55 PM	1	7	6	5	4	2	3	38	6	7	46	1	126	1,351	375
5:00 PM	1	6	8	5	1	4	2	32	7	13	42	2	125	1,326	351
5:05 PM	0	3	7	8	3	3	5	38	11	9	36	1	124		363
5:10 PM	0	3	8	1	4	6	1	32	8	4	35	0	102		335
5:15 PM	0	6	7	5	0	5	3	39	13	9	50	0	137		346
5:20 PM	1	9	5	6	0	1	3	26	4	9	32	0	96		317
5:25 PM	1	3	5	2	3	3	3	38	13	5	37	0	113		331
5:30 PM	0	4	8	6	1	3	3	31	6	6	39	0	108		320
5:35 PM	1	4	10	4	2	3	3	36	2	3	42	0	110		319
5:40 PM	1	4	3	2	2	1	4	36	7	4	38	0	102		310
5:45 PM	0	5	11	0	3	1	2	27	8	10	40	0	107		309
5:50 PM	0	5	7	4	3	2	1	25	10	2	42	0	101		
5:55 PM	0	4	1	4	2	2	5	23	5	6	49	0	101		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	7	0	0	4	0	11
Lights	7	57	78	75	34	39	39	357	109	87	484	8	1,374
Mediums	0	0	1	1	0	0	0	9	6	6	10	0	33
Total	7	57	79	76	34	39	39	373	115	93	498	8	1,418
Pedestrians		0			0			0			0		0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			1.3%			0.7%		3.1%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.8%	0.0%	3.1%
Peak Hour Factor (PHF)		1.05			0.87			1.01			0.84		0.92
Peak Hour Factor (PHF)	1.75	0.89	1.16	0.73	0.85	1.39	0.81	1.17	0.76	0.78	0.84	2.00	0.92

All Traffic Data Services

SCHOOL PEAK HOUR - EVENING

2 OR 213 & OR 211 Noon
Tuesday, April 15, 2025

Peak Hour
03:40 PM - 04:40 PM
Peak 15-Minutes
04:20 PM - 04:35 PM

PHF	0.96		0.7%	0.9%	0.0%	HV		
		0	134	213	224			
HV		Bikes	Right	Thru	Left	Bikes	0	
2.5%	120	Left		0		Right	165	1.8%
3.0%	270	Thru	0	Peds	0	Thru	210	1.9%
0.0%	19	Right		0		Left	155	0.6%
	0	Bikes	Left	Thru	Right	Bikes		HV
			15	178	135	0		
		HV	0.0%	2.2%	1.5%			

Traffic Counts - All Vehicles

	OR 211 Eastbound			OR 211 Westbound			OR 213 Northbound			OR 213 Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
3:30 PM	13	19	0	10	16	14	0	19	11	18	17	5	142	1,820	440
3:35 PM	7	24	3	11	19	14	2	19	7	7	14	9	136	1,836	455
3:40 PM	12	27	3	11	13	11	0	14	8	17	26	20	162	1,838	476
3:45 PM	18	21	2	22	16	13	0	21	11	13	9	11	157	1,838	460
3:50 PM	5	31	1	8	18	14	0	10	17	19	20	14	157	1,804	458
3:55 PM	7	34	0	7	15	14	3	9	13	21	12	11	146	1,779	470
4:00 PM	8	14	1	17	15	12	1	19	9	20	26	13	155	1,773	470
4:05 PM	9	23	4	6	23	19	3	16	10	25	19	12	169	1,752	445
4:10 PM	9	14	2	18	20	17	1	18	15	12	14	6	146	1,733	436
4:15 PM	8	20	0	5	18	15	2	10	9	23	11	9	130	1,720	450
4:20 PM	10	17	1	20	15	13	2	25	10	18	20	9	160	1,736	478
4:25 PM	13	30	2	17	19	14	1	12	11	16	16	9	160	1,710	456
4:30 PM	15	26	0	8	23	11	0	14	10	26	14	11	158	1,702	458
4:35 PM	6	13	3	16	15	12	2	10	12	14	26	9	138		423
4:40 PM	4	29	1	16	24	16	0	14	4	25	21	8	162		417
4:45 PM	5	16	4	4	16	9	1	15	9	19	15	10	123		395
4:50 PM	2	18	2	20	15	13	1	6	11	16	17	11	132		406
4:55 PM	10	24	2	14	14	6	1	14	12	21	13	9	140		424
5:00 PM	4	10	0	8	13	8	1	18	15	26	22	9	134		417
5:05 PM	15	28	0	12	15	17	1	18	6	19	13	6	150		429
5:10 PM	7	26	2	12	12	19	0	12	8	13	15	7	133		413
5:15 PM	9	33	0	6	19	9	2	10	8	22	18	9	146		432
5:20 PM	10	15	1	12	14	8	0	16	10	16	25	7	134		
5:25 PM	10	24	0	14	26	13	0	18	13	16	12	6	152		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	3	8	0	1	4	3	0	4	2	0	2	1	28
Lights	113	257	19	150	205	151	15	171	130	212	208	131	1,762
Mediums	4	5	0	4	1	11	0	3	3	12	3	2	48
Total	120	270	19	155	210	165	15	178	135	224	213	134	1,838
Pedestrians		0			0			0			0		0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		2.7%			1.5%			1.8%			0.5%		4.1%
Heavy Vehicle Percentage	2.5%	3.0%	0.0%	0.6%	1.9%	1.8%	0.0%	2.2%	1.5%	0.0%	0.9%	0.7%	4.1%
Peak Hour Factor (PHF)		0.90			0.95			0.96			1.03		0.96
Peak Hour Factor (PHF)	0.79	0.92	1.58	0.86	0.92	1.09	1.25	0.87	1.09	0.93	1.07	1.16	0.96

All Traffic Data Services

5 N HEZZIE LN & WEST LN Noon
Tuesday, April 15, 2025

Peak Hour
04:50 PM - 05:50 PM
Peak 15-Minutes
05:10 PM - 05:25 PM

Traffic Counts - All Vehicles

	WEST LN			WEST LN			N HEZZIE LN			N HEZZIE LN					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
4:00 PM	0	0	0	0	0	0	0	4	1	0	2	0	7	105	25
4:05 PM	0	0	0	0	0	0	0	8	0	1	4	0	13	104	26
4:10 PM	0	0	0	0	0	0	0	2	0	0	3	0	5	96	21
4:15 PM	0	0	0	0	0	0	0	4	0	1	3	0	8	103	19
4:20 PM	0	0	0	0	0	0	0	4	1	1	2	0	8	109	21
4:25 PM	0	0	0	0	0	1	0	2	0	0	0	0	3	111	22
4:30 PM	0	0	0	0	0	1	0	6	1	1	1	0	10	117	28
4:35 PM	0	0	0	0	0	1	0	5	1	0	2	0	9	120	27
4:40 PM	0	0	0	1	0	0	0	5	1	0	2	0	9	117	28
4:45 PM	0	0	0	0	0	0	0	3	1	1	4	0	9	121	33
4:50 PM	0	0	0	0	0	2	0	3	0	0	5	0	10	125	30
4:55 PM	0	0	0	1	0	3	0	5	2	0	3	0	14	123	25
5:00 PM	0	0	0	0	0	0	0	4	0	2	0	0	6	119	23
5:05 PM	0	0	0	0	0	1	0	1	2	1	0	0	5		31
5:10 PM	0	0	0	0	0	2	0	2	2	3	3	0	12		36
5:15 PM	0	0	0	0	0	1	0	9	0	0	4	0	14		33
5:20 PM	0	0	0	0	0	4	0	2	2	1	1	0	10		32
5:25 PM	0	0	0	0	0	1	0	4	0	1	3	0	9		28
5:30 PM	0	0	0	1	0	2	0	5	0	2	3	0	13		32
5:35 PM	0	0	0	0	0	1	0	2	0	2	1	0	6		32
5:40 PM	0	0	0	0	0	4	0	8	0	0	1	0	13		34
5:45 PM	0	0	0	0	0	1	0	6	0	4	2	0	13		31
5:50 PM	0	0	0	0	0	0	0	4	0	2	2	0	8		
5:55 PM	0	0	0	0	0	3	0	5	0	1	1	0	10		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	2	0	22	0	51	8	16	26	0	125
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	22	0	51	8	16	26	0	125
Pedestrians		2			4			3			5		14
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peak Hour Factor (PHF)		#DIV/0!			0.86			0.87			0.88		0.87
Peak Hour Factor (PHF)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.79	#DIV/0!	0.98	0.50	1.00	0.81	#DIV/0!	0.87

All Traffic Data Services

8 HEZZIE LN & W MAIN ST Noon
Thursday, January 16, 2025

Peak Hour
4:00 PM - 5:00 PM
Peak 15-Minutes
4:25 PM - 4:40 PM

GENERAL PEAK HOUR - EVENING

PHF	0.92		0.0%	0.0%	0.0%	HV		
		0	23	0	10			
HV		Bikes	Right	Thru	Left	Bikes	0	
0.0%	40	Left		2		Right	14	0.0%
1.0%	612	Thru	0	Peds	5	Thru	557	1.4%
0.0%	12	Right		6		Left	19	0.0%
	1	Bikes	Left	Thru	Right	Bikes		HV
			14	1	7	0		
		HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			HEZZIE LN			HEZZIE LN					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
4:00 PM	4	55	1	2	58	1	0	0	0	1	0	4	126	1,309	334
4:05 PM	0	48	0	0	48	0	2	0	1	2	0	1	102	1,272	320
4:10 PM	2	48	0	3	49	1	2	0	0	0	0	1	106	1,284	331
4:15 PM	7	53	1	0	44	5	1	0	1	0	0	0	112	1,280	341
4:20 PM	3	47	2	3	55	1	1	0	0	0	0	1	113	1,274	347
4:25 PM	5	53	1	0	49	1	1	1	1	1	0	3	116	1,272	354
4:30 PM	2	55	2	4	49	0	1	0	1	3	0	1	118	1,255	324
4:35 PM	3	57	2	4	51	1	1	0	1	0	0	0	120	1,219	307
4:40 PM	1	42	1	1	36	1	0	0	0	0	0	4	86	1,192	295
4:45 PM	6	49	2	2	35	1	1	0	1	1	0	3	101	1,205	310
4:50 PM	4	56	0	0	40	1	3	0	1	1	0	2	108	1,200	298
4:55 PM	3	49	0	0	43	1	1	0	0	1	0	3	101	1,197	304
5:00 PM	3	47	2	0	33	0	1	0	1	1	0	1	89	1,198	305
5:05 PM	2	53	1	4	45	1	0	0	2	0	0	6	114		322
5:10 PM	2	50	2	3	36	3	2	0	0	0	0	4	102		319
5:15 PM	4	45	2	1	46	2	2	0	0	1	0	3	106		316
5:20 PM	3	62	0	1	41	0	1	0	1	0	0	2	111		292
5:25 PM	2	42	0	1	48	0	1	0	1	2	0	2	99		274
5:30 PM	2	37	1	0	38	0	0	0	0	2	0	2	82		274
5:35 PM	3	49	0	1	34	3	0	0	0	1	0	2	93		288
5:40 PM	2	47	1	3	38	1	3	1	1	1	0	1	99		300
5:45 PM	2	40	0	1	44	2	2	0	1	0	0	4	96		303
5:50 PM	7	49	1	0	37	3	2	0	2	2	0	2	105		
5:55 PM	5	52	2	1	38	0	1	0	1	2	0	0	102		

Peak Rolling Hour Flow Rates

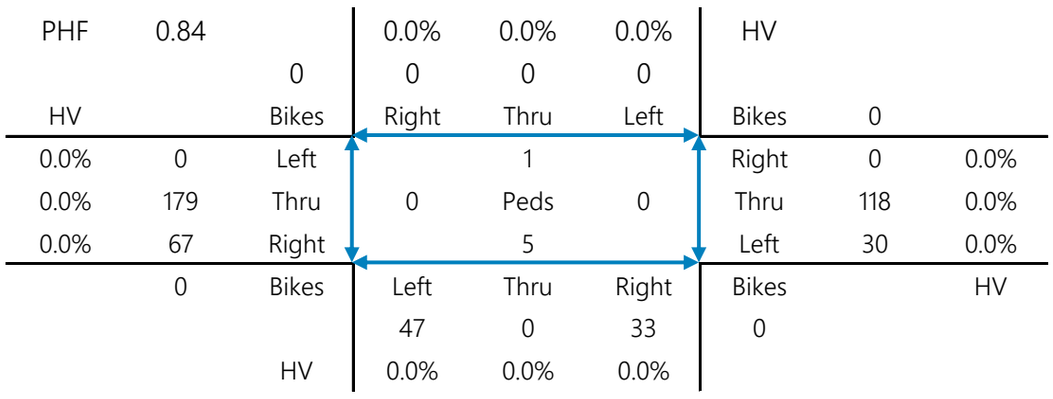
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	6	0	0	8	0	0	0	0	0	0	0	14
Lights	40	596	11	19	534	13	14	1	7	10	0	22	1,267
Mediums	0	10	1	0	15	1	0	0	0	0	0	1	28
Total	40	612	12	19	557	14	14	1	7	10	0	23	1,309
Pedestrians		0			5			6			2		13
Bicycles on Road	0	1	0	0	0	0	0	0	0	0	0	0	1
Bicycles on Crosswalk		0			0			0			1		1
Heavy Vehicle Percentage		0.9%			1.4%			0.0%			0.0%		3.2%
Heavy Vehicle Percentage	0.0%	1.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%
Peak Hour Factor (PHF)		0.92			0.93			0.79			1.03		0.92
Peak Hour Factor (PHF)	1.00	0.93	0.60	0.59	0.93	1.75	1.17	0.25	0.58	0.63	#DIV/0!	1.44	0.92

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

7 LEROY AVE & TOLIVER RD Noon
Thursday, January 16, 2025

Peak Hour
4:00 PM - 5:00 PM
Peak 15-Minutes
4:20 PM - 4:35 PM



Traffic Counts - All Vehicles

Time	TOLIVER RD Eastbound Left	Thru	Right	TOLIVER RD Westbound Left	Thru	Right	LEROY AVE Northbound Left	Thru	Right	LEROY AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
4:00 PM	0	14	1	5	9	0	5	0	3	0	0	0	37	474	105
4:05 PM	0	14	5	1	9	0	3	0	1	0	0	0	33	472	112
4:10 PM	0	15	8	2	8	0	1	0	1	0	0	0	35	472	122
4:15 PM	0	16	10	4	8	0	4	0	2	0	0	0	44	474	134
4:20 PM	0	13	7	2	11	0	5	0	5	0	0	0	43	466	141
4:25 PM	0	13	5	4	12	0	8	0	5	0	0	0	47	450	139
4:30 PM	0	21	10	2	12	0	5	0	1	0	0	0	51	427	132
4:35 PM	0	17	3	0	12	0	5	0	4	0	0	0	41	412	117
4:40 PM	0	15	6	3	11	0	2	0	3	0	0	0	40	397	108
4:45 PM	0	16	4	1	8	0	4	0	3	0	0	0	36	383	103
4:50 PM	0	11	4	3	10	0	2	0	2	0	0	0	32	373	102
4:55 PM	0	14	4	3	8	0	3	0	3	0	0	0	35	366	103
5:00 PM	0	15	5	3	9	0	0	0	3	0	0	0	35	361	105
5:05 PM	0	13	5	0	11	0	1	0	3	0	0	0	33		106
5:10 PM	0	17	2	2	10	0	3	0	3	0	0	0	37		100
5:15 PM	0	16	6	1	8	0	2	0	3	0	0	0	36		87
5:20 PM	0	10	2	0	5	0	5	0	5	0	0	0	27		87
5:25 PM	0	9	1	3	7	0	2	0	2	0	0	0	24		86
5:30 PM	1	12	2	1	10	0	5	0	5	0	0	0	36		88
5:35 PM	0	10	2	2	5	0	4	0	3	0	0	0	26		78
5:40 PM	0	13	2	2	1	0	6	0	2	0	0	0	26		77
5:45 PM	0	9	1	4	7	0	1	0	4	0	0	0	26		81
5:50 PM	0	8	3	1	7	0	3	0	3	0	0	0	25		
5:55 PM	0	10	2	2	9	0	5	0	2	0	0	0	30		

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	176	62	30	110	0	41	0	33	0	0	0	452
Mediums	0	3	5	0	8	0	6	0	0	0	0	0	22
Total	0	179	67	30	118	0	47	0	33	0	0	0	474
Pedestrians		0			0			5			1		6
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			1			0		1
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		4.6%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%
Peak Hour Factor (PHF)		0.89			0.86			0.69			#DIV/0!		0.84
Peak Hour Factor (PHF)	#DIV/0!	0.95	0.76	0.94	0.84	#DIV/0!	0.65	#DIV/0!	0.75	#DIV/0!	#DIV/0!	#DIV/0!	0.84

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

6 LEROY AVE & LYNN LN Noon
Thursday, January 16, 2025

Peak Hour
4:00 PM - 5:00 PM
Peak 15-Minutes
4:15 PM - 4:30 PM

	PHF	0.71		0.0%	0.0%	0.0%	HV		
			0	1	98	3			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	1	Left		0		Right	2	0.0%
	0.0%	0	Thru	9	Peds	0	Thru	0	0.0%
	0.0%	1	Right		0		Left	3	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				2	79	2	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	LYNN LN			LYNN LN			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
4:00 PM	0	0	0	0	0	0	0	9	0	0	6	0	15	192	37
4:05 PM	0	0	0	0	0	0	0	3	0	1	7	0	11	191	44
4:10 PM	0	0	0	0	0	0	0	3	0	1	7	0	11	191	55
4:15 PM	0	0	0	0	0	0	0	6	0	0	16	0	22	190	68
4:20 PM	0	0	0	2	0	0	0	10	0	0	10	0	22	178	63
4:25 PM	1	0	0	0	0	2	1	11	0	1	8	0	24	170	53
4:30 PM	0	0	0	0	0	0	0	5	0	0	12	0	17	155	44
4:35 PM	0	0	0	0	0	0	0	8	1	0	2	1	12	150	45
4:40 PM	0	0	1	0	0	0	0	5	0	0	9	0	15	151	45
4:45 PM	0	0	0	1	0	0	1	8	1	0	7	0	18	149	43
4:50 PM	0	0	0	0	0	0	0	4	0	0	8	0	12	139	39
4:55 PM	0	0	0	0	0	0	0	7	0	0	6	0	13	140	38
5:00 PM	0	0	1	0	0	0	0	4	0	0	9	0	14	138	35
5:05 PM	0	0	0	0	0	0	2	5	0	0	4	0	11		31
5:10 PM	0	0	0	0	0	0	0	6	0	0	4	0	10		34
5:15 PM	0	0	1	0	0	0	0	4	0	0	5	0	10		33
5:20 PM	0	0	0	0	0	0	0	10	0	0	4	0	14		35
5:25 PM	0	0	0	0	0	0	0	5	0	1	3	0	9		34
5:30 PM	0	0	0	0	0	0	0	9	1	0	2	0	12		38
5:35 PM	0	0	0	0	0	0	0	8	1	0	4	0	13		34
5:40 PM	0	0	0	0	0	0	0	8	0	0	5	0	13		34
5:45 PM	0	0	0	0	0	0	0	4	0	0	4	0	8		32
5:50 PM	0	0	0	0	0	0	0	7	1	0	5	0	13		
5:55 PM	0	0	0	0	0	0	0	7	0	0	4	0	11		

Peak Rolling Hour Flow Rates

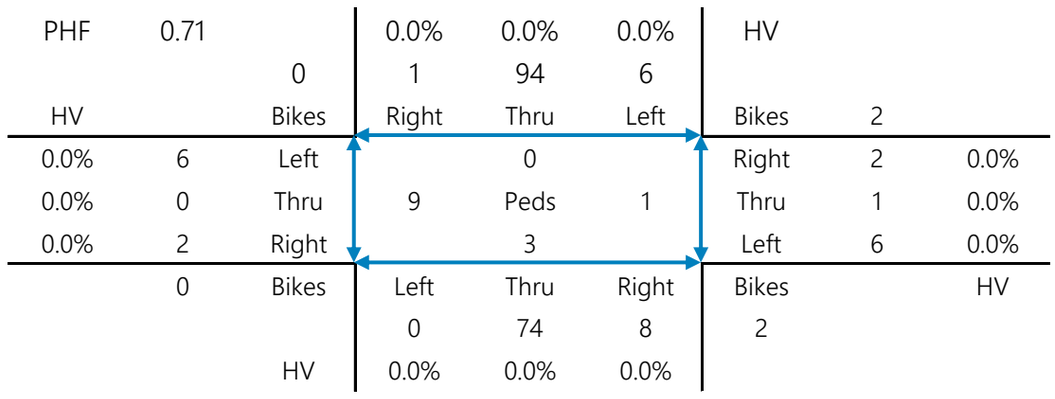
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	1	3	0	2	1	74	2	3	93	1	180
Mediums	1	0	0	0	0	0	1	5	0	0	5	0	12
Total	1	0	1	3	0	2	2	79	2	3	98	1	192
Pedestrians		9			0			0			0		9
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		6.3%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%
Peak Hour Factor (PHF)		0.50			0.31			0.74			0.73		0.71
Peak Hour Factor (PHF)	0.25	#DIV/0!	#DIV/0!	0.38	#DIV/0!	0.25	0.50	0.73	#DIV/0!	0.75	0.72	#DIV/0!	0.71

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

5 LEROY AVE & MOLALLA RIVER MS NORTH Noon
Thursday, January 16, 2025

Peak Hour
4:00 PM - 5:00 PM
Peak 15-Minutes
4:15 PM - 4:30 PM



Traffic Counts - All Vehicles

Time	MOLALLA RIVER MS NORTH Eastbound Left	Thru	Right	MOLALLA RIVER MS NORTH Westbound Left	Thru	Right	LEROY AVE Northbound Left	Thru	Right	LEROY AVE Southbound Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
4:00 PM	0	0	0	1	0	0	0	9	1	0	6	0	17	201	40
4:05 PM	0	0	0	0	0	0	0	3	1	1	6	0	11	199	46
4:10 PM	1	0	1	0	0	0	0	2	1	0	7	0	12	199	61
4:15 PM	0	0	0	0	0	1	0	5	1	1	15	0	23	198	70
4:20 PM	1	0	1	1	0	0	0	9	2	0	12	0	26	187	64
4:25 PM	3	0	0	0	0	0	0	10	0	0	8	0	21	175	53
4:30 PM	0	0	0	2	0	0	0	4	0	0	11	0	17	162	48
4:35 PM	0	0	0	1	0	0	0	9	2	0	3	0	15	158	47
4:40 PM	0	0	0	0	0	1	0	5	0	1	9	0	16	157	45
4:45 PM	1	0	0	0	0	0	0	7	0	0	7	0	16	155	43
4:50 PM	0	0	0	0	1	0	0	4	0	1	6	1	13	149	42
4:55 PM	0	0	0	1	0	0	0	7	0	2	4	0	14	149	40
5:00 PM	0	0	0	1	0	0	0	4	0	1	9	0	15	147	37
5:05 PM	1	0	0	0	0	0	0	6	0	1	3	0	11		34
5:10 PM	1	0	0	0	0	0	0	4	2	0	3	0	11		37
5:15 PM	0	0	0	0	0	0	0	5	1	2	4	0	12		34
5:20 PM	0	0	0	1	0	1	0	8	0	1	3	0	14		35
5:25 PM	0	0	0	0	0	0	0	5	0	0	3	0	8		35
5:30 PM	0	0	0	0	0	0	0	10	1	0	2	0	13		41
5:35 PM	0	0	0	1	0	0	0	9	0	1	3	0	14		38
5:40 PM	0	0	0	1	0	1	0	7	0	1	4	0	14		37
5:45 PM	0	0	0	0	0	0	0	4	2	0	4	0	10		35
5:50 PM	0	0	0	0	0	0	0	8	0	1	4	0	13		
5:55 PM	0	0	0	1	0	0	0	7	0	1	3	0	12		

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound Left	Thru	Right	Westbound Left	Thru	Right	Northbound Left	Thru	Right	Southbound Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	6	0	2	5	1	2	0	68	8	6	89	1	188
Mediums	0	0	0	1	0	0	0	6	0	0	5	0	12
Total	6	0	2	6	1	2	0	74	8	6	94	1	200
Pedestrians		9			1			3			0		13
Bicycles on Road	0	0	0	2	0	0	0	0	2	0	0	0	4
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		6.0%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%
Peak Hour Factor (PHF)		0.40			1.13			0.76			0.70		0.71
Peak Hour Factor (PHF)	0.38	#DIV/0!	0.50	1.50	#DIV/0!	0.50	#DIV/0!	0.77	0.67	1.50	0.67	#DIV/0!	0.71

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

4 LEROY AVE & MOLALLA RIVER MS CENTER Noon
Thursday, January 16, 2025

Peak Hour
4:05 PM - 5:05 PM
Peak 15-Minutes
4:15 PM - 4:30 PM

	PHF	0.76		0.0%	0.0%	0.0%	HV		
			1	30	80	0			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	14	Left		0		Right	0	0.0%
	0.0%	0	Thru	18	Peds	2	Thru	0	0.0%
	0.0%	15	Right		0		Left	0	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				4	60	1	1		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	MOLALLA RIVER MS CENTER			MOLALLA RIVER MS CENTER			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
4:00 PM	0	0	1	0	0	0	0	11	0	0	6	1	19	203	41
4:05 PM	1	0	1	0	0	0	0	2	0	0	5	2	11	204	42
4:10 PM	0	0	1	0	0	0	0	3	0	0	4	3	11	202	58
4:15 PM	1	0	0	0	0	0	0	5	0	0	12	2	20	202	67
4:20 PM	3	0	2	0	0	0	0	7	0	0	11	4	27	192	64
4:25 PM	3	0	1	0	0	0	0	7	0	0	7	2	20	177	54
4:30 PM	1	0	1	0	0	0	0	3	0	0	12	0	17	166	50
4:35 PM	1	0	0	0	0	0	0	10	0	0	5	1	17	163	47
4:40 PM	0	0	2	0	0	0	0	6	1	0	7	0	16	159	46
4:45 PM	1	0	0	0	0	0	0	5	0	0	4	4	14	157	45
4:50 PM	2	0	2	0	0	0	0	3	0	0	1	8	16	155	51
4:55 PM	1	0	2	0	0	0	0	5	0	0	3	4	15	151	44
5:00 PM	0	0	3	0	0	0	4	4	0	0	9	0	20	146	40
5:05 PM	0	0	0	0	0	0	0	6	0	0	3	0	9		30
5:10 PM	0	0	1	0	0	0	2	6	0	0	2	0	11		33
5:15 PM	0	0	0	0	0	0	0	6	0	0	4	0	10		31
5:20 PM	0	0	0	0	0	0	0	8	0	0	4	0	12		35
5:25 PM	0	0	1	0	0	0	0	5	0	0	3	0	9		36
5:30 PM	0	0	0	0	0	0	1	11	0	0	2	0	14		41
5:35 PM	0	0	0	0	0	0	0	9	0	0	4	0	13		39
5:40 PM	0	0	0	1	0	0	1	7	0	0	5	0	14		38
5:45 PM	0	0	1	0	0	0	1	6	0	0	4	0	12		34
5:50 PM	1	0	0	0	0	0	0	7	1	0	3	0	12		
5:55 PM	0	0	0	0	0	0	1	7	0	0	2	0	10		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	14	0	15	0	0	0	4	55	1	0	75	30	194
Mediums	0	0	0	0	0	0	0	5	0	0	5	0	10
Total	14	0	15	0	0	0	4	60	1	0	80	30	204
Pedestrians		18			2			0			0		20
Bicycles on Road	0	0	0	0	0	0	0	1	0	0	1	0	2
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		4.9%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%
Peak Hour Factor (PHF)		0.73			#DIV/0!			0.86			0.72		0.76
Peak Hour Factor (PHF)	0.50	#DIV/0!	1.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.79	#DIV/0!	#DIV/0!	0.67	0.94	0.76

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

3 LEROY AVE & MOLALLA RIVER MS SOUTH Noon
Thursday, January 16, 2025

Peak Hour
4:15 PM - 5:15 PM
Peak 15-Minutes
4:20 PM - 4:35 PM

	PHF	0.78		0.0%	0.0%	0.0%	HV		
			0	3	87	0			
	HV		Bikes	Right	Thru	Left	Bikes	0	
	0.0%	0	Left		2		Right	0	0.0%
	0.0%	0	Thru	9	Peds	0	Thru	0	0.0%
	0.0%	1	Right		0		Left	0	0.0%
		0	Bikes	Left	Thru	Right	Bikes		HV
				1	85	0	0		
			HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	MOLALLA RIVER MS SOUTH			MOLALLA RIVER MS SOUTH			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
4:00 PM	0	0	0	0	0	0	0	11	0	0	6	0	17	171	34
4:05 PM	0	0	0	0	0	0	0	4	0	0	6	0	10	174	33
4:10 PM	0	0	0	0	0	0	0	2	0	0	5	0	7	173	41
4:15 PM	0	0	0	0	0	0	1	6	0	0	9	0	16	177	56
4:20 PM	0	0	0	0	0	0	0	7	0	0	10	1	18	172	57
4:25 PM	0	0	1	0	0	0	0	8	0	0	11	2	22	165	56
4:30 PM	0	0	0	0	0	0	0	3	0	0	14	0	17	152	49
4:35 PM	0	0	0	0	0	0	0	12	0	0	5	0	17	148	44
4:40 PM	0	0	0	0	0	0	0	7	0	0	8	0	15	145	35
4:45 PM	0	0	0	0	0	0	0	7	0	0	5	0	12	145	32
4:50 PM	0	0	0	0	0	0	0	6	0	0	2	0	8	143	40
4:55 PM	0	0	0	0	0	0	0	7	0	0	5	0	12	147	41
5:00 PM	0	0	0	0	0	0	0	8	0	0	12	0	20	145	40
5:05 PM	0	0	0	0	0	0	0	6	0	0	3	0	9		31
5:10 PM	0	0	0	0	0	0	0	8	0	0	3	0	11		33
5:15 PM	0	0	0	0	0	0	0	7	0	0	4	0	11		31
5:20 PM	0	0	0	0	0	0	0	7	0	0	4	0	11		33
5:25 PM	0	0	0	0	0	0	0	6	0	0	3	0	9		36
5:30 PM	1	0	0	0	0	0	0	9	0	0	3	0	13		42
5:35 PM	0	0	0	0	0	0	0	10	0	0	4	0	14		39
5:40 PM	0	0	0	0	0	0	0	10	0	0	5	0	15		37
5:45 PM	0	0	0	0	0	0	0	4	0	0	6	0	10		32
5:50 PM	0	0	0	0	0	0	0	9	0	0	3	0	12		
5:55 PM	0	0	0	0	0	0	0	8	0	0	2	0	10		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	1	0	0	0	1	81	0	0	82	2	167
Mediums	0	0	0	0	0	0	0	4	0	0	5	1	10
Total	0	0	1	0	0	0	1	85	0	0	87	3	177
Pedestrians		9			0			0			2		11
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		5.6%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%
Peak Hour Factor (PHF)		0.25			#DIV/0!			1.19			0.59		0.78
Peak Hour Factor (PHF)	#DIV/0!	#DIV/0!	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.18	#DIV/0!	#DIV/0!	0.62	0.25	0.78

All Traffic Data Services

2 LEROY AVE & WEST LN Noon
Thursday, January 16, 2025

Peak Hour
4:05 PM - 5:05 PM
Peak 15-Minutes
4:20 PM - 4:35 PM

GENERAL PEAK HOUR - EVENING

PHF	0.75		0.0%	0.0%	0.0%	HV		
		0	9	71	12			
HV		Bikes	Right	Thru	Left	Bikes	0	
0.0%	11	Left		0		Right	7	0.0%
0.0%	6	Thru	10	Peds	1	Thru	0	0.0%
0.0%	6	Right		8		Left	13	0.0%
	0	Bikes	Left	Thru	Right	Bikes		HV
			3	59	12	0		
		HV	0.0%	0.0%	0.0%			

Traffic Counts - All Vehicles

	WEST LN Eastbound			WEST LN Westbound			LEROY AVE Northbound			LEROY AVE Southbound					
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
4:00 PM	1	0	0	1	0	0	0	10	1	0	5	1	19	207	42
4:05 PM	0	1	0	1	0	1	0	3	1	1	5	0	13	210	41
4:10 PM	0	1	0	0	0	1	0	1	2	1	4	0	10	207	52
4:15 PM	0	0	0	2	0	0	0	7	0	1	5	3	18	210	67
4:20 PM	2	1	2	2	0	1	2	4	0	1	8	1	24	206	70
4:25 PM	4	1	3	1	0	2	0	2	1	3	8	0	25	196	66
4:30 PM	0	1	1	0	0	0	0	3	2	3	9	2	21	181	57
4:35 PM	0	0	0	2	0	1	0	11	1	1	4	0	20	173	51
4:40 PM	2	0	0	1	0	0	0	5	0	0	6	2	16	167	43
4:45 PM	0	0	0	2	0	0	0	6	1	1	4	0	15	167	41
4:50 PM	1	1	0	1	0	0	0	5	2	0	2	0	12	164	48
4:55 PM	1	0	0	0	0	0	1	6	1	0	5	0	14	165	46
5:00 PM	1	0	0	1	0	1	0	6	1	0	11	1	22	163	45
5:05 PM	0	0	0	0	0	0	0	7	0	0	3	0	10		37
5:10 PM	0	0	0	2	0	0	0	7	0	0	3	1	13		41
5:15 PM	1	1	0	1	1	0	0	6	1	0	2	1	14		38
5:20 PM	0	2	0	0	0	0	1	7	0	1	3	0	14		37
5:25 PM	0	0	0	0	0	0	0	6	0	0	4	0	10		37
5:30 PM	0	1	0	0	0	1	0	8	1	0	2	0	13		43
5:35 PM	0	0	0	0	0	0	0	10	0	0	4	0	14		42
5:40 PM	1	1	0	0	0	1	0	8	0	0	4	1	16		41
5:45 PM	0	1	0	1	0	0	0	4	0	0	6	0	12		37
5:50 PM	0	0	0	1	0	0	0	9	0	0	2	1	13		
5:55 PM	0	0	0	0	1	1	0	7	1	0	1	1	12		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	10	6	6	11	0	5	3	57	11	10	68	9	196
Mediums	1	0	0	2	0	2	0	2	1	2	3	0	13
Total	11	6	6	13	0	7	3	59	12	12	71	9	209
Pedestrians		10			1			8			0		19
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		1			0			0			0		1
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		6.2%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.2%
Peak Hour Factor (PHF)		0.38			0.83			1.32			0.66		0.75
Peak Hour Factor (PHF)	0.46	0.50	0.25	1.08	#DIV/0!	0.58	0.38	1.64	1.00	0.43	0.71	0.75	0.75

All Traffic Data Services

GENERAL PEAK HOUR - EVENING

1 LEROY AVE & W MAIN ST AM
Thursday, January 16, 2025

Peak Hour
4:00 PM - 5:00 PM
Peak 15-Minutes
4:25 PM - 4:40 PM

PHF	0.92		0.0%	0.0%	0.0%	HV			
		0	56	2	17				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	43	Left		2		Right	28	0.0%	
1.1%	543	Thru	6	Peds	0	Thru	502	1.4%	
0.0%	27	Right		0		Left	57	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			13	3	59	0			
		HV	7.7%	0.0%	0.0%				

Traffic Counts - All Vehicles

	W MAIN ST			W MAIN ST			LEROY AVE			LEROY AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling 15
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	Min
4:00 PM	8	48	2	5	48	1	3	0	7	0	0	5	127	1,350	350
4:05 PM	1	48	3	4	45	4	1	0	5	0	1	4	116	1,325	338
4:10 PM	1	40	1	4	55	1	0	0	2	1	0	2	107	1,319	338
4:15 PM	4	47	3	1	40	4	3	1	4	3	1	4	115	1,320	350
4:20 PM	3	37	4	7	49	2	0	1	5	0	0	8	116	1,304	364
4:25 PM	1	56	1	5	36	2	1	0	4	5	0	8	119	1,293	367
4:30 PM	5	47	2	6	51	1	1	0	5	2	0	9	129	1,284	332
4:35 PM	11	50	1	3	44	1	2	0	3	0	0	4	119	1,248	313
4:40 PM	1	31	2	8	30	1	0	0	5	2	0	4	84	1,226	296
4:45 PM	4	47	2	7	34	2	1	1	7	1	0	4	110	1,241	318
4:50 PM	2	48	3	5	34	4	1	0	4	1	0	0	102	1,231	310
4:55 PM	2	44	3	2	36	5	0	0	8	2	0	4	106	1,223	318
5:00 PM	3	40	2	10	30	2	1	1	4	4	1	4	102	1,217	320
5:05 PM	6	47	2	2	43	0	1	0	3	3	1	2	110		317
5:10 PM	3	43	2	5	39	5	2	1	6	1	0	1	108		312
5:15 PM	0	41	4	5	37	1	4	2	2	0	0	3	99		314
5:20 PM	6	47	4	7	33	0	0	0	4	1	1	2	105		308
5:25 PM	1	44	2	7	44	4	2	0	3	1	1	1	110		300
5:30 PM	7	33	1	4	34	3	5	0	4	1	0	1	93		289
5:35 PM	5	38	1	4	35	6	0	1	4	0	1	2	97		296
5:40 PM	4	42	2	0	32	3	1	3	6	0	0	6	99		293
5:45 PM	2	34	3	4	42	3	1	1	5	1	0	4	100		294
5:50 PM	5	45	1	0	31	1	2	0	4	2	0	3	94		
5:55 PM	4	40	6	2	36	2	1	0	7	0	0	2	100		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	6	0	0	7	0	1	0	0	0	0	0	14
Lights	43	527	27	56	483	25	11	3	59	16	2	53	1,305
Mediums	0	10	0	1	12	3	1	0	0	1	0	3	31
Total	43	543	27	57	502	28	13	3	59	17	2	56	1,350
Pedestrians		6			0			0			2		8
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk		0			0			0			0		0
Heavy Vehicle Percentage		1.0%			1.2%			1.3%			0.0%		3.3%
Heavy Vehicle Percentage	0.0%	1.1%	0.0%	0.0%	1.4%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
Peak Hour Factor (PHF)		0.88			0.98			1.17			0.67		0.92
Peak Hour Factor (PHF)	0.63	0.89	1.69	1.02	0.96	1.75	0.81	#DIV/0!	1.23	0.61	#DIV/0!	0.67	0.92

All Traffic Data Services

4 N MOLALLA AVE & TOLIVER ROAD Noon
Tuesday, April 15, 2025

Peak Hour
05:00 PM - 06:00 PM
Peak 15-Minutes
05:25 PM - 05:40 PM

GENERAL PEAK HOUR - EVENING

PHF	0.88		0.0%	0.0%	0.0%	HV			
		2	57	228	0				
HV		Bikes	Right	Thru	Left	Bikes	0		
0.0%	41	Left		0		Right	0	0.0%	
0.0%	0	Thru	0	Peds	8	Thru	0	0.0%	
0.0%	159	Right		2		Left	0	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			114	166	0	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	TOLIVER ROAD			TOLIVER ROAD			N MOLALLA AVE			N MOLALLA AVE					
	Eastbound			Westbound			Northbound			Southbound				Rolling	Rolling
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	15 Min
4:00 PM	1	0	12	0	0	0	13	9	0	0	13	6	54	692	175
4:05 PM	4	0	13	0	0	0	14	15	0	0	15	4	65	691	166
4:10 PM	6	0	9	0	0	0	9	12	0	0	17	3	56	692	158
4:15 PM	3	0	8	0	0	0	5	10	0	0	15	4	45	682	165
4:20 PM	4	0	13	0	0	0	7	10	0	0	18	5	57	694	172
4:25 PM	6	0	14	0	0	0	8	18	0	0	13	4	63	700	189
4:30 PM	3	0	13	0	0	0	8	14	0	0	8	6	52	717	181
4:35 PM	6	0	14	0	0	0	15	15	0	0	20	4	74	733	181
4:40 PM	1	0	9	0	0	0	9	11	0	0	21	4	55	728	171
4:45 PM	3	0	10	0	0	0	12	8	0	0	17	2	52	740	171
4:50 PM	5	0	13	0	0	0	14	15	0	0	11	6	64	751	172
4:55 PM	8	0	12	0	0	0	8	9	0	0	15	3	55	754	174
5:00 PM	2	0	7	0	0	0	7	15	0	0	18	4	53	765	165
5:05 PM	3	0	19	0	0	0	13	17	0	0	12	2	66		169
5:10 PM	2	0	11	0	0	0	10	7	0	0	14	2	46		166
5:15 PM	2	0	21	0	0	0	5	11	0	0	14	4	57		200
5:20 PM	5	0	13	0	0	0	7	11	0	0	20	7	63		211
5:25 PM	6	0	14	0	0	0	16	13	0	0	25	6	80		217
5:30 PM	2	0	16	0	0	0	3	14	0	0	24	9	68		204
5:35 PM	2	0	14	0	0	0	9	16	0	0	24	4	69		199
5:40 PM	2	0	13	0	0	0	13	18	0	0	17	4	67		197
5:45 PM	6	0	10	0	0	0	8	13	0	0	22	4	63		196
5:50 PM	6	0	13	0	0	0	13	17	0	0	12	6	67		
5:55 PM	3	0	8	0	0	0	10	14	0	0	26	5	66		

Peak Rolling Hour Flow Rates

	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	41	0	158	0	0	0	112	166	0	0	225	57	759
Mediums	0	0	1	0	0	0	2	0	0	0	3	0	6
Total	41	0	159	0	0	0	114	166	0	0	228	57	765
Pedestrians		0			8			2			0		10
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	1	1	2
Bicycles on Crosswalk		2			0			1			0		3
Heavy Vehicle Percentage		0.0%			0.0%			0.0%			0.0%		0.8%
Heavy Vehicle Percentage	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Peak Hour Factor (PHF)		0.93			#DIV/0!			0.99			0.77		0.88
Peak Hour Factor (PHF)	1.03	#DIV/0!	0.90	#DIV/0!	#DIV/0!	#DIV/0!	1.02	0.97	#DIV/0!	#DIV/0!	0.78	0.75	0.88

All Traffic Data Services

3 S MOLALLA AVE & OR 211 Noon
Tuesday, April 15, 2025

Peak Hour
04:45 PM - 05:45 PM
Peak 15-Minutes
05:15 PM - 05:30 PM

GENERAL PEAK HOUR - EVENING

PHF	0.94		0.0%	0.0%	0.0%	HV			
		4	84	103	73				
HV		Bikes	Right	Thru	Left	Bikes	0		
1.7%	60	Left		10		Right	42	0.0%	
0.2%	405	Thru	8	Peds	8	Thru	412	0.0%	
0.0%	108	Right		3		Left	15	0.0%	
	0	Bikes	Left	Thru	Right	Bikes		HV	
			69	77	18	0			
		HV	0.0%	0.0%	0.0%				

Traffic Counts - All Vehicles

	OR 211 Eastbound			OR 211 Westbound			S MOLALLA AVE Northbound			N MOLALLA AVE Southbound					
Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Rolling Hour	Rolling 15 Min
4:00 PM	2	34	2	0	33	1	9	7	0	8	14	9	119	1,405	365
4:05 PM	7	36	3	2	46	3	2	6	0	6	12	6	129	1,411	374
4:10 PM	5	40	3	0	43	3	5	6	1	3	4	4	117	1,401	356
4:15 PM	4	32	7	1	51	3	2	6	2	8	7	5	128	1,380	367
4:20 PM	4	33	4	2	29	3	12	7	1	3	9	4	111	1,387	338
4:25 PM	6	32	8	4	46	5	5	6	0	4	6	6	128	1,408	331
4:30 PM	3	39	4	0	32	4	0	5	0	2	6	4	99	1,402	312
4:35 PM	4	33	3	0	26	4	8	8	1	2	11	4	104	1,434	343
4:40 PM	2	35	7	0	29	3	8	5	2	3	10	5	109	1,456	361
4:45 PM	6	31	13	1	35	2	4	7	1	8	7	15	130	1,466	361
4:50 PM	5	27	7	2	38	2	8	10	1	6	11	5	122	1,449	356
4:55 PM	6	29	8	0	34	1	4	7	2	4	9	5	109	1,436	353
5:00 PM	7	39	10	1	38	2	4	5	1	7	7	4	125	1,452	340
5:05 PM	4	30	9	1	44	3	3	4	1	4	9	7	119		350
5:10 PM	2	26	7	2	24	4	7	6	0	4	7	7	96		363
5:15 PM	5	52	12	1	37	3	5	2	2	3	5	8	135		389
5:20 PM	2	33	11	1	39	3	10	5	2	11	9	6	132		385
5:25 PM	4	40	7	1	33	7	6	10	0	3	6	5	122		379
5:30 PM	10	42	12	3	25	6	3	4	2	7	10	7	131		376
5:35 PM	4	29	8	1	27	5	10	11	3	10	12	6	126		358
5:40 PM	5	27	4	1	38	4	5	6	3	6	11	9	119		341
5:45 PM	5	34	11	1	25	1	4	9	1	3	10	9	113		347
5:50 PM	3	36	11	1	28	2	5	5	0	7	8	3	109		
5:55 PM	4	31	9	3	34	7	8	5	6	4	7	7	125		

Peak Rolling Hour Flow Rates

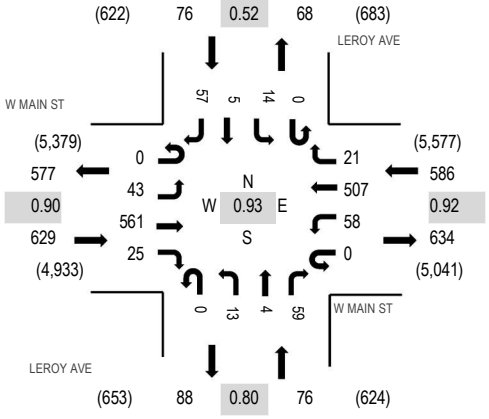
	Eastbound			Westbound			Northbound			Southbound			
Vehicle Type	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Articulated Trucks	1	1	0	0	0	0	0	0	0	0	0	0	2
Lights	56	398	107	15	408	42	67	76	18	73	102	84	1,446
Mediums	3	6	1	0	4	0	2	1	0	0	1	0	18
Total	60	405	108	15	412	42	69	77	18	73	103	84	1,466
Pedestrians		8			8			3			10		29
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	4	0	4
Bicycles on Crosswalk		3			1			2			2		8
Heavy Vehicle Percentage		0.3%			0.0%			0.0%			0.0%		1.4%
Heavy Vehicle Percentage	1.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
Peak Hour Factor (PHF)		0.86			0.94			0.98			1.16		0.94
Peak Hour Factor (PHF)	1.36	0.81	0.90	1.25	0.94	0.81	0.82	1.13	1.13	1.07	1.29	1.11	0.94

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

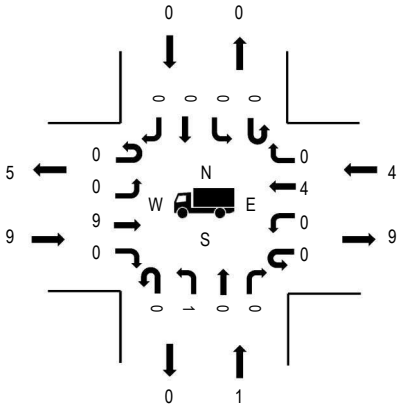
Location: 1 LEROY AVE & W MAIN ST AM
Date: Thursday, January 16, 2025
Peak Hour: 03:45 PM - 04:45 PM
Peak 15-Minutes: 04:25 PM - 04:40 PM

Peak Hour

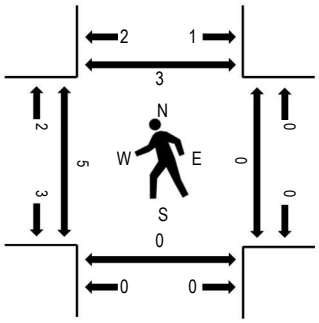
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.4%	0.90
WB	0.7%	0.92
NB	1.3%	0.80
SB	0.0%	0.52
All	1.0%	0.93

Traffic Counts - Motorized Vehicles

Interval Start Time	W MAIN ST Eastbound				W MAIN ST Westbound				LEROY AVE Northbound				LEROY AVE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
6:00 AM	0	2	17	0	0	0	25	0	0	2	0	0	0	1	0	4	51	618
6:05 AM	0	0	14	0	0	0	24	1	0	1	0	1	0	1	0	1	43	613
6:10 AM	0	0	11	0	0	0	29	0	0	3	0	0	0	2	0	1	46	645
6:15 AM	0	1	15	0	0	0	20	1	0	0	0	0	0	0	0	1	38	667
6:20 AM	0	0	13	0	0	0	25	1	0	2	0	0	0	2	0	3	46	713
6:25 AM	0	4	12	0	0	2	26	0	0	1	0	1	0	2	0	0	48	751
6:30 AM	0	0	15	0	0	0	36	0	0	1	1	1	0	1	0	1	56	782
6:35 AM	0	2	17	0	0	1	30	2	0	0	0	0	0	0	0	2	54	805
6:40 AM	0	0	22	1	0	1	23	1	0	1	0	0	0	2	0	1	52	830
6:45 AM	0	0	32	1	0	0	23	1	0	1	1	1	0	0	0	2	62	844
6:50 AM	0	2	20	1	0	2	28	3	0	1	0	0	0	2	0	2	61	841
6:55 AM	0	1	17	1	0	0	34	4	0	1	0	1	0	1	0	1	61	845
7:00 AM	0	1	18	0	0	0	22	3	0	0	0	0	0	1	0	1	46	847
7:05 AM	0	5	27	0	0	0	29	3	0	1	0	1	0	6	0	3	75	843
7:10 AM	0	4	20	0	0	0	33	3	0	0	0	0	0	2	0	6	68	830
7:15 AM	0	6	27	0	0	0	27	6	0	0	0	2	0	5	0	11	84	820
7:20 AM	0	5	22	0	0	0	30	11	0	0	0	0	0	5	1	10	84	796
7:25 AM	0	0	25	0	0	0	33	6	0	0	0	0	0	4	0	11	79	766
7:30 AM	0	2	26	1	0	0	37	4	0	0	0	0	0	3	0	6	79	743
7:35 AM	0	3	27	0	0	0	37	3	0	1	0	0	0	3	0	5	79	727
7:40 AM	0	0	34	0	0	0	24	2	0	1	0	0	0	3	0	2	66	709
7:45 AM	0	0	24	0	0	0	31	1	0	0	0	0	0	0	0	3	59	706
7:50 AM	0	1	27	2	0	1	32	1	0	0	0	1	0	0	0	0	65	729
7:55 AM	0	0	25	0	0	1	31	3	0	1	0	1	0	0	0	1	63	736
8:00 AM	0	0	13	0	0	0	27	0	0	0	0	0	0	1	0	1	42	725
8:05 AM	0	2	29	0	0	2	28	1	0	0	0	0	0	0	0	0	62	777
8:10 AM	0	2	25	1	0	1	24	3	0	0	0	0	0	0	1	1	58	795
8:15 AM	0	0	18	0	0	2	36	1	0	0	0	1	0	1	0	1	60	815

8:20 AM	0	1	19	0	0	1	31	0	0	1	0	1	0	0	0	0	54	820
8:25 AM	0	1	26	0	0	0	24	0	0	0	0	2	0	0	0	3	56	844
8:30 AM	0	3	25	0	0	1	29	2	0	1	0	1	0	0	0	1	63	839
8:35 AM	0	1	16	0	0	6	31	4	0	0	0	2	0	1	0	0	61	833
8:40 AM	0	1	17	1	0	0	28	4	0	0	3	2	0	1	1	5	63	838
8:45 AM	0	2	25	1	0	1	42	2	0	0	0	2	0	0	0	7	82	838
8:50 AM	0	4	22	1	0	1	35	2	0	0	2	2	0	1	0	2	72	816
8:55 AM	0	1	22	1	0	1	17	2	0	1	1	0	0	1	2	3	52	820
9:00 AM	0	3	41	1	0	1	34	5	0	0	3	1	0	0	0	5	94	840
9:05 AM	0	4	33	1	0	1	27	6	0	0	1	0	0	1	3	3	80	804
9:10 AM	0	2	25	3	0	2	32	6	0	1	1	3	0	1	0	2	78	784
9:15 AM	0	3	20	1	0	2	27	8	0	2	0	2	0	0	0	0	65	771
9:20 AM	0	3	28	1	0	2	38	3	0	1	1	0	0	0	0	1	78	776
9:25 AM	0	2	16	0	0	3	24	4	0	0	0	1	0	0	0	1	51	780
9:30 AM	0	2	17	1	0	3	22	3	0	2	0	4	0	0	0	3	57	794
9:35 AM	0	2	26	2	0	3	31	0	0	0	0	0	0	1	0	1	66	806
9:40 AM	0	1	29	0	0	3	25	2	0	0	0	1	0	0	1	1	63	822
9:45 AM	0	0	24	0	0	2	24	0	0	1	0	4	0	2	0	3	60	826
9:50 AM	0	1	24	1	0	1	36	2	0	2	0	1	0	3	1	4	76	835
9:55 AM	0	2	23	1	0	4	24	2	0	0	0	1	0	5	0	10	72	819
10:00 AM	0	0	21	1	0	0	29	1	0	3	0	0	0	1	0	2	58	813
10:05 AM	0	1	19	0	0	1	33	0	0	2	0	3	0	1	0	0	60	836
10:10 AM	0	1	27	1	0	3	25	2	0	0	1	1	0	1	1	2	65	853
10:15 AM	0	2	25	0	0	1	27	1	0	0	0	4	0	5	2	3	70	860
10:20 AM	0	1	33	0	0	2	38	0	0	0	0	2	0	2	0	4	82	865
10:25 AM	0	0	25	1	0	4	27	1	0	0	0	3	0	3	1	0	65	870
10:30 AM	0	1	27	1	0	2	29	0	0	2	1	3	0	1	0	2	69	877
10:35 AM	0	1	21	1	0	6	39	2	0	0	0	5	0	1	0	6	82	875
10:40 AM	0	0	33	0	0	4	25	2	0	1	0	1	0	0	0	1	67	867
10:45 AM	0	1	28	1	0	4	30	2	0	1	2	0	0	0	0	0	69	866
10:50 AM	0	1	22	1	0	0	29	1	0	2	1	2	0	0	0	1	60	869
10:55 AM	0	1	17	0	0	6	36	2	0	0	1	1	0	0	1	1	66	904
11:00 AM	0	0	30	2	0	5	37	1	0	1	0	5	0	0	0	0	81	929
11:05 AM	0	1	27	1	0	4	36	0	0	0	1	4	0	0	0	3	77	940
11:10 AM	0	3	22	1	0	1	35	3	0	0	2	1	0	0	1	3	72	952
11:15 AM	0	1	26	2	0	0	32	3	0	0	2	5	0	1	0	3	75	968
11:20 AM	0	1	25	1	0	7	41	2	0	0	1	2	0	1	1	5	87	983
11:25 AM	0	2	23	2	0	4	32	2	0	1	0	2	0	2	1	1	72	988
11:30 AM	0	0	27	2	0	2	27	1	0	2	0	2	0	1	0	3	67	1,003
11:35 AM	0	2	26	1	0	2	35	2	0	2	0	1	0	0	0	3	74	1,023
11:40 AM	0	1	28	0	0	3	26	2	0	0	0	3	0	1	0	2	66	1,027
11:45 AM	0	1	33	0	0	2	23	3	0	2	1	2	0	1	0	4	72	1,066
11:50 AM	0	0	43	3	0	7	37	1	0	0	0	2	0	1	0	1	95	1,070
11:55 AM	0	5	40	1	0	6	27	1	0	3	0	4	0	1	1	2	91	1,055
12:00 PM	0	3	33	0	0	7	36	1	0	5	1	2	0	1	0	3	92	1,045
12:05 PM	0	1	36	3	0	6	37	1	0	0	0	3	0	0	0	2	89	1,009
12:10 PM	0	3	35	0	0	6	28	2	0	2	1	4	0	1	2	4	88	989
12:15 PM	0	1	29	1	0	2	45	2	0	2	0	4	0	1	1	2	90	978
12:20 PM	0	1	40	0	0	8	34	1	0	1	0	5	0	0	1	1	92	956
12:25 PM	0	4	26	1	0	3	47	1	0	0	1	2	0	0	0	2	87	942
12:30 PM	0	2	26	0	0	3	32	4	0	6	1	9	0	0	1	3	87	939
12:35 PM	0	1	20	0	0	4	43	2	0	1	1	4	0	0	1	1	78	935
12:40 PM	0	0	48	0	0	3	48	2	0	0	0	3	0	1	0	0	105	958
12:45 PM	0	1	32	1	0	2	33	1	0	2	0	1	0	1	0	2	76	934
12:50 PM	0	0	35	2	0	4	29	2	0	2	0	2	0	1	0	3	80	931
12:55 PM	0	1	42	1	0	6	24	0	0	0	0	5	0	0	0	2	81	940
1:00 PM	0	0	21	1	0	6	20	0	0	3	1	1	0	0	0	3	56	953
1:05 PM	0	0	31	4	0	1	23	3	0	3	0	3	0	0	0	1	69	989
1:10 PM	0	0	11	2	0	5	48	2	0	2	0	4	0	1	1	1	77	1,004
1:15 PM	0	4	24	0	0	2	32	0	0	0	0	2	0	0	1	3	68	1,017
1:20 PM	0	0	28	2	0	2	38	1	0	0	0	3	0	1	0	3	78	1,031

1:25 PM	0	1	36	2	0	3	33	1	0	0	0	7	0	0	0	1	84	1,070
1:30 PM	0	2	40	0	0	4	30	1	0	0	0	3	0	0	1	2	83	1,084
1:35 PM	0	5	42	2	0	10	30	0	0	0	3	4	0	0	0	5	101	1,094
1:40 PM	0	1	39	1	0	3	25	1	0	1	0	6	0	3	0	1	81	1,095
1:45 PM	0	2	30	0	0	5	29	0	0	0	0	5	0	1	0	1	73	1,111
1:50 PM	0	3	31	1	0	4	35	4	0	0	0	5	0	1	1	4	89	1,126
1:55 PM	0	2	36	1	0	4	30	9	0	2	0	3	0	1	0	6	94	1,140
2:00 PM	0	1	31	4	0	1	43	3	0	1	1	4	0	0	0	3	92	1,146
2:05 PM	0	3	37	0	0	3	23	5	0	0	0	9	0	0	1	3	84	1,150
2:10 PM	0	1	35	0	0	1	40	5	0	0	0	4	0	1	1	2	90	1,175
2:15 PM	0	2	25	0	0	3	43	6	0	0	1	0	0	1	0	1	82	1,202
2:20 PM	0	8	45	0	0	2	42	1	0	2	0	4	0	4	0	9	117	1,208
2:25 PM	0	2	43	0	0	1	32	2	0	0	0	5	0	2	0	11	98	1,202
2:30 PM	0	0	36	2	0	4	40	3	0	0	0	2	0	2	1	3	93	1,222
2:35 PM	0	1	46	1	0	3	44	1	0	0	0	3	0	1	1	1	102	1,252
2:40 PM	0	1	33	1	0	2	49	2	0	0	0	4	0	0	0	5	97	1,253
2:45 PM	0	0	36	1	0	7	38	1	0	1	0	2	0	0	1	1	88	1,229
2:50 PM	0	2	34	1	0	4	44	5	0	4	2	4	0	0	0	3	103	1,265
2:55 PM	0	2	37	4	0	9	37	1	0	0	0	3	0	0	1	6	100	1,276
3:00 PM	0	7	34	4	0	6	28	2	0	3	2	5	0	1	0	4	96	1,273
3:05 PM	0	2	34	2	0	4	49	3	0	4	1	5	0	1	0	4	109	1,304
3:10 PM	0	3	39	1	0	7	49	7	0	0	0	8	0	0	0	3	117	1,311
3:15 PM	0	0	40	2	0	3	36	2	0	0	0	2	0	0	0	3	88	1,301
3:20 PM	0	5	45	4	0	4	35	5	0	0	0	8	0	1	0	4	111	1,328
3:25 PM	0	1	40	4	0	6	44	2	0	3	0	8	0	2	0	8	118	1,333
3:30 PM	0	7	49	3	0	4	42	3	0	0	2	7	0	2	1	3	123	1,334
3:35 PM	0	4	39	0	0	6	38	2	0	1	2	9	0	1	0	1	103	1,340
3:40 PM	0	4	22	1	0	5	26	1	0	1	0	9	0	0	0	4	73	1,356
3:45 PM	0	4	61	1	0	6	39	3	0	0	0	3	0	1	2	4	124	1,367
3:50 PM	0	2	54	1	0	3	43	0	0	1	0	7	0	0	1	2	114	1,353
3:55 PM	0	2	42	4	0	6	27	1	0	1	2	9	0	0	0	3	97	1,341
4:00 PM	0	8	48	2	0	5	48	1	0	3	0	7	0	0	0	5	127	1,350
4:05 PM	0	1	48	3	0	4	45	4	0	1	0	5	0	0	1	4	116	1,325
4:10 PM	0	1	40	1	0	4	55	1	0	0	0	2	0	1	0	2	107	1,319
4:15 PM	0	4	47	3	0	1	40	4	0	3	1	4	0	3	1	4	115	1,320
4:20 PM	0	3	37	4	0	7	49	2	0	0	1	5	0	0	0	8	116	1,304
4:25 PM	0	1	56	1	0	5	36	2	0	1	0	4	0	5	0	8	119	1,293
4:30 PM	0	5	47	2	0	6	51	1	0	1	0	5	0	2	0	9	129	1,284
4:35 PM	0	11	50	1	0	3	44	1	0	2	0	3	0	0	0	4	119	1,248
4:40 PM	0	1	31	2	0	8	30	1	0	0	0	5	0	2	0	4	84	1,226
4:45 PM	0	4	47	2	0	7	34	2	0	1	1	7	0	1	0	4	110	1,241
4:50 PM	0	2	48	3	0	5	34	4	0	1	0	4	0	1	0	0	102	1,231
4:55 PM	0	2	44	3	0	2	36	5	0	0	0	8	0	2	0	4	106	1,223
5:00 PM	0	3	40	2	0	10	30	2	0	1	1	4	0	4	1	4	102	1,217
5:05 PM	0	6	47	2	0	2	43	0	0	1	0	3	0	3	1	2	110	
5:10 PM	0	3	43	2	0	5	39	5	0	2	1	6	0	1	0	1	108	
5:15 PM	0	0	41	4	0	5	37	1	0	4	2	2	0	0	0	3	99	
5:20 PM	0	6	47	4	0	7	33	0	0	0	0	4	0	1	1	2	105	
5:25 PM	0	1	44	2	0	7	44	4	0	2	0	3	0	1	1	1	110	
5:30 PM	0	7	33	1	0	4	34	3	0	5	0	4	0	1	0	1	93	
5:35 PM	0	5	38	1	0	4	35	6	0	0	1	4	0	0	1	2	97	
5:40 PM	0	4	42	2	0	0	32	3	0	1	3	6	0	0	0	6	99	
5:45 PM	0	2	34	3	0	4	42	3	0	1	1	5	0	1	0	4	100	
5:50 PM	0	5	45	1	0	0	31	1	0	2	0	4	0	2	0	3	94	
5:55 PM	0	4	40	6	0	2	36	2	0	1	0	7	0	0	0	2	100	
Count Total	0	300	4,463	170	0	437	4,818	322	0	139	61	424	0	154	46	422	11,756	
Peak Hour	0	43	561	25	0	58	507	21	0	13	4	59	0	14	5	57	1,367	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	2	0	0	0	2	6:00 AM	0	0	0	0	0	6:00 AM	0	0	0	0	0
6:05 AM	0	0	1	0	1	6:05 AM	0	0	0	0	0	6:05 AM	0	0	0	0	0
6:10 AM	2	0	1	0	3	6:10 AM	0	0	0	0	0	6:10 AM	0	0	0	0	0
6:15 AM	4	0	0	0	4	6:15 AM	0	0	0	0	0	6:15 AM	0	0	0	0	0
6:20 AM	2	0	2	0	4	6:20 AM	0	0	0	0	0	6:20 AM	0	0	0	0	0
6:25 AM	1	0	3	0	4	6:25 AM	0	0	0	0	0	6:25 AM	0	0	0	0	0
6:30 AM	0	0	3	0	3	6:30 AM	0	0	0	0	0	6:30 AM	0	0	0	0	0
6:35 AM	0	0	2	0	2	6:35 AM	0	0	0	0	0	6:35 AM	1	0	0	0	1
6:40 AM	0	0	1	0	1	6:40 AM	0	0	0	0	0	6:40 AM	0	0	0	0	0
6:45 AM	2	0	2	0	4	6:45 AM	0	0	0	0	0	6:45 AM	0	0	0	0	0
6:50 AM	2	0	1	0	3	6:50 AM	0	1	0	0	1	6:50 AM	2	0	0	0	2
6:55 AM	1	0	2	0	3	6:55 AM	0	0	0	0	0	6:55 AM	1	0	0	0	1
7:00 AM	1	0	2	0	3	7:00 AM	0	0	0	0	0	7:00 AM	1	0	0	0	1
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7:10 AM	2	0	2	0	4	7:10 AM	0	0	0	0	0	7:10 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	1	0	1	7:20 AM	0	0	0	0	0	7:20 AM	1	0	0	0	1
7:25 AM	1	0	1	0	2	7:25 AM	0	0	0	0	0	7:25 AM	1	0	0	0	1
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7:35 AM	2	0	0	0	2	7:35 AM	0	0	0	0	0	7:35 AM	1	0	0	0	1
7:40 AM	1	0	1	0	2	7:40 AM	0	0	0	1	1	7:40 AM	1	1	0	0	2
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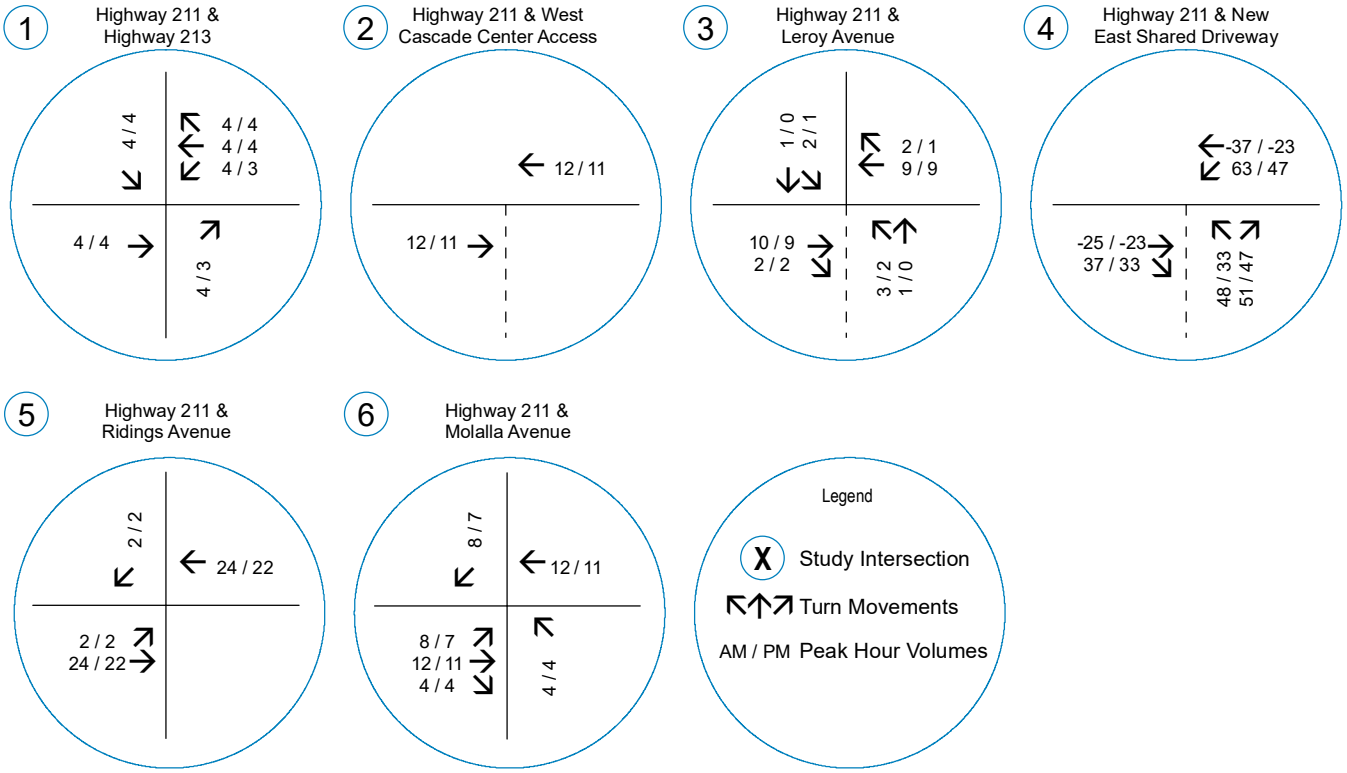
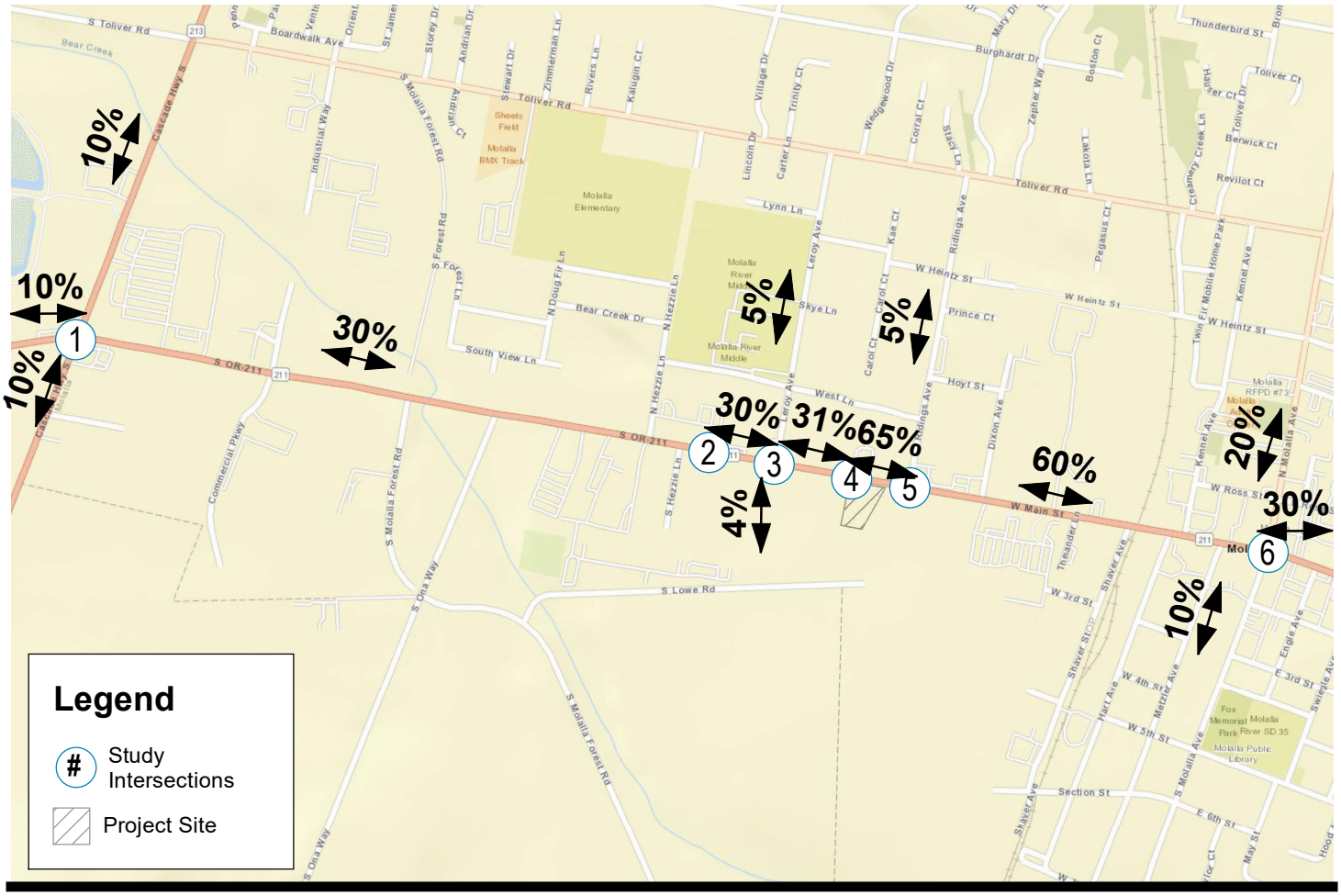
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	169	4	152	0	325	Count Total	1	2	1	1	5	Count Total	87	17	3	25	132
Peak Hour	9	1	4	0	14	Peak Hour	0	0	1	0	1	Peak Hour	5	0	0	3	8



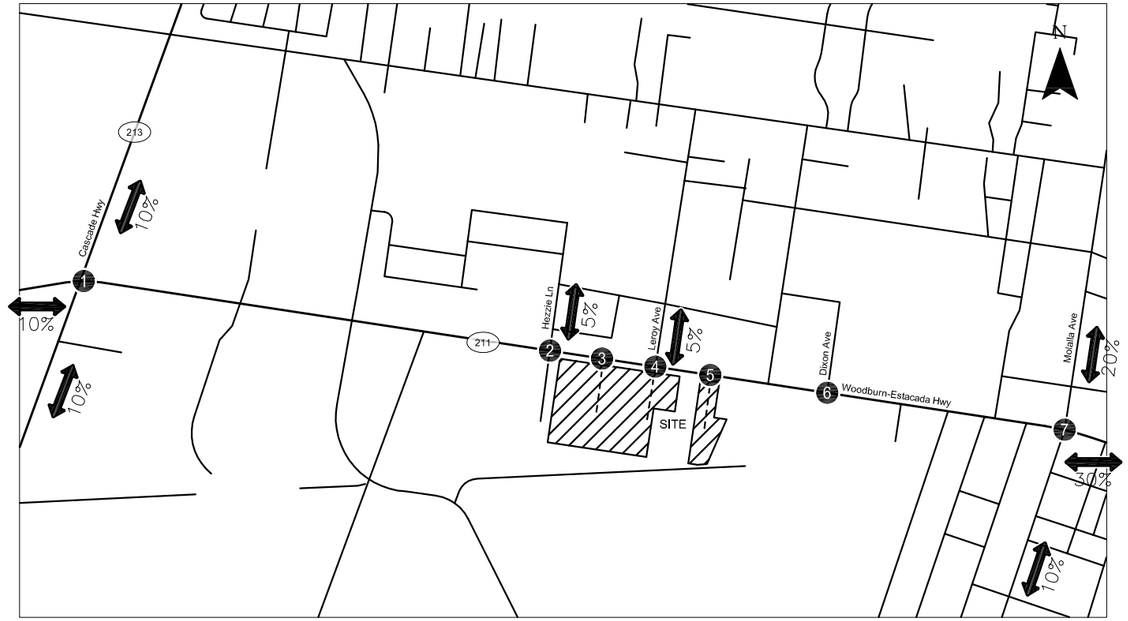


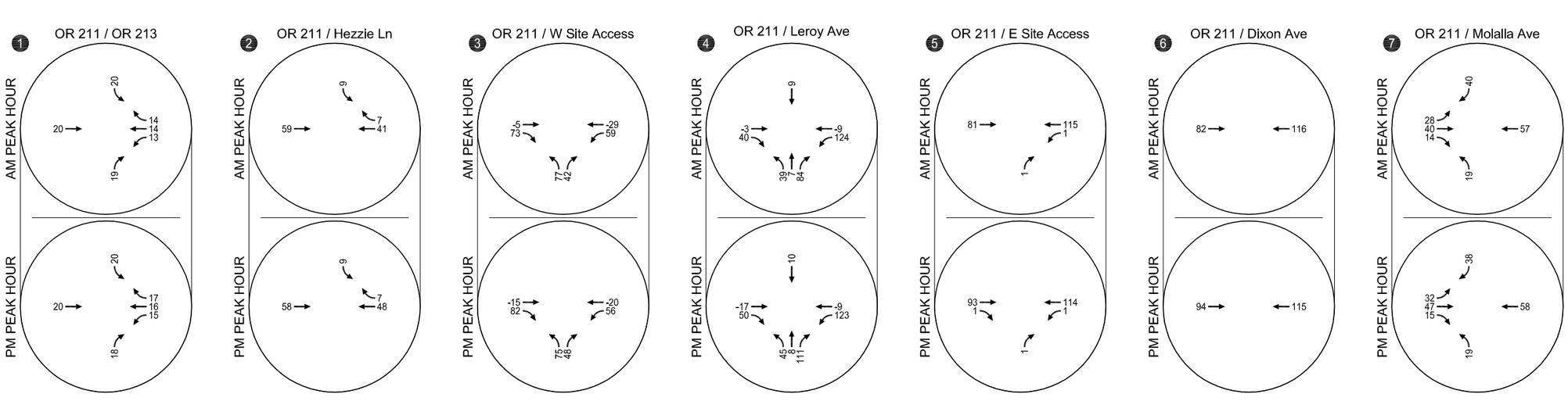
lancaster mobley

TRAFFIC VOLUMES
Trip Distribution & Assignment

NOT TO SCALE

Figure 3
Molalla Petroleum TIS
2/9/202[illegible]



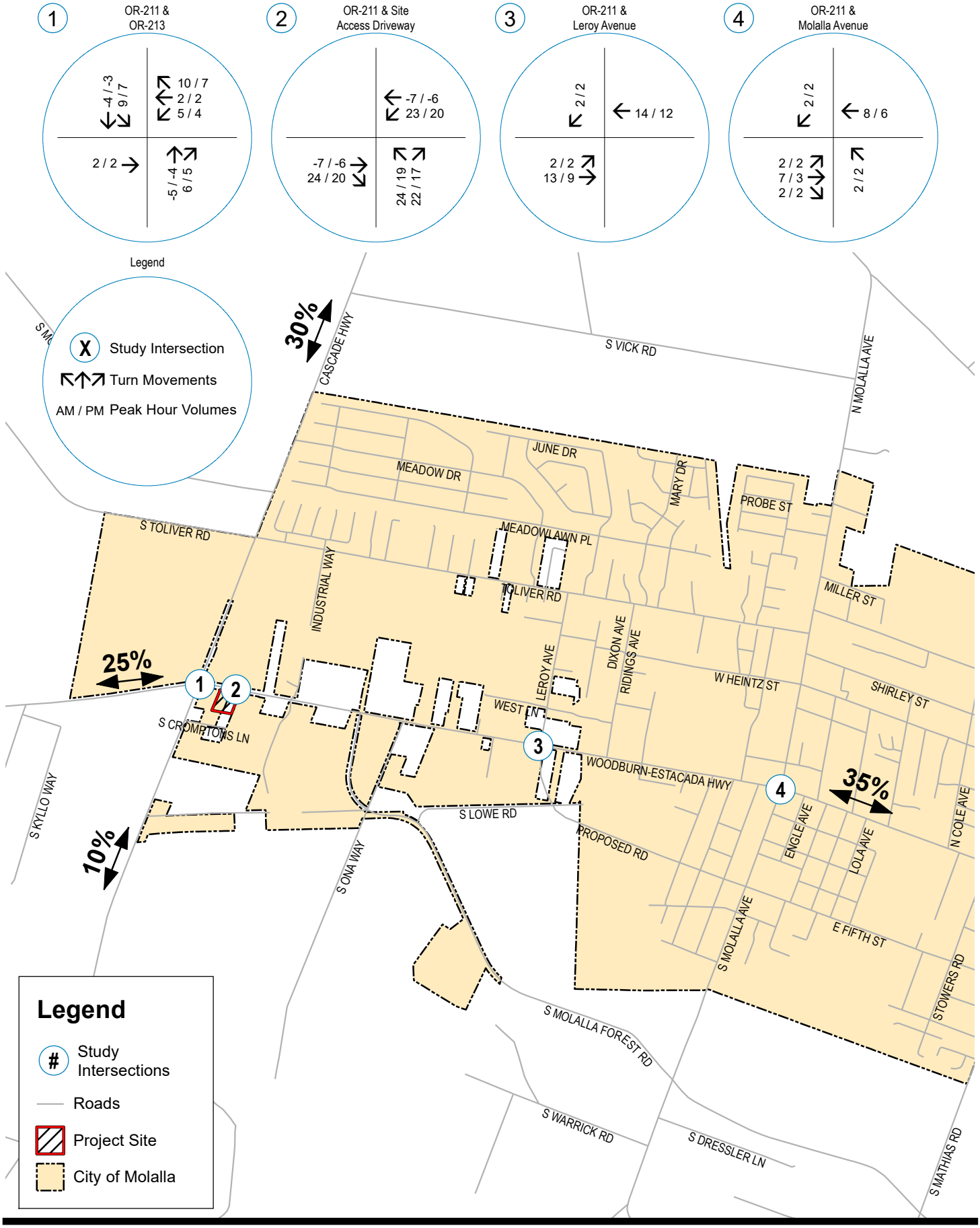


Negative values indicate pass-by trips

Site-Generated Trips
Weekday AM and PM Peak Hours
Molalla, Oregon

Figure
6

H:\23\23301 - Molalla Commercial Project\dwgs\23301_figs.dwg Aug 15, 2019 - 12:41pm - zbugg Layout Tab: 06 TripGen

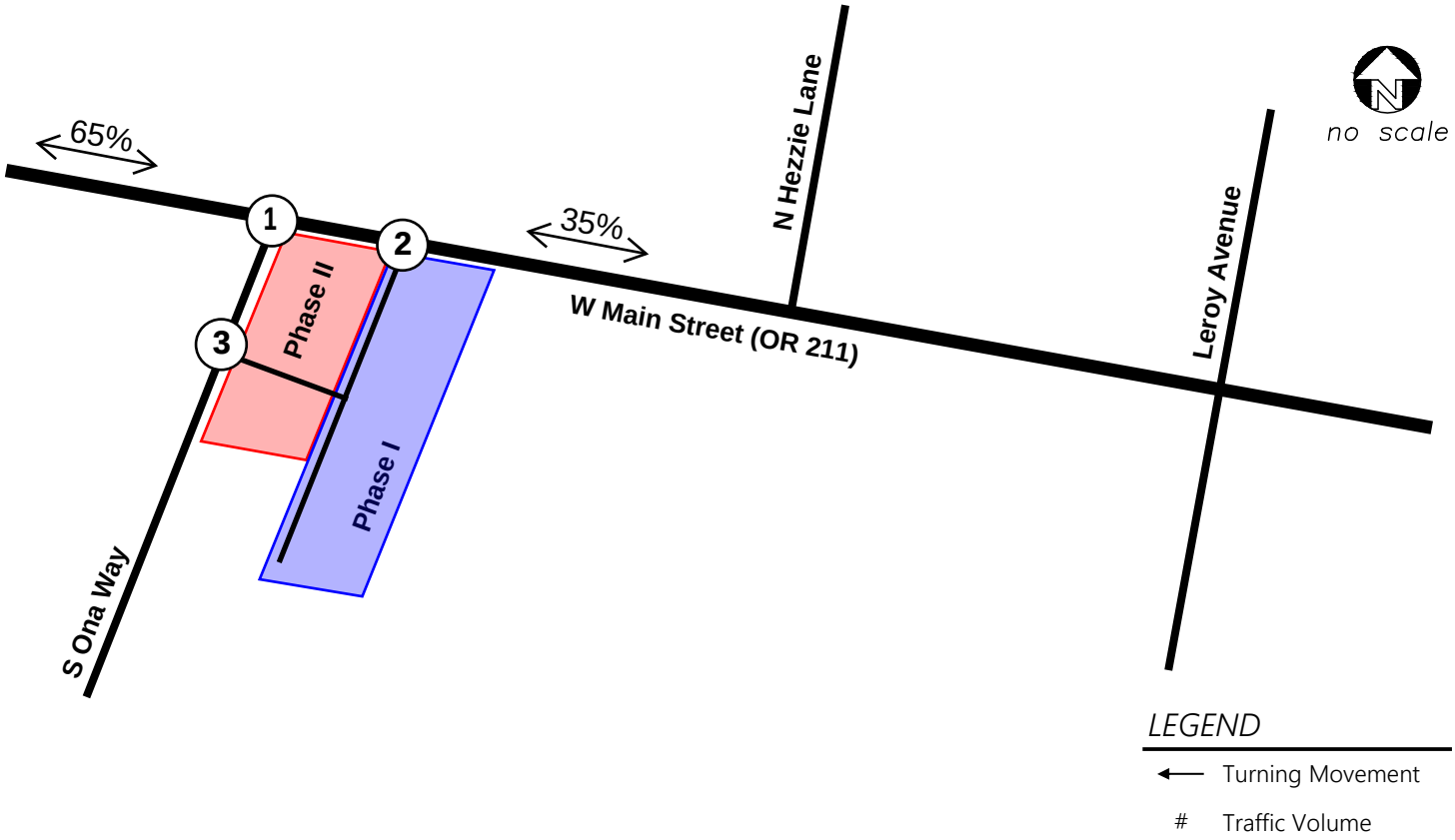


lancaster mobley

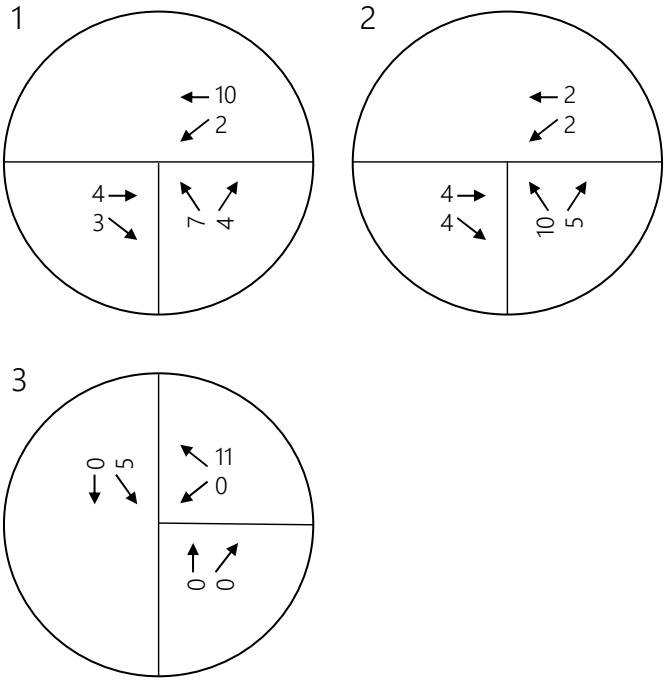
TRAFFIC VOLUMES
Trip Distribution & Assignment
AM & PM Peak Hour

NOT TO SCALE

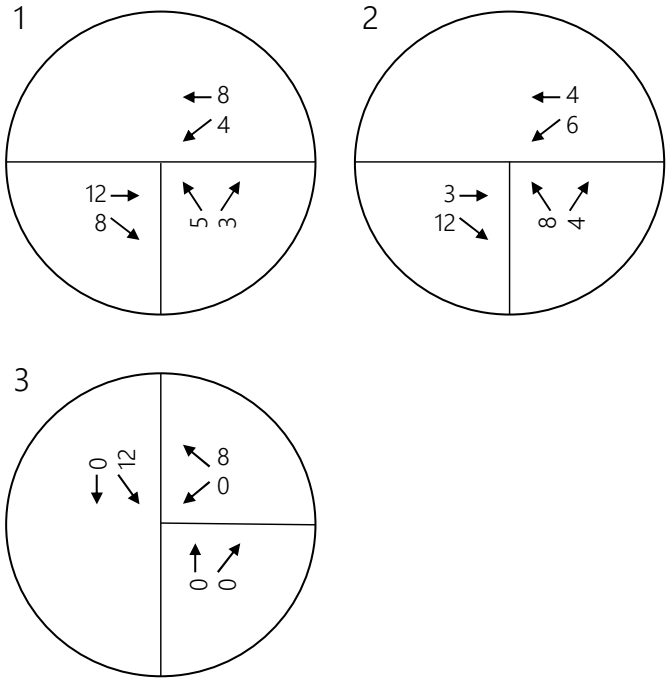
Figure 3
Molalla Dairy Queen TIS
10/11/202



AM PEAK HOUR



PM PEAK HOUR



SITE TRIP DISTRIBUTION & ASSIGNMENT

Figure 3

Home First Molalla Phase II Update

12/13/2022

Figure 3

Kerr Industrial Subdivision

February 28, 2024

SITE TRIP DISTRIBUTION & ASSIGNMENT

AM & PM Peak Hours

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LEGEND

XX% PERCENT OF PROJECT TRIPS

TRIP GENERATION			
	IN	OUT	TOTAL
AM	136	18	154
PM	19	117	136

AM PEAK HOUR

PM PEAK HOUR

Cascade Highway South (OR 213)

W Main Street (OR 211)

Leroy Avenue

Ridings Avenue

Dixon Avenue

Molalla Avenue

W Heintz Street

20%

30%

10%

5%

25%

No Scale

Appendix C - Safety

Crash History Data

Left-Turn Lane Warrant Analysis

Preliminary Signal Warrant Analysis

Detailed Signal Warrant Analysis

CITY OF MOLALLA, CLACKAMAS COUNTY **TOLIVER RD at CASCADE HY SOUTH, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023**

1 - 3 of 14 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES / PED LOC	ERROR	ACT EVENT	CAUSE
00290	N	N	N	N	N	N	01/24/2019	16	CASCADE HY SOUTH	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT									29
STATE			TH						TOLIVER RD	N		NONE	N	DRY	REAR		PRVTE	N -S								000	00
N			7A							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	42	F	OR-Y	026	000	29
N			45 9 21.32	-122 36 13.41					016000100S00															OR<25			
																02	NONE 0	STOP									
																	PRVTE	N -S								012	00
																	PSNGR CAR		01	DRVR	NONE	31	F	OR-Y	000	000	00
																								OR<25			
																02	NONE 0	STOP									
																	PRVTE	N -S								012	00
																	PSNGR CAR		02	PSNG	INJC	09	M		000	000	00
																02	NONE 0	STOP									
																	PRVTE	N -S								012	00
																	PSNGR CAR		03	PSNG	INJC	07	F		000	000	00
04625	N	N	N	N	N	N	12/20/2019	16	CASCADE HY SOUTH	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT									27
CITY			FR						TOLIVER RD	N		STOP SIGN	N	WET	REAR		PRVTE	N -S								000	00
N			5P							06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y	016	038	27
N			45 9 21.33	-122 36 13.42					016000100S00															OR<25			
																02	NONE 0	STOP									
																	PRVTE	N -S								012	00
																	PSNGR CAR		01	DRVR	INJC	31	F	OR-Y	000	000	00
																								OR<25			
																02	NONE 0	STOP									
																	PRVTE	N -S								012	00
																	PSNGR CAR		02	PSNG	INJC	16	F		000	000	00
00726	N	N	N	N	N	N	02/24/2020	16	CASCADE HY SOUTH	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT									07,29
CITY			MO						TOLIVER RD	N		NONE	N	DRY	REAR		N/A	N -S								000	00
N			6P							06	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00
N			45 9 21.36	-122 36 13.43					016000100S00															UNK			
																02	NONE 9	STOP									
																	N/A	N -S								012	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00
																								UNK			
00136	Y	N	N	N			01/11/2022	16	CASCADE HY SOUTH	INTER	CROSS	N	N	RAIN	S-STRGHT	01	NONE	STRGHT									29,07,01
NONE			TU						TOLIVER RD	NE		TRF SIGNAL	N	WET	REAR		PRVTE	NE-SW								000	00
N			7A							06	0		N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	56	M	OTH-Y	000,043,047	000	29,07,01
N			45 9 21.32	-122 36 13.41					016000100S00															N-RES			

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SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J N S	S I H V	W C O R L K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE PRVTE PSNGR CAR	STRGHT NE-SW										006 000		00 00
00736	Y	N	N	N	N	N	02/11/2019 STATE N N	17 MO 6A 45 9 21.33	CASCADE HY SOUTH TOLIVER RD -122 36 13.41	INTER SE 06	CROSS 0	N STOP SIGN	N N	RAIN WET DLIT	S-1STOP REAR PDO	01	NONE 9 N/A PSNGR CAR	STRGHT SE-NW	01	DRVR	NONE	00	Unk	UNK UNK		000	000		01,27,07 00 00
																02	NONE 9 N/A PSNGR CAR	STOP SE-NW	01	DRVR	NONE	00	Unk	UNK UNK		000	011 000		00 00
02169	N	N	N	N	N	N	06/29/2019 STATE N N	16 SA 9A 45 9 21.32	CASCADE HY SOUTH TOLIVER RD -122 36 13.42 016000100S00	INTER NW 06	CROSS 0	N NONE	N N	CLR DRY DAY	S-1STOP REAR INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT NE-SW	01	DRVR	NONE	26	M	OR-Y OR<25		043,026	000		07,29 00 07,29
																02	NONE 0 PRVTE PSNGR CAR	STOP NE-SW	01	DRVR	INJC	42	M	OR-Y OR<25		000	012 000		00 00
03556	Y	N	N	N			10/12/2019 CITY N N	16 SA 2P 45 9 21.35	CASCADE HY SOUTH TOLIVER RD -122 36 13.4 016000100S00	INTER CN 02	CROSS 0	N STOP SIGN	N N	CLD DRY DAY	OVERTURN NCOL INJ	01	NONE PRVTE MTRCYCLE	STRGHT S -N	01	DRVR	INJC	73	M	OR-Y OR>25		034	031 000	010,012,064 010,064	06,01 00 06,01
																02	NONE PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	NONE	57	M	OR-Y OR<25		000	000 000	012	00 00
03359	N	N	N	N			09/28/2019 CITY N N	16 SA 1P 45 9 21.34	CASCADE HY SOUTH TOLIVER RD -122 36 13.42 016000100S00	INTER CN 01	CROSS 0	N STOP SIGN	N N	RAIN WET DAY	ANGL-OTH TURN INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	NONE	47	M	OTH-Y OR<25		000	000	013	02 00 00
																01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	02	PSNG	INJC	09	M			000	000 000		00 00
																02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJB	35	F	OR-Y OR<25		028	015 000	013	00 02

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CITY OF MOLALLA, CLACKAMAS COUNTY

TOLIVER RD at CASCADE HY SOUTH, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

8 - 11 of 14 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																03	NONE 1	STOP										
																	PRVTE	W -E								022		00
																	PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		000	000		00
																								OR<25					
00167	N	N	N	N			01/14/2020	16	CASCADE HY SOUTH	INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	TURN-L											02,08
CITY							TU		TOLIVER RD	CN		NONE	N	WET	TURN		PUBLC	N -E								000		00
N							7A			04	0		N	DARK	INJ		SCHL BUS		01	DRVR	NONE	66	M	OR-Y		028,004	000		02,08
N							45 9 21.31	-122 36 13.42	016000100S00															OR<25					
																01	NONE 0	TURN-L										
																	PUBLC	N -E								000		00
																	SCHL BUS		02	PSNG	INJC	13	F			000	000		00
																01	NONE 0	TURN-L										
																	PUBLC	N -E								000		00
																	SCHL BUS		03	PSNG	INJB	13	F			000	000		00
																02	NONE 0	STRGHT										
																	PRVTE	S -N								000		00
																	PSNGR CAR		01	DRVR	INJC	41	M	OR-Y		000	000		00
																								OR>25					
00806	Y	N	N	N	N	N	03/31/2021	16	CASCADE HY SOUTH	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											01,03,33
CITY							WE		TOLIVER RD	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SE-NW								000		00
N							8P			02	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	INJC	18	F	OR-Y		047,021,051	038		01,03,33
N							45 9 21.34	-122 36 13.4	016000100S00															OR<25					
																02	NONE 0	STRGHT										
																	PRVTE	SW-NE								000		00
																	PSNGR CAR		01	DRVR	INJC	47	F	OR-Y		000	000		00
																								OR<25					
02815	N	N	N	N	N	N	09/23/2021	16	CASCADE HY SOUTH	INTER	CROSS	N	N	CLD	O-OTHER	01	NONE 0	STRGHT										082	02,08
CITY							TH		TOLIVER RD	CN		STOP SIGN	N	DRY	TURN		PRVTE	S -N								000		00
N							6A			01	0		N	DAWN	INJ		MTRCYCLE		01	DRVR	INJA	29	M	OR-Y		000	000	082	00
N							45 9 21.36	-122 36 13.43	016000100S00															OR<25					
																02	NONE 0	TURN-L										
																	PRVTE	N -E								000		00
																	PSNGR CAR		01	DRVR	NONE	39	M	OR-Y		028,004	000		02,08
																								OR<25					
01321	N	N	N	N	N	N	05/20/2021	16	CASCADE HY SOUTH	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											02
CITY							TH		TOLIVER RD	CN		STOP SIGN	N	WET	TURN		PRVTE	E -W								015		00
N							6P			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	29	F	OTH-Y		028	000		02
N							45 9 21.35	-122 36 13.41	016000100S00															OR<25					

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SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																02	NONE 0 PRVTE PSNGR CAR	TURN-L N -E	01	DRVR	INJC	36	F	OR-Y OR<25		000 000	000 000	00 00
01571	N N N N						06/11/2021 CITY N N	16 FR 11A 45 9 21.36	CASCADE HY SOUTH TOLIVER RD -122 36 13.42 016000100S00	INTER CN	CROSS 01	N STOP SIGN	N N	RAIN WET DAY	ANGL-OTH TURN INJ	01	NONE 0 PRVTE PSNGR CAR	TURN-L E -S	01	DRVR	INJC	58	F	OR-Y OR<25		028	000 015 000	02 00 02
																02	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	NONE	70	M	OR-Y OR<25		000	000 000	00 00
02106	N N N N N N						07/23/2021 CITY N N	16 FR 11A 45 9 21.32	CASCADE HY SOUTH TOLIVER RD -122 36 13.39 016000100S00	INTER CN	CROSS 02	N STOP SIGN	N N	CLR DRY DAY	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT SW-NE	01	DRVR	INJB	27	F	OR-Y OR>25		000	000 000	00 00
																02	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJB	16	F	OR-Y OR<25		028	015 000	00 02

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160: CASCADE HWY SOUTH

Highway 160 ALL ROAD TYPES, MP 16.05 to 16.15 01/01/2019 to 12/31/2023, Both Add and Non-Add mileage, ALL Crashes Severity, ALL Crashes Circumstance

1 - 5 of 28 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U G	S I N V	C N H L	O W R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02401	N	N	N	N	N	N	09/02/2020	CLACKAMAS	1 16		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07,29
CITY							WE		MN 0		UN	(NONE)	NONE	N	DRY	REAR		PRVTE	N -S									000		00
N							2P	MOLALLA UA	16.06		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		043,026	000		07,29
N							45 9 4.46	-122 36 21.93		016000100S00		(02)													OR>25				
																	02	NONE 0	STOP									011		00
																		PRVTE	N -S									000		00
																		PSNGR CAR		01	DRVR	INJC	47	M	OR-Y		000	000		00
																									OR<25				
00038	N	Y	N	N	N	N	01/03/2020	CLACKAMAS	1 16		STRGHT		N	N	CLR	PED	01	NONE 0	STRGHT											18,19,27
CITY							FR		MN 0		UN	(NONE)	NONE	N	DRY	PED		PRVTE	S -N									000		00
N							1P	MOLALLA UA	16.07		04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	79	M	OR-Y		000	000		00
N							45 9 3.98	-122 36 22.19		016000100S00		(02)													OR<25				
																			- STRGHT W E	01	PED	INJB	54	M		ROAD	057	037		00
03455	N	N	N	N			10/05/2019	CLACKAMAS	1 16		STRGHT		N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE							SA		MN 0		UN	(NONE)	TRF SIGNAL	N	DRY	REAR		N/A	N -S									000		00
N							7P	MOLALLA UA	16.08		03			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.49	-122 36 22.44		016000100S00		(02)													UNK				
																	02	NONE 9	STOP									011		00
																		N/A	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK				
00196	N	N	N	N			01/23/2021	CLACKAMAS	1 16		STRGHT		Y	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE							SA		MN 0		UN	(NONE)	UNKNOWN	N	DRY	REAR		N/A	N -S									000		00
N							4P	MOLALLA UA	16.08		03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.49	-122 36 22.43		016000100S00		(02)													UNK				
																	02	NONE 9	STOP									011		00
																		N/A	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK				
00773	N	N	N	N			02/28/2020	CLACKAMAS	1 16		INTER	CROSS	N	N	RAIN	S-STRGHT	01	NONE 0	STRGHT											29
NONE							FR		MN 0		N		TRF SIGNAL	N	WET	REAR		PRVTE	N -S									000		00
N							6P	MOLALLA UA	16.10		06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	51	F	OR-Y		042	000		29
N							45 9 2.54	-122 36 22.93		016000100S00															OR<25				
																	02	NONE 0	STRGHT									000		00
																		PRVTE	N -S									000		00
																		PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		000	000		00
																									OR<25				
																	02	NONE 0	STRGHT									000		00
																		PRVTE	N -S									000		00
																		PSNGR CAR		02	PSNG	INJC	34	F			000	000		00
03096	N	N	N	N	N	N	10/01/2022	CLACKAMAS	1 16		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
CITY							SA		MN 0		N		TRF SIGNAL	N	DRY	REAR		UNKN	N -S									000		00
N							4P	MOLALLA UA	16.10		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		026	000		29
N							45 9 2.53	-122 36 22.92		016000100S00															UNK				

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160: CASCADE HWY SOUTH

Highway 160 ALL ROAD TYPES, MP 16.05 to 16.15 01/01/2019 to 12/31/2023, Both Add and Non-Add mileage, ALL Crashes Severity, ALL Crashes Circumstance

6 - 10 of 28 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R G S	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH COLL SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																	02	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	INJB	40	M	OR-Y OR<25		000	011 000		00 00
02373 NONE N N	N	N	N	N	N	N	08/05/2022 FR 6P 45 9 2.53	CLACKAMAS MOLALLA UA -122 36 22.92	1 16 MN 0 16.10	016000100S00	INTER E 06	CROSS 0	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	INJB	23	M	OR-Y OR>25		026	000	013	29 00 29
																	01	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	02	PSNG	INJB	23	M			000	000		00 00
																	02	NONE 0 PRVTE PSNGR CAR	STOP E -W	01	DRVR	INJB	63	F	OR-Y OR>25		000	011 000	013	00 00
																	03	NONE 0 PRVTE PSNGR CAR	STOP E -W	01	DRVR	INJC	40	F	OR-Y OR>25		000	022 000		00 00
																	03	NONE 0 PRVTE PSNGR CAR	STOP E -W	02	PSNG	INJC	16	F			000	022 000		00 00
02220 NONE N N	N	N	N	N	N	N	07/03/2023 MO 6P 45 9 2.53	CLACKAMAS MOLALLA UA -122 36 22.92	1 16 MN 0 16.10	016000100S00	INTER E 06	CROSS 0	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR PDO	01	NONE 9 N/A PSNGR CAR	STRGHT E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	000		29 00 00
																	02	NONE 9 N/A PSNGR CAR	STOP E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	011 000		00 00
04230 CITY N N	N	N	N	N	N	N	11/26/2019 TU 5A 45 9 2.56	CLACKAMAS MOLALLA UA -122 36 22.95	1 16 MN 0 16.10	016000100S00	INTER S 06	CROSS 0	N TRF SIGNAL	N N	RAIN WET DLIT	S-STRGHT REAR PDO	01	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		29 00 00
																	02	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
02310 NONE N N	N	N	N	N			08/23/2020 SU 1P 45 9 2.53	CLACKAMAS MOLALLA UA -122 36 22.95	1 16 MN 0 16.10	016000100S00	INTER S 06	CROSS 0	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR PDO	01	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000		29 00 00
																	02	NONE 9 N/A PSNGR CAR	STOP S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	011 000		00 00

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160: CASCADE HWY SOUTH

Highway 160 ALL ROAD TYPES, MP 16.05 to 16.15 01/01/2019 to 12/31/2023, Both Add and Non-Add mileage, ALL Crashes Severity, ALL Crashes Circumstance

11 - 16 of 28 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U C	S I G S	W C N V	O H L	R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00658	N	N	N	N				03/12/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	UNK	S-1STOP	01	NONE 0	STRGHT											29
NONE								FR		MN 0			S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N								5P	MOLALLA UA	16.10			06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	52	F	OR-Y		026	000		29
N								45 9 2.53	-122 36 22.91			016000100S00															OR<25					
																			02	NONE 0	STOP											
																				PRVTE	S -N								011		00
																				PSNGR CAR		01	DRVR	INJC	67	M	OR-Y		000	000		00
																											OR<25					
01920	N	N	N	N	N	N		06/11/2023	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											10
NO RPT								SU		MN 0			S		TRF SIGNAL	N	DRY	SS-O		N/A	S -N									000		00
N								3P	MOLALLA UA	16.10			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 9 2.53	-122 36 22.92			016000100S00															UNK					
																			02	NONE 9	STOP											
																				N/A	S -N								012		00
																				MTRCYCLE		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
00521	N	N	N	N	N	N		02/21/2023	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE								TU		MN 0			W		TRF SIGNAL	N	WET	REAR		UNKN	W -E									000		00
N								2P	MOLALLA UA	16.10			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		026	000		29
N								45 9 2.53	-122 36 22.92			016000100S00															UNK					
																			02	NONE 0	STOP											
																				PRVTE	W -E								011		00
																				PSNGR CAR		01	DRVR	INJC	20	M	OTH-Y		000	000		00
																											N-RES					
03544	N	N	N	N	N	N		11/04/2022	CLACKAMAS	1	16		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											02
CITY								FR		MN 0			CN		TRF SIGNAL	N	WET	TURN		PRVTE	E -W									000		00
N								2P	MOLALLA UA	16.10			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	52	M	OR-Y		000	000		00
N								45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																			01	NONE 0	STRGHT											
																				PRVTE	E -W								000		00
																				PSNGR CAR		02	PSNG	INJB	49	F			000	000		00
																			02	NONE 0	TURN-L											
																				PRVTE	N -E								000		00
																				PSNGR CAR		01	DRVR	NONE	24	M	OR-Y		028	000		02
																											OR<25					
02320	N	N	N	N	N	N		08/11/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-L											02
CITY								WE		MN 0			CN		TRF SIGNAL	N	DRY	TURN		N/A	W -N									000		00
N								3P	MOLALLA UA	16.10			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 9 2.54	-122 36 22.96			016000100S00															UNK					
																			02	NONE 9	STRGHT											
																				N/A	E -W								000		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
02312	Y	N	N	N				08/10/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	OVERTURN	01	NONE 9	TURN-R										010	32,01
CITY								TU		MN 0			CN		TRF SIGNAL	N	DRY	NCOL		N/A	E -N									000		00
N								6A	MOLALLA UA	16.10			02	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 9 2.53	-122 36 22.93			016000100S00															UNK					

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SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U C	S I N H	W C O R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01211	N	N	N	N	N	04/13/2019	CLACKAMAS	1	16		INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 9	STRGHT										04
CITY						SA		MN 0			CN		TRF SIGNAL	N	WET	ANGL		N/A	W -E									000		00
N						9A	MOLALLA UA	16.10			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 2.55	-122 36 22.94			016000100S00															UNK					
																	02	NONE 9	STRGHT											
																		N/A	N -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
02766	N	N	N	N		10/13/2020	CLACKAMAS	1	16		INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 0	TURN-L										02
CITY						TU		MN 0			CN		TRF SIGNAL	N	WET	TURN		PRVTE	E -S									000		00
N						4A	MOLALLA UA	16.10			03	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	64	M	OR-Y		028	000		02
N						45 9 2.57	-122 36 22.94			016000100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		PSNGR CAR		01	DRVR	INJC	27	M	OR-Y		000	000		00
																									OR<25					
03297	N	N	N	N		12/05/2020	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L										27,08,02
CITY						SA		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	E -S									000		00
N						1P	MOLALLA UA	16.10			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	25	F	OR-Y		016,004,028	038		27,08,02
N						45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																	01	NONE 0	TURN-L											
																		PRVTE	E -S									000		00
																		PSNGR CAR		02	PSNG	INJB	26	M			000	000		00
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		PSNGR CAR		01	DRVR	NONE	64	M	OR-Y		000	000		00
																									OR>25					
00338	N	N	N	N		01/25/2020	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	STRGHT										02,08
NONE						SA		MN 0			CN		TRF SIGNAL	N	DRY	TURN		N/A	W -E									000		00
N						5P	MOLALLA UA	16.10			03	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 2.55	-122 36 22.94			016000100S00															UNK					
																	02	NONE 9	TURN-L											
																		N/A	E -S									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
02030	N	N	N	N	N	07/18/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										02
CITY						SU		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E									000		00
N						9P	MOLALLA UA	16.10			03	0		N	DARK	INJ		PSNGR CAR		01	DRVR	INJB	21	M	OR-Y		000	000		00
N						45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																	01	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		PSNGR CAR		02	PSNG	INJC	19	F			000	000		00
																	02	NONE 0	TURN-L											
																		PRVTE	E -S									000		00
																		PSNGR CAR		01	DRVR	INJB	17	F	OR-Y		028,004	000		02
																									OR<25					

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160: CASCADE HWY SOUTH **Highway 160 ALL ROAD TYPES, MP 16.05 to 16.15 01/01/2019 to 12/31/2023, Both Add and Non-Add mileage, ALL Crashes Severity, ALL Crashes Circumstance**

22 - 26 of 28 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U G	S I N H	W C O R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03098	N	N	N	N	N	09/06/2019	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-R											02
CITY						FR		MN 0			CN		TRF SIGNAL	N	DRY	TURN		N/A	S -E									016		00
N						9A	MOLALLA UA	16.10			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 2.55	-122 36 22.94			016000100S00															UNK					
																	02	NONE 9	TURN-L											
																		N/A	N -E									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
03472	N	Y	N	N	N	11/12/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										087	33,04
CITY						FR		MN 0			CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	W -E								000	087	00
N						7P	MOLALLA UA	16.10			04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	32	M	NONE		051,020	000		33,04
N						45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	S -N									000	087	00
																		PSNGR CAR		01	DRVR	INJB	45	M	OR-Y		000	000		00
																									OR<25					
01626	N	N	N	N	N	06/04/2022	CLACKAMAS	1	16		INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 0	TURN-L											02
CITY						SA		MN 0			CN		TRF SIGNAL	N	WET	TURN		PRVTE	N -E								000		00
N						2P	MOLALLA UA	16.10			04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	83	M	OR-Y		028	000		02
N						45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																	01	NONE 0	TURN-L											
																		PRVTE	N -E									000		00
																		PSNGR CAR		02	PSNG	INJB	80	F			000	000		00
																	02	NONE 0	STRGHT											
																		PRVTE	S -N									000		00
																		PSNGR CAR		01	DRVR	INJC	43	F	OR-Y		000	000		00
																									OR<25					
03582	N	N	N	N	N	11/08/2022	CLACKAMAS	1	16		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										053	02
CITY						TU		MN 0			CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -N								000	053	00
N						3P	MOLALLA UA	16.10			04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	31	M	OR-Y		000	000		00
N						45 9 2.53	-122 36 22.92			016000100S00															OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	N -E									000		00
																		PSNGR CAR		01	DRVR	INJC	60	F	OR-Y		028	000		02
																									OR<25					
01758	N	N	N	N	N	06/15/2022	CLACKAMAS	1	16		ALLEY		N	N	CLR	ANGL-OTH	01	NONE 9	TURN-R											02
NONE						WE		MN 0			UN	(NONE)	UNKNOWN	N	DRY	TURN		N/A	E -N								018		00
N						3P	MOLALLA UA	16.13			04			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 1.09	-122 36 23.65			016000100S00		(03)													UNK					
																	02	NONE 9	STRGHT											
																		N/A	S -N									000		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
00175	N	N	N	N		01/20/2021	CLACKAMAS	1	16		ALLEY		N	N	FOG	ANGL-OTH	01	NONE 0	TURN-L											02
NONE						WE		MN 0			UN	(NONE)	NONE	N	DRY	TURN		PRVTE	E -S								018		00
N						7A	MOLALLA UA	16.14			04			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	26	M	OR-Y		028	000		02
N						45 9 .61	-122 36 23.89			016000100S00		(02)													OR<25					

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SER# / INVEST / RD DPT / UNLOC?	S P / E / E / D	A	L	G	C	S	U	N	I	H	S	V	C	L	O	R	K	W DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																												02	NONE 0	STRGHT											
																													PRVTE	S -N									000		00
																													PSNGR CAR		01	DRVR	INJC	42	F	OR-Y		000	000		00
																																				OR<25					
																												02	NONE 0	STRGHT											
																													PRVTE	S -N									000		00
																													PSNGR CAR		02	PSNG	INJC	16	M			000	000		00
																												02	NONE 0	STRGHT											
																													PRVTE	S -N									000		00
																													PSNGR CAR		03	PSNG	INJC	08	F			000	000		00
																												02	NONE 0	STRGHT											
																													PRVTE	S -N									000		00
																													PSNGR CAR		04	PSNG	INJC	10	F			000	000		00
																												02	NONE 0	STRGHT											
																													PRVTE	S -N									000		00
																													PSNGR CAR		05	PSNG	INJC	12	M			000	000		00
01045	N	N	N	N	N	N	04/10/2022	CLACKAMAS	1 16			ALLEY			N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT																			02
NONE							SU		MN 0			UN	(NONE)		UNKNOWN	N	WET	TURN		N/A	S -N														000		00
N							1P	MOLALLA UA	16.14			04				N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK			000		000		00
N							45 9 .61	-122 36 23.89			016000100S00			(02)														UNK										
																			02	NONE 9	TURN-L																	
																					N/A	E -S														018		00
																					PSNGR CAR		01	DRVR	NONE	00	Unk	UNK			000		000		00
																												UNK										

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161: WOODBURN-ESTACADA

Highway 161 ALL ROAD TYPES, MP 11.26 to 11.36 01/01/2019 to 12/31/2023, Both Add and Non-Add mileage, ALL Crashes Severity, ALL Crashes Circumstance

1 - 2 of 2 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D C	A L C	D R G S	M J N V	S I H L	C N R K	O W	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00781	N	N	N	N	N	N	N	03/14/2023	CLACKAMAS	1	16		ALLEY		N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
STATE				TU						MN 0			UN	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	E -W								000		00
N				4P					MOLALLA UA	11.27			04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	23	M	OR-Y		000	000		00
N				45 9 2.19				-122 36 25.8				016100100S00		(02)													OR<25					
																			01	NONE 0	STRGHT											
																				PRVTE	E -W								000		00
																				PSNGR CAR		02	PSNG	INJC	20	F			000	000		00
																			02	NONE 0	TURN-L											
																				PRVTE	N -E								018		00
																				PSNGR CAR		01	DRVR	INJA	65	M	OR-Y		028	000		02
																											OR>25					
																			02	NONE 0	TURN-L											
																				PRVTE	N -E								018		00
																				PSNGR CAR		02	PSNG	INJA	33	F			000	000		00
02217	N	N	N	N	N	Y	N	08/01/2021	CLACKAMAS	1	16		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 9	STRGHT											29
CITY				SU						MN 0			E		TRF SIGNAL	N	DRY	REAR		N/A	E -W								000		00
N				7P					MOLALLA UA	11.31			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N				45 9 2.53				-122 36 22.92				016100100S00															UNK					
																			02	NONE 9	STOP											
																				N/A	E -W								011		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at HEZZIE LN, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 4 of 7 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R J U G S V	I N H L	C O R K	W DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
03528	N	N	N	N	N	11/03/2022	16	S HEZZIE LN	INTER	3-LEG	N	N	CLR	BIKE	01	NONE 0	TURN-R										02
CITY			TH			MAIN ST		N		STOP SIGN	N		DRY	TURN		PRVTE	N -W								000	00
N			1P						06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	78	F	OR-Y		027	000	02
N			45 8 56.96			-122 35 32.56		016100100S00									OR<25									
																	-									
																	STRGHT	01	BIKE	INJB	55	M		I XWLK	000	034	00
																	W E									
03330	N	N	N	N		09/25/2019	16	S HEZZIE LN	INTER	3-LEG	N	N	CLR	PED	01	NONE 0	STRGHT										02,14
CITY			WE			MAIN ST		E		SP PED SIG	N		DRY	PED		PRVTE	W -E								000	00
N			7A						05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	74	M	OR-Y		029	000	02,14
N			45 8 56.96			-122 35 32.51		016100100S00									OR<25									
																	-									
																	STRGHT	01	PED	INJB	11	F		I XWLK	000	034	00
																	S N									
03390	N	N	N	N		12/13/2020	16	S HEZZIE LN	INTER	3-LEG	N	N	CLD	S-STRGHT	01	NONE 0	STRGHT										27,07
CITY			SU			MAIN ST		E		STOP SIGN	N		WET	REAR		PRVTE	E -W								000	00
N			11A						06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	18	M	OR-Y		016,043	038	27,07
N			45 8 56.66			-122 35 29.65		016100100S00									OR<25									
															02	NONE 0	STRGHT										
																PRVTE	E -W								000	00
																PSNGR CAR		01	DRVR	INJC	36	F	OR-Y	000	000	00
																	OR<25									
															02	NONE 0	STRGHT										
																PRVTE	E -W								000	00
																PSNGR CAR		02	PSNG	INJC	37	M		000	000	00
															02	NONE 0	STRGHT										
																PRVTE	E -W								000	00
																PSNGR CAR		03	PSNG	INJC	13	F		000	000	00
01166	N	N	N	N	N	04/23/2020	16	S HEZZIE LN	INTER	3-LEG	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L										02,08
CITY			TH			MAIN ST		CN		NONE	N		DRY	TURN		PRVTE	W -N								000	00
N			10A						02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y		028,004	000	02,08
N			45 8 56.99			-122 35 32.55		016100100S00									OR<25									
															02	NONE 0	STRGHT										
																PRVTE	E -W								000	00
																PSNGR CAR		01	DRVR	INJB	46	M	OR-Y	000	000	00
																	OR<25									

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at HEZZIE LN, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

5 - 7 of 7 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	I H V	S L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01059	N	N	N	N	N	N	N	04/13/2022	16	S HEZZIE LN	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L										001	02
NO RPT								WE		MAIN ST	CN		STOP SIGN	N	DRY	PARK		PRVTE	S -W									018		00
N								3P			04			Y	DAY	INJ		PSNGR CAR		01	DRVR	INJB	70	F	OR-Y		028	000		02
N								45 8 56.95	-122 35 32.49	016100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		000	000		00
																									OR<25					
04067	N	N	N	N	N	N	N	12/14/2022	16	N HEZZIE LN	INTER	3-LEG	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											32,06
CITY								WE		MAIN ST	CN		STOP SIGN	N	DRY	TURN		PRVTE	W -N									000		00
N								6P			03	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJA	50	F	OR-Y		000	000		00
N								45 8 56.96	-122 35 32.56	016100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									031		00
																		PSNGR CAR		01	DRVR	NONE	45	M	OR-Y		052,034	000		32,06
																									OR>25					
02059	N	N	N	N	N	N	N	06/22/2023	16	S HEZZIE LN	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											02
NO RPT								TH		MAIN ST	CN		STOP SIGN	N	DRY	TURN		PRVTE	S -W									018		00
N								6A			04	0		Y	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	F	OR-Y		028	000		02
N								45 8 56.96	-122 35 32.56	016100100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W -E									000		00
																		MTRCYCLE		01	DRVR	INJA	56	M	OR-Y		000	000		00
																									OR>25					

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CITY OF MOLALLA, CLACKAMAS COUNTY

TOLIVER RD at LEROY AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
02790	N	N	N N	N	N	N	09/08/2022	17	LEROY AVE	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										02
CITY			TH				0	TOLIVER RD		CN		STOP SIGN	N	DRY	TURN		PRVTE	NW-SE								000		00
N			6P							04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	59	M	OR-Y		028	000	02
N			45 9 15.37				-122 35 17.04																	OR<25				
																02	NONE 0	TURN-R										
																	PRVTE	SW-SE									000	00
																	PSNGR CAR		01	DRVR	INJB	34	F	OR-Y		000	000	00
																								OR<25				
																02	NONE 0	TURN-R										
																	PRVTE	SW-SE									000	00
																	PSNGR CAR		02	PSNG	INJB	35	F			000	000	00

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CITY OF MOLALLA, CLACKAMAS COUNTY

LEROY AVE at HEINTZ ST, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 1 of 1 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
02871	N	N	N	N	N	N	09/15/2022	17	HEINTZ ST	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L										02
NONE							TH	0	LEROY AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	SE-SW									000	00
N							7A			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	43	F	OR-Y		028	000	02
N							45 9 9.92	-122 35 18.14																OR<25				
																02	NONE 0	STRGHT										
																	PRVTE	NE-SW									000	00
																	PSNGR CAR		01	DRVR	INJC	35	F	OR-Y		000	000	00
																								OR<25				
																02	NONE 0	STRGHT										
																	PRVTE	NE-SW									000	00
																	PSNGR CAR		02	PSNG	INJC	13	F			000	000	00
																02	NONE 0	STRGHT										
																	PRVTE	NE-SW									000	00
																	PSNGR CAR		03	PSNG	INJC	11	M			000	000	00

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at LEROY AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 3 of 10 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	S H V	W O R L	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01302	N	N	N	N			05/15/2020	17	LEROY AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
NONE							FR	0	MAIN ST	N		STOP SIGN	N	DRY	REAR		N/A	N -S									000	00
N							4P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 8 55.76	-122 35 21.11																UNK				
																02	NONE 9	STOP										
																	N/A	N -S									011	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
00055	N	N	N	N	N	N	01/07/2021	16	LEROY AVE	INTER	3-LEG	N	N	UNK	S-1STOP	01	NONE 0	STRGHT										07,29
CITY							TH		MAIN ST	W		NONE	N	DRY	REAR		PRVTE	W -E									000	00
N							11A			06	0		N	DAY	INJ		SEMI TOW		01	DRVR	NONE	28	M	OTH-Y		043,026	000	07,29
N							45 8 55.78	-122 35 21.12	016100100S00															N-RES				
																02	NONE 0	STOP										
																	PRVTE	W -E									012	00
																	PSNGR CAR		01	DRVR	INJC	59	M	OR-Y		000	000	00
																								OR<25				
02379	N	Y	N	N	N	N	08/07/2022	16	LEROY AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT									004	29,27
CITY							SU		MAIN ST	W		SP PED SIG	N	DRY	REAR		PRVTE	W -E									000	00
N							7P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	27	M	OR-Y		026,016	038	29,27
N							45 8 55.77	-122 35 21.09	016100100S00															OR<25				
																02	NONE 0	STOP										
																	PRVTE	W -E									011 004	00
																	PSNGR CAR		01	DRVR	INJC	19	M	OR-Y		000	000	00
																								OR<25				
																02	NONE 0	STOP										
																	PRVTE	W -E									011 004	00
																	PSNGR CAR		02	PSNG	INJC	33	M			000	000	00
																02	NONE 0	STOP										
																	PRVTE	W -E									011 004	00
																	PSNGR CAR		03	PSNG	INJC	22	M			000	000	00
																02	NONE 0	STOP										
																	PRVTE	W -E									011 004	00
																	PSNGR CAR		04	PSNG	INJC	24	M			000	000	00
																02	NONE 0	STOP										
																	PRVTE	W -E									011 004	00
																	PSNGR CAR		05	PSNG	INJC	21	F			000	000	00

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at LEROY AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

4 - 5 of 10 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R G S	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03516	N	N	N	N	N	N	07/18/2023	16	LEROY AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	29
NO RPT			TU						MAIN ST	W		UNKNOWN	N	DRY	REAR		UNKN	W -E									000		00
N			6P							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		29
N			45 8 55.77	-122 35 21.09					016100100S00															UNK					
																02	NONE 0	STOP											
																	PRVTE	W -E									012	013	00
																	PSNGR CAR		01	DRVR	INJC	34	F	OR-Y		000	000		00
																								OR<25					
																03	NONE 0	STOP											
																	UNKN	W -E									022		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
04072	N	N	N	N	N	N	11/22/2023	16	LEROY AVE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										004,013	32,27,29
CITY			WE						MAIN ST	W		SP PED SIG	N	WET	REAR		PRVTE	W -E									000		00
N			7A							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		052,016,026	038		32,27,29
N			45 8 55.77	-122 35 21.09					016100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	W -E									011	013	00
																	PSNGR CAR		01	DRVR	INJB	35	F	OR-Y		000	000		00
																								OR>25					
																03	NONE 0	STOP											
																	PRVTE	W -E									022	004	00
																	PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		000	000		00
																								OR<25					
00794	Y	N	N	N	N	N	03/14/2022	16	LEROY AVE	INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											04,30
CITY			MO						MAIN ST	CN		STOP SIGN	N	WET	TURN		PRVTE	E -W									000		00
N			3P							01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	73	M	OR-Y		050	000		30
N			45 8 55.77	-122 35 21.09					016100100S00															OR<25					
																02	NONE 0	TURN-R											
																	PRVTE	N -W									000		00
																	PSNGR CAR		01	DRVR	INJB	24	M	OR-Y		020	000		04
																								OR>25					
																02	NONE 0	TURN-R											
																	PRVTE	N -W									000		00
																	PSNGR CAR		02	PSNG	INJC	02	M			000	000		00
																02	NONE 0	TURN-R											
																	PRVTE	N -W									000		00
																	PSNGR CAR		03	PSNG	INJC	12	F			000	000		00
																02	NONE 0	TURN-R											
																	PRVTE	N -W									000		00
																	PSNGR CAR		04	PSNG	INJC	05	F			000	000		00

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at LEROY AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

6 - 9 of 10 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																03	NONE 0	STOP										
																	PRVTE	W -E								022		00
																	PSNGR CAR		01	DRVR	NONE	49	F	OR-Y		000	000		00
																								OR<25					
01698	N	N	N	N	N	N	06/09/2022	16	LEROY AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										004	29
NONE			TH						MAIN ST	CN		STOP SIGN	N	DRY	REAR		PRVTE	E -W								000		00
N			3P							02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	M	OR-Y		026	000		29
N			45 8 55.77					-122 35 21.09	016100100S00															OR<25					
																02	NONE 0	STOP										
																	PRVTE	E -W								011	004	00
																	PSNGR CAR		01	DRVR	INJC	54	M	OR-Y		000	000		00
																								OR<25					
																02	NONE 0	STOP										
																	PRVTE	E -W								011	004	00
																	PSNGR CAR		02	PSNG	INJC	15	F			000	000		00
02785	N	N	N	N	N	N	09/08/2022	16	LEROY AVE	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										013	02
NO RPT			TH						MAIN ST	CN		STOP SIGN	N	DRY	ANGL		PRVTE	S -N								000		00
N			11A							02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	62	M	OR-Y		028	000		02
N			45 8 55.77					-122 35 21.09	016100100S00															OR>25					
																01	NONE 0	STRGHT										
																	PRVTE	S -N								000		00
																	PSNGR CAR		02	PSNG	INJB	68	F			000	000		00
																02	NONE 0	STRGHT										
																	PRVTE	E -W								000	013	00
																	PSNGR CAR		01	DRVR	NONE	28	M	OR-Y		000	000		00
																								OR<25					
																03	NONE 0	STOP										
																	PRVTE	N -S								022		00
																	PSNGR CAR		01	DRVR	NONE	33	F	OR-Y		000	000		00
																								OR<25					
03453	N	N	N	N	N	N	10/28/2022	16	LEROY AVE	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											02
CITY			FR						MAIN ST	CN		STOP SIGN	N	WET	ANGL		PRVTE	E -W								000		00
N			5A							01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	49	M	OR-Y		000	000		00
N			45 8 55.77					-122 35 21.09	016100100S00															OR>25					
																02	NONE 0	STRGHT										
																	PRVTE	N -S								015		00
																	PSNGR CAR		01	DRVR	INJC	79	F	OR-Y		028	000		02
																								OR<25					

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at LEROY AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

10 - 10 of 10 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	SPCL USE / TRLR QTY / OWNER / V# / TYPE	MOVE / FROM / TO	P# / TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02811	N	N	N	N	N	N	09/10/2022	16	LEROY AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 9	STRGHT									082	40,02
CITY			SA						MAIN ST	CN		STOP SIGN	N	DRY	ANGL	N/A	N -S								000		00
N			2P							01	0		N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 55.77					-122 35 21.09	016100100S00														UNK					
																02 NONE 9	STRGHT										
																N/A	E -W								000		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					

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CITY OF MOLALLA, CLACKAMAS COUNTY

TOLIVER RD at MOLALLA AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 3 of 3 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G S	J N S	I H V	C O R L	W DAY / TIME / LAT	CLASS / DIST FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT EVENT	CAUSE
01654	N	N	N	N	N	N	06/07/2022	17	MOLALLA AVE	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 9	TURN-L										02
CITY			TU				0	TOLIVER RD		CN		STOP SIGN	N	DRY	TURN		N/A	NW-NE									000	00
N			9A							03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 9 10.96				-122 34 33.31																	UNK				
																02	NONE 9	STRGHT										
																	N/A	NE-SW									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
03524	N	N	N	N	N	N	11/03/2022	17	MOLALLA AVE	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01	NONE 9	TURN-L										02
NONE			TH				0	TOLIVER RD		CN		STOP SIGN	N	WET	TURN		N/A	NW-NE									000	00
N			7A							04	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 9 10.96				-122 34 33.31																	UNK				
																02	NONE 9	STRGHT										
																	N/A	SW-NE									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
04440	N	N	N	N	N	N	12/19/2023	17	MOLALLA AVE	INTER	3-LEG	N	N	FOG	ANGL-OTH	01	NONE 9	TURN-L										02
NONE			TU				0	TOLIVER RD		CN		STOP SIGN	N	WET	TURN		N/A	NW-NE									000	00
N			7A							04	0		N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 9 10.96				-122 34 33.31																	UNK				
																02	NONE 9	STRGHT										
																	N/A	SW-NE									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at MOLALLA AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

1 - 4 of 16 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / TYPE / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
01986	N	N	N N			Y	07/15/2021	16	MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
NONE			TH						MOLALLA AVE	SE		FLASHBCN-R	N	DRY	REAR		N/A	SE-NW									000	00
N			1P							06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N			45 8 51.1	-122 34 37.54					016100100S00															UNK				
																02	NONE 9	STOP										
																	N/A	SE-NW									011	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
03728	N	N	N N	N	N	N	11/19/2022	16	MAIN ST	INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										29
CITY			SA						MOLALLA AVE	SE		TRF SIGNAL	N	DRY	REAR		PRVTE	SE-NW									000	00
N			11A							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	30	F	OR-Y		042	000	29
N			45 8 51.09	-122 34 37.54					016100100S00															OR<25				
																01	NONE 0	STRGHT										
																	PRVTE	SE-NW									000	00
																	PSNGR CAR		02	PSNG	INJC	01	M			000	000	00
																02	NONE 0	TURN-R										
																	PRVTE	SE-NE									000	00
																	PSNGR CAR		01	DRVR	INJC	38	F	OR-Y		000	000	00
																								OR<25				
01793	N	N	N N				07/10/2020	16	MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										27,07
CITY			FR						MOLALLA AVE	S		FLASHBCN-R	N	DRY	REAR		PRVTE	SW-NE									000	00
N			1P							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		043	038	27,07
N			45 8 51.09	-122 34 37.54					016100100S00															OR<25				
																02	NONE 0	STOP										
																	PRVTE	SW-NE									011	00
																	PSNGR CAR		01	DRVR	INJC	28	M	OTH-Y		000	000	00
																								OR<25				
02211	N	N	N N				07/01/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
CITY			MO						MOLALLA AVE	SW		STOP SIGN	N	DRY	REAR		PRVTE	SW-NE									000	00
N			6P							06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	40	M	OR-Y		026	000	29
N			45 8 51.1	-122 34 37.54					016100100S00															OR<25				
																02	NONE 0	STOP										
																	PRVTE	SW-NE									011	00
																	PSNGR CAR		01	DRVR	INJC	50	F	OR-Y		000	000	00
																								OR<25				
01792	N	N	N N				06/01/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	PED	01	NONE 0	TURN-L										02,19
CITY			SA						MOLALLA AVE	NW		TRF SIGNAL	N	DRY	PED		PRVTE	SW-NW									000	00
N			12P							05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		029	000	02
N			45 8 51.1	-122 34 37.54					016100100S00															OR<25				

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at MOLALLA AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

5 - 9 of 16 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C S	D M R J U G N V	S I H L	W C O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																	- STRGHT SW NE	01	PED	INJC	67	F		I XWLK	000	035		19
03904	N	N	N	N	N N	11/10/2023	16	MAIN ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE			FR					MOLALLA AVE	NW		TRF SIGNAL	N	DRY	REAR		N/A	NW-SE									000		00
N			10A						06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.09				-122 34 37.54	016100100S00									UNK											
															02	NONE 9	STOP											
																N/A	NW-SE									011		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK											
00743	N	N	N	N		03/02/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
NONE			SA					MOLALLA AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	NW-SE									015		00
N			9A						04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	70	M	OR-Y		028	000		02
N			45 8 51.1				-122 34 37.54	016100100S00									OR<25											
															02	NONE 0	TURN-L											
																PRVTE	SW-NW									015		00
																PSNGR CAR		01	DRVR	INJC	43	F	OR-Y		000	000		00
																	OR<25											
02830	N	N	N	N		08/17/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03
CITY			SA					MOLALLA AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	E -W									000		00
N			1P						01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	34	M	OR-Y		021	000		03
N			45 8 51.09				-122 34 37.54	016100100S00									OR<25											
															02	NONE 0	STRGHT											
																PRVTE	S -N									015		00
																PSNGR CAR		01	DRVR	INJC	31	M	OR-Y		000	000		00
																	OR<25											
															02	NONE 0	STRGHT											
																PRVTE	S -N									015		00
																PSNGR CAR		02	PSNG	INJC	30	F			000	000		00
00188	N	N	N	N		01/17/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	STRGHT											02,08
NO RPT			TH					MOLALLA AVE	CN		STOP SIGN	N	DRY	TURN		N/A	SE-NW									000		00
N			2P						02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.1				-122 34 37.55	016100100S00									UNK											
															02	NONE 9	TURN-L											
																N/A	NW-NE									000		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																	UNK											

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CITY OF MOLALLA, CLACKAMAS COUNTY

MAIN ST at MOLALLA AVE, City of Molalla, Clackamas County, ALL Crashes Severity, ALL Crashes Circumstance, 01/01/2019 to 12/31/2023

10 - 14 of 16 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R J U G S V	S N H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02642	N	N	N N	N		08/02/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											02
NONE			FR					MOLALLA AVE	CN		STOP SIGN	N	DRY	ANGL		N/A	N -S									015		00
N			9A						03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.11				-122 34 37.59	016100100S00															UNK					
															02	NONE 9	STRGHT											
																N/A	W -E									015		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
03780	N	N	N N	N		10/28/2019	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											02
NONE			MO					MOLALLA AVE	CN		STOP SIGN	N	DRY	TURN		N/A	NW-SE									015		00
N			9A						04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.1				-122 34 37.56	016100100S00															UNK					
															02	NONE 9	TURN-L											
																N/A	SW-NW									015		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
00159	N	N	N N	N		01/18/2021	16	MAIN ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											02,08
NONE			MO					MOLALLA AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	S -N									000		00
N			1P						04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		000	000		00
N			45 8 51.11				-122 34 37.56	016100100S00															OR<25					
															02	NONE 0	TURN-L											
																PRVTE	N -E									015		00
																PSNGR CAR		01	DRVR	INJC	40	M	OTH-Y		028,004	000		02,08
																							N-RES					
02080	N	N	N N	N		07/22/2021	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	TURN-L											02
NO RPT			TH					MOLALLA AVE	CN		STOP SIGN	N	DRY	TURN		N/A	NE-SE									015		00
N			8P						03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.09				-122 34 37.54	016100100S00															UNK					
															02	NONE 9	STRGHT											
																N/A	NW-SE									015		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
01875	N	N	N N	N	N	06/09/2023	16	MAIN ST	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT										093	27,04
CITY			FR					MOLALLA AVE	CN		TRF SIGNAL	N	WET	ANGL		N/A	SE-NW									000		00
N			10A						02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 8 51.09				-122 34 37.54	016100100S00															UNK					
															02	NONE 9	STRGHT											
																N/A	SW-NE									000		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R U G	J N S	I H V	C L	S O R K	W	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
01992	N	N	N	N	N	N	N		06/16/2023	16	MAIN ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										02,08
NO RPT			FR								MOLALLA AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	SE-NW								000		00
N			5P									02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	69	F	OR-Y		000	000	00
N			45 8 51.09		-122 34 37.54						016100100S00															OR<25				
																		02	NONE 0	TURN-L										
																			PRVTE	NW-NE								000		00
																			PSNGR CAR		01	DRVR	NONE	18	F	OR-Y		028,004	000	02,08
																										OR<25				
02176	N	N	N	N	N	N	N		06/30/2023	16	MAIN ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L										04
CITY			FR								MOLALLA AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	SW-NW								000		00
N			6P									02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	16	F	OR-Y		020	000	04
N			45 8 51.09		-122 34 37.54						016100100S00															OR<25				
																		01	NONE 0	TURN-L										
																			PRVTE	SW-NW								000		00
																			PSNGR CAR		02	PSNG	INJB	17	F			000	000	00
																		01	NONE 0	TURN-L										
																			PRVTE	SW-NW								000		00
																			PSNGR CAR		03	PSNG	INJB	15	F			000	000	00
																		02	NONE 0	STRGHT										
																			PRVTE	SE-NW								000		00
																			PSNGR CAR		01	DRVR	INJB	54	F	OR-Y		000	000	00
																										OR<25				
																		02	NONE 0	STRGHT										
																			PRVTE	SE-NW								000		00
																			PSNGR CAR		02	PSNG	INJB	56	M			000	000	00

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

Left-Turn Lane Warrant Analysis

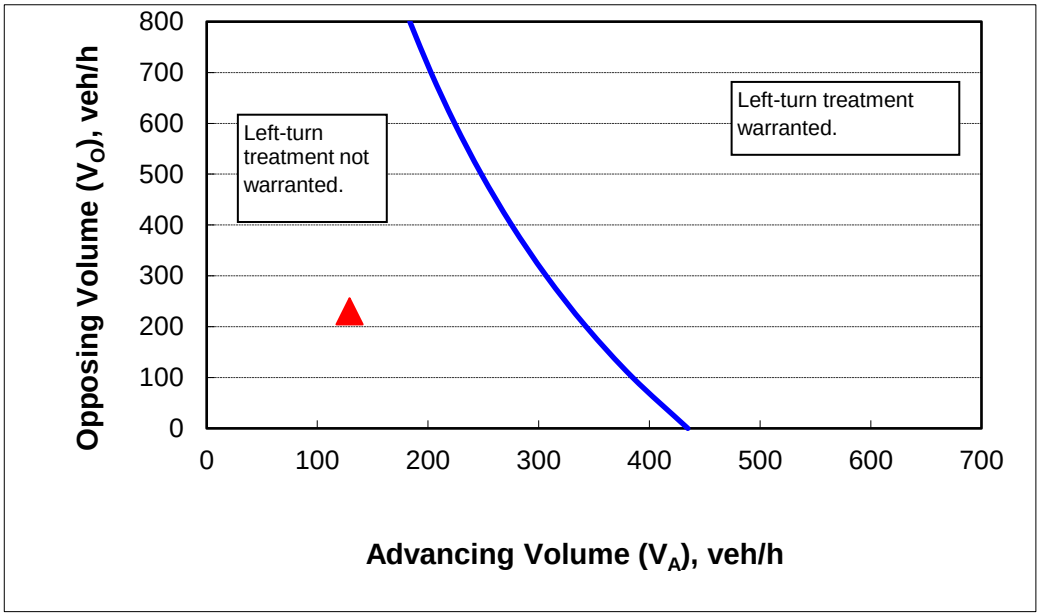
Project: MRMS Replacement Project
Intersection: Site Access & Leroy Avenue
Date: 5/22/2025
Scenario: 2030 Buildout AM

2-lane roadway (English)
INPUT

Variable	Value
85th percentile speed, mph:	20
Left-turns in advancing volume (V_A), veh/hr:	77
Advancing volume (V_A), veh/h:	129
Opposing volume (V_O), veh/h:	230

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	331
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

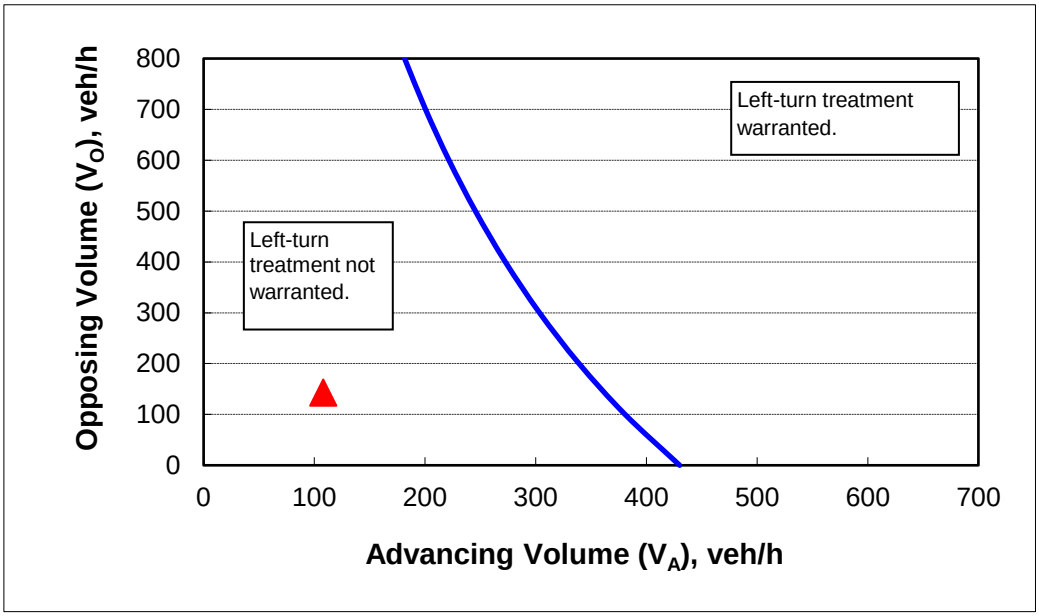
Project: MRMS Replacement Project
Intersection: Site Access & Leroy Avenue
Date: 5/22/2025
Scenario: 2030 Buildout Afternoon

2-lane roadway (English)
INPUT

Variable	Value
85th percentile speed, mph:	20
Left-turns in advancing volume (V_A), veh/hr:	61
Advancing volume (V_A), veh/h:	108
Opposing volume (V_O), veh/h:	143

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	362
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

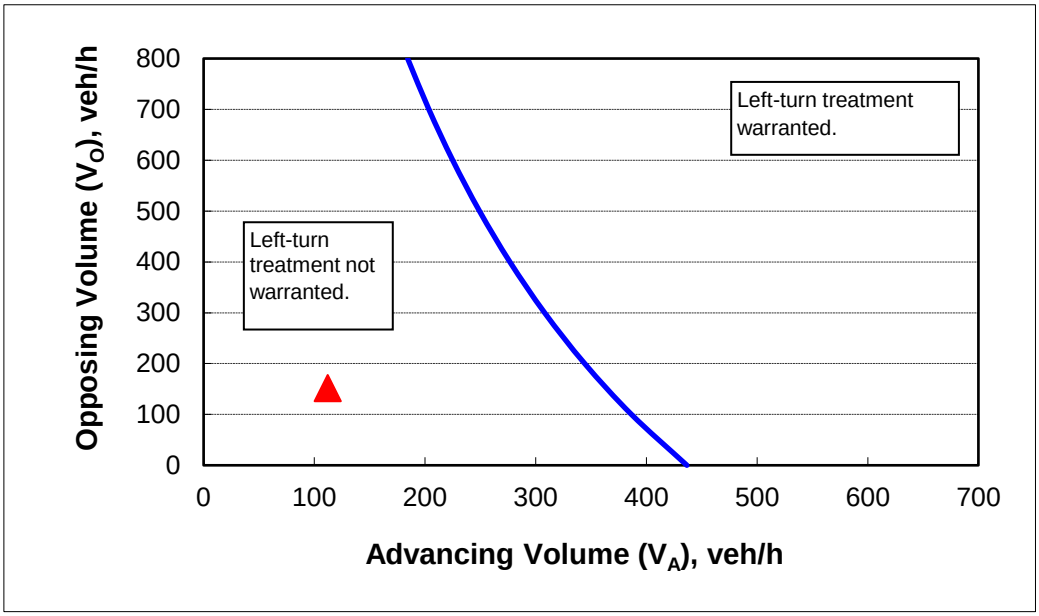
Project: MRMS Replacement Project
Intersection: Site Access & Leroy Avenue
Date: 5/22/2025
Scenario: 2030 Buildout PM

2-lane roadway (English)
INPUT

Variable	Value
85th percentile speed, mph:	20
Left-turns in advancing volume (V_A), veh/hr:	44
Advancing volume (V_A), veh/h:	112
Opposing volume (V_O), veh/h:	152

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	364
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS (2-Lane Roadway)

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Preliminary Traffic Signal Warrant Analysis

Project:	MRMS Replacement Project
Date:	5/22/2025
Scenario:	Year 2030 Background Condition

Major Street:	W Main (OR 211)		Minor Street:	Hezzie Lane
Number of Lanes:	1		Number of Lanes:	1
PM Peak Hour Volumes:	1648		PM Peak Hour Volumes:	43 Total 30 Rights 0% RT Discount

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	16,480	8,850	
Minor Street*	430	2,650	No
Condition B: Interruption of Continuous Traffic			
Major Street	16,480	13,300	
Minor Street*	430	1,350	No
Combination Warrant			
Major Street	16,480	10,640	
Minor Street*	430	2,120	No

* Minor street right-turning traffic volumes reduced by 00%.

Preliminary Traffic Signal Warrant Analysis

Project:	MRMS Replacement Project
Date:	5/22/2025
Scenario:	Year 2030 Background Condition

Major Street:	W Main (OR 211)		Minor Street:	Leroy Avenue
Number of Lanes:	1		Number of Lanes:	1
PM Peak Hour Volumes:	1589		PM Peak Hour Volumes:	122 Total 90 Rights 100% RT Discount

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	15,890	8,850	
Minor Street*	320	2,650	No
Condition B: Interruption of Continuous Traffic			
Major Street	15,890	13,300	
Minor Street*	320	1,350	No
Combination Warrant			
Major Street	15,890	10,640	
Minor Street*	320	2,120	No

* Minor street right-turning traffic volumes reduced by 100%.

Preliminary Traffic Signal Warrant Analysis

Project:	MRMS Replacement Project
Date:	5/22/2025
Scenario:	Year 2030 Buildout Condition

Major Street:	W Main (OR 211)		Minor Street:	Hezzie Lane	
Number of Lanes:	1		Number of Lanes:	1	
PM Peak Hour Volumes:	1668		PM Peak Hour Volumes:	82	Total
				48	Rights
				0%	RT Discount

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	16,680	8,850	
Minor Street*	820	2,650	No
Condition B: Interruption of Continuous Traffic			
Major Street	16,680	13,300	
Minor Street*	820	1,350	No
Combination Warrant			
Major Street	16,680	10,640	
Minor Street*	820	2,120	No

* Minor street right-turning traffic volumes reduced by 00%.

Preliminary Traffic Signal Warrant Analysis

Project:	MRMS Replacement Project
Date:	5/22/2025
Scenario:	Year 2030 Buildout Condition

Major Street:	W Main (OR 211)		Minor Street:	Leroy Avenue	
Number of Lanes:	1		Number of Lanes:	1	
PM Peak Hour Volumes:	1613		PM Peak Hour Volumes:	122	Total
				90	Rights
				100%	RT Discount

Warrant Used:

X	100 percent of standard warrants used
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	16,130	8,850	
Minor Street*	320	2,650	No
Condition B: Interruption of Continuous Traffic			
Major Street	16,130	13,300	
Minor Street*	320	1,350	No
Combination Warrant			
Major Street	16,130	10,640	
Minor Street*	320	2,120	No

* Minor street right-turning traffic volumes reduced by 100%.

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

INTERSECTION INFORMATION

City:	Molalla	Condition:	Year 2030 Background Condition
Population:	10,103		Left-Turn Lane
Intersection Location:	Urban		
Major Street Name:	Main (OR 211)	Minor Street Name:	Leroy Ave
Number of Moving	1	Number of Moving	1
Speed:	35 mph	Speed:	25 mph
Street Width:	55 ft	Street Width:	50 ft

Direction:	EB	WB	Direction:	NBL	SBL
Hour Beginning:			Hour Beginning:		
12:00 AM			12:00 AM		
1:00 AM			1:00 AM		
2:00 AM			2:00 AM		
3:00 AM			3:00 AM		
4:00 AM			4:00 AM		
5:00 AM			5:00 AM		
6:00 AM	327	457	6:00 AM	24	16
7:00 AM	481	554	7:00 AM	17	36
8:00 AM	407	519	8:00 AM	14	8
9:00 AM	492	549	9:00 AM	22	16
10:00 AM	459	553	10:00 AM	24	18
11:00 AM	522	603	11:00 AM	24	10
12:00 PM	587	681	12:00 PM	36	8
1:00 PM	558	605	1:00 PM	25	10
2:00 PM	616	737	2:00 PM	20	13
3:00 PM	723	735	3:00 PM	27	10
4:00 PM	787	803	4:00 PM	27	25
5:00 PM	731	709	5:00 PM	33	22
6:00 PM			6:00 PM		
7:00 PM			7:00 PM		
8:00 PM			8:00 PM		
9:00 PM			9:00 PM		
10:00 PM			10:00 PM		
11:00 PM			11:00 PM		
24-hour Total	6,690	7,505	24-hour Total	293	192

Warrants Evaluted:

Warrant 1, Eight-Hour Vehicular Volume - Evaluated for Conditions A & B
Warrant 2 , Four-Hour Vehicular Volume - Evaluated
Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
Warrant 4, Pedestrian Volume - Not Analyzed
Warrant 5, School Crossing - Not Analyzed
Warrant 6, Coordinated Signal System - Not Analyzed
Warrant 7, Accident Experience - Not Analyzed
Warrant 8, Roadway Network - Not Analyzed
Warrant 9, Intersection Near a Grade Crossing - Not Analyzed

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Condition			
	EB	WB	Total	NBL	SBL	Max	A	B	A or B	80% A&B
4:00 PM	787	803	1,590	27	25	27	N	N	N	N
5:00 PM	731	709	1,440	33	22	33	N	N	N	N
3:00 PM	723	735	1,458	27	10	27	N	N	N	N
2:00 PM	616	737	1,353	20	13	20	N	N	N	N
12:00 PM	587	681	1,268	36	8	36	N	N	N	N
1:00 PM	558	605	1,163	25	10	25	N	N	N	N
11:00 AM	522	603	1,125	24	10	24	N	N	N	N
7:00 AM	481	554	1,035	17	36	36	N	N	N	N
9:00 AM	492	549	1,041	22	16	22	N	N	N	N
10:00 AM	459	553	1,012	24	18	24	N	N	N	N
8:00 AM	407	519	926	14	8	14	N	N	N	N
6:00 AM	327	457	784	24	16	24	N	N	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A - Minimum Vehicular Volume
Minimum Volume on Combined Major Street Approaches: 500
Minimum Volume on Higher Minor Street Approach: 150

CONDITION B - Interruption of Continuous Traffic
Minimum Volume on Combined Major Street Approaches: 750
Minimum Volume on Higher Minor Street Approach: 75

Is Condition A of Signal Warrant 1 met? **NO**
Is Condition B of Signal Warrant 1 met? **NO**
Is Combination of Condition A or B met? **NO**
Is 80% of Condition A and Condition B met? **NO**

Notes:
A. Signal Warrant 1 is met if either Condition A or Condition B is met.
B. Signal Warrant 1 is met if a combination of Condition A and Condition B is met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems."
C. Signal Warrant 1 is met if 80% of Condition A and Condition B are met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems,"

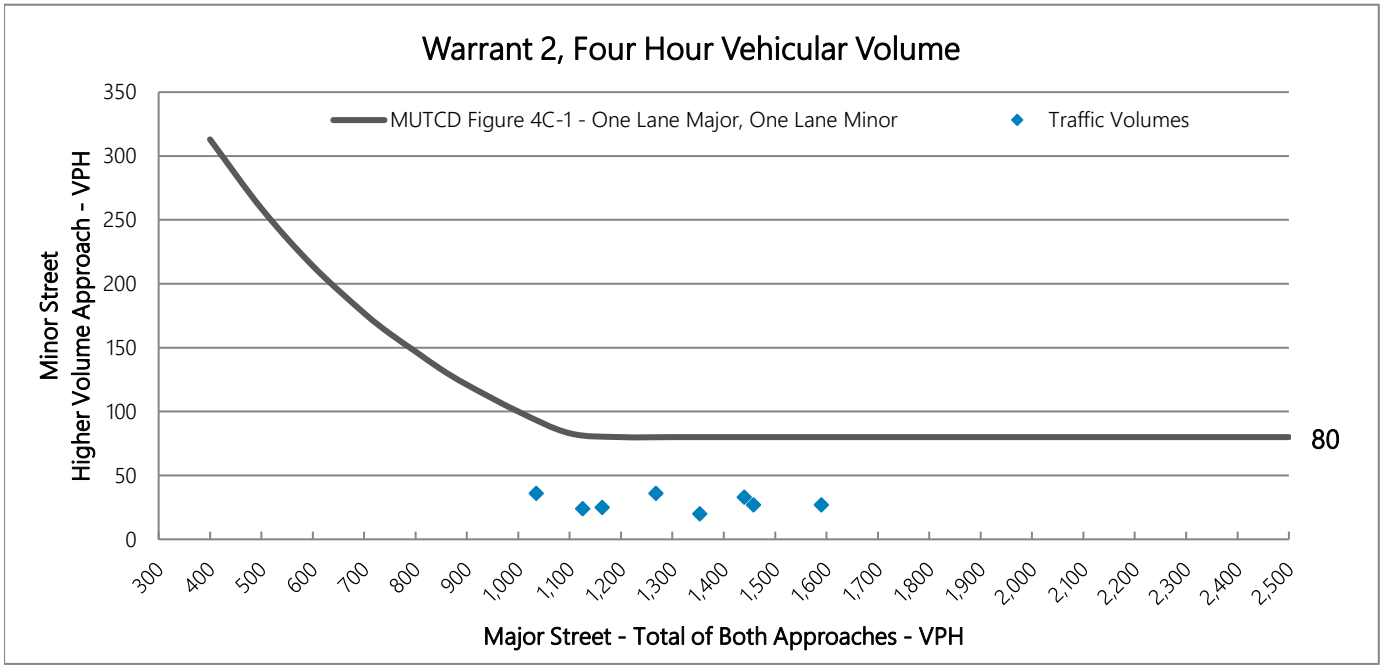
TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Calculated	
	EB	WB	Total	NBL	SBL	Max	Threshold	Condition
4:00 PM	787	803	1,590	27	25	27	80	N
5:00 PM	731	709	1,440	33	22	33	80	N
3:00 PM	723	735	1,458	27	10	27	80	N
2:00 PM	616	737	1,353	20	13	20	80	N
12:00 PM	587	681	1,268	36	8	36	80	N
1:00 PM	558	605	1,163	25	10	25	80	N
11:00 AM	522	603	1,125	24	10	24	80	N
7:00 AM	481	554	1,035	17	36	36	94	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

Is Signal Warrant 2 met? **NO**



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 3, PEAK HOUR

	MAJOR			MINOR			Calculated	Condition	
	EB	WB	Total	NBL	SBL	Max	Threshold (B)	A-2&3	B
4:00 PM	787	803	1,590	27	25	27	100	N	N
5:00 PM	731	709	1,440	33	22	33	102	N	N
3:00 PM	723	735	1,458	27	10	27	100	N	N
2:00 PM	616	737	1,353	20	13	20	116	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A-1 - Stopped Delay
Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled

CONDITION A-2 - Minor Street Volume
Minimum Volume on Higher Minor Street Approach: 100

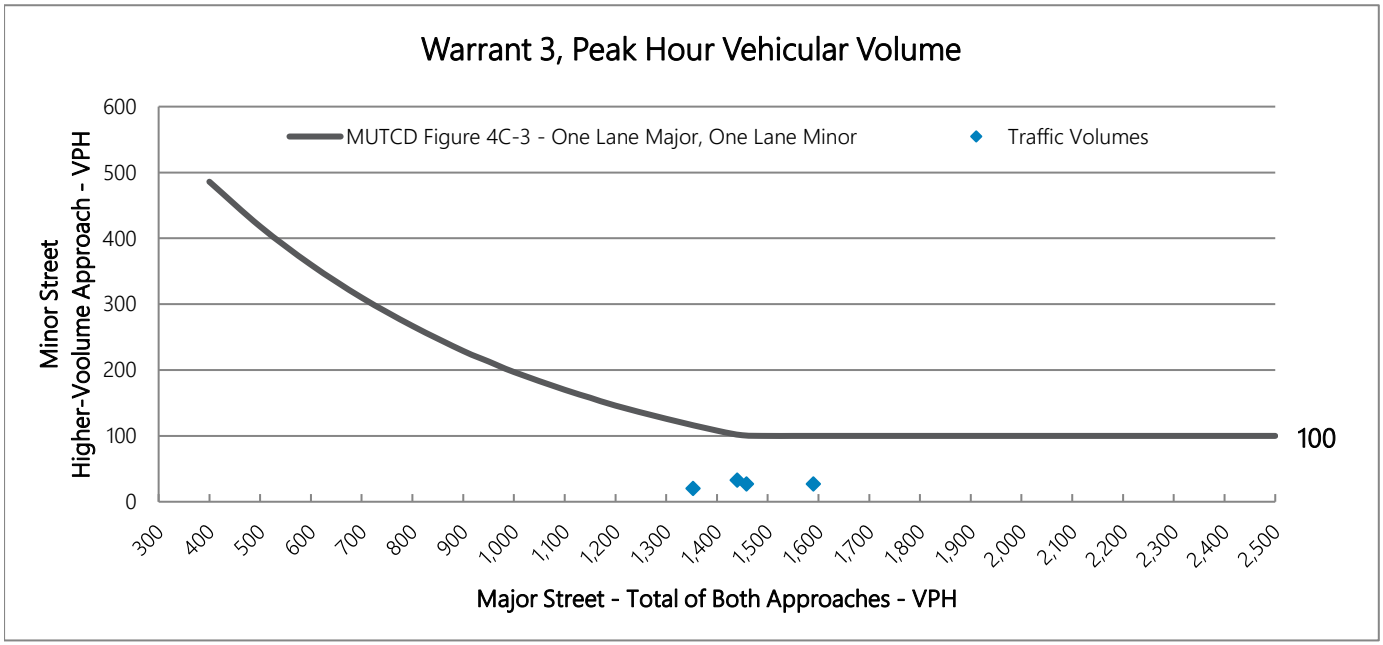
CONDITION A-3 - Total Approach Volume
Minimum Volume of Total Approaches: 800

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

Are Conditions A-2 and A-3 of Signal Warrant 3 met? **NO**
Note: All 3 subsections of Condition A must be met to warrant signal.

Is Condition B of Signal Warrant 3 met? **NO**

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 8, ROADWAY NETWORK

	Entering Volume						
	EB	WB	NBL	SBL	Total	Threshold	Condition A or B
4:00 PM	787	803	27	25	1,642	1,000	Y
5:00 PM	731	709	33	22	1,495	1,000	Y
3:00 PM	723	735	27	10	1,495	1,000	Y
2:00 PM	616	737	20	13	1,386	1,000	Y
12:00 PM	587	681	36	8	1,312	1,000	Y
1:00 PM	558	605	25	10	1,198	1,000	Y
11:00 AM	522	603	24	10	1,159	1,000	Y
7:00 AM	481	554	17	36	1,088	1,000	Y

The need for a traffic control signal should be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:
A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or
B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).

Signal Warrants	
Warrant 1, Eight-Hour Vehicular Volume	NO
Warrant 2, Four-Hour Vehicular Volume	NO
Warrant 3, Peak-Hour Vehicular Volume	NO

Is Condition A of Signal Warrant 8 met?	**NO**
Is Condition B of Signal Warrant 8 met?	**YES**

Notes:
A major route as used in this signal warrant should have at least one of the following characteristics:
A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.
B. It includes rural or suburban highways outside, entering, or traversing a city.
C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

INTERSECTION INFORMATION

City:	Molalla	Condition:	Year 2030 Background Condition
Population:	10,103		Shard Through-Right
Intersection Location:	Urban		Right-Turn Discount
			100%
Major Street Name:	Main (OR 211)	Minor Street Name:	Leroy Ave
Number of Moving	1	Number of Moving	1
Speed:	35 mph	Speed:	25 mph
Street Width:	55 ft	Street Width:	50 ft

Direction:	EB	WB	Direction:	NBTR	SBTR
Hour Beginning:			Hour Beginning:		
12:00 AM			12:00 AM		
1:00 AM			1:00 AM		
2:00 AM			2:00 AM		
3:00 AM			3:00 AM		
4:00 AM			4:00 AM		
5:00 AM			5:00 AM		
6:00 AM	327	457	6:00 AM	4	2
7:00 AM	481	554	7:00 AM	3	4
8:00 AM	407	519	8:00 AM	9	7
9:00 AM	492	549	9:00 AM	9	8
10:00 AM	459	553	10:00 AM	9	8
11:00 AM	522	603	11:00 AM	9	7
12:00 PM	587	681	12:00 PM	8	9
1:00 PM	558	605	1:00 PM	7	7
2:00 PM	616	737	2:00 PM	6	8
3:00 PM	723	735	3:00 PM	11	7
4:00 PM	787	803	4:00 PM	5	5
5:00 PM	731	709	5:00 PM	11	8
6:00 PM			6:00 PM		
7:00 PM			7:00 PM		
8:00 PM			8:00 PM		
9:00 PM			9:00 PM		
10:00 PM			10:00 PM		
11:00 PM			11:00 PM		
24-hour Total	6,690	7,505	24-hour Total	91	80

Warrants Evaluted:

Warrant 1, Eight-Hour Vehicular Volume - Evaluated for Conditions A & B
Warrant 2 , Four-Hour Vehicular Volume - Evaluated
Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
Warrant 4, Pedestrian Volume - Not Analyzed
Warrant 5, School Crossing - Not Analyzed
Warrant 6, Coordinated Signal System - Not Analyzed
Warrant 7, Accident Experience - Not Analyzed
Warrant 8, Roadway Network - Not Analyzed
Warrant 9, Intersection Near a Grade Crossing - Not Analyzed

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Condition			
	EB	WB	Total	NBTR	SBTR	Max	A	B	A or B	80% A&B
4:00 PM	787	803	1,590	5	5	5	N	N	N	N
3:00 PM	723	735	1,458	11	7	11	N	N	N	N
5:00 PM	731	709	1,440	11	8	11	N	N	N	N
2:00 PM	616	737	1,353	6	8	8	N	N	N	N
12:00 PM	587	681	1,268	8	9	9	N	N	N	N
1:00 PM	558	605	1,163	7	7	7	N	N	N	N
11:00 AM	522	603	1,125	9	7	9	N	N	N	N
9:00 AM	492	549	1,041	9	8	9	N	N	N	N
7:00 AM	481	554	1,035	3	4	4	N	N	N	N
10:00 AM	459	553	1,012	9	8	9	N	N	N	N
8:00 AM	407	519	926	9	7	9	N	N	N	N
6:00 AM	327	457	784	4	2	4	N	N	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A - Minimum Vehicular Volume
Minimum Volume on Combined Major Street Approaches: 500
Minimum Volume on Higher Minor Street Approach: 150

CONDITION B - Interruption of Continuous Traffic
Minimum Volume on Combined Major Street Approaches: 750
Minimum Volume on Higher Minor Street Approach: 75

Is Condition A of Signal Warrant 1 met? **NO**
Is Condition B of Signal Warrant 1 met? **NO**
Is Combination of Condition A or B met? **NO**
Is 80% of Condition A and Condition B met? **NO**

Notes:
A. Signal Warrant 1 is met if either Condition A or Condition B is met.
B. Signal Warrant 1 is met if a combination of Condition A and Condition B is met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems."
C. Signal Warrant 1 is met if 80% of Condition A and Condition B are met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems,"

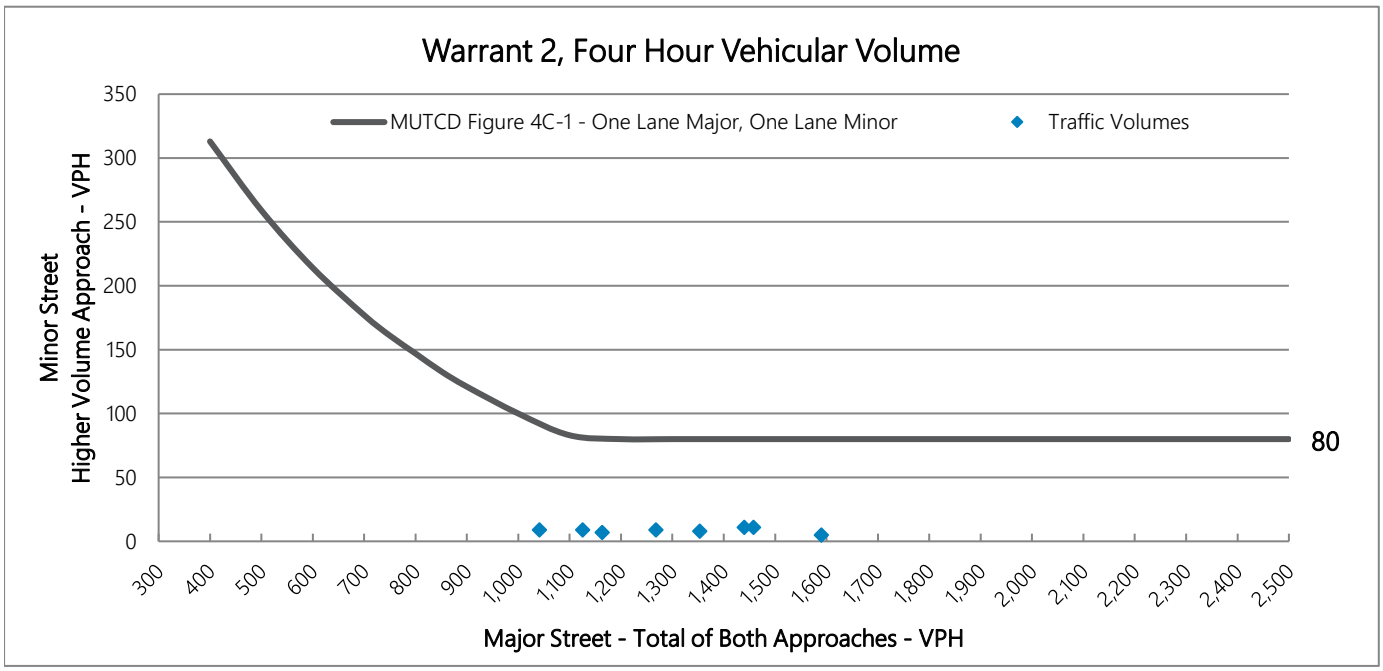
TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Calculated	
	EB	WB	Total	NBTR	SBTR	Max	Threshold	Condition
4:00 PM	787	803	1,590	5	5	5	80	N
3:00 PM	723	735	1,458	11	7	11	80	N
5:00 PM	731	709	1,440	11	8	11	80	N
2:00 PM	616	737	1,353	6	8	8	80	N
12:00 PM	587	681	1,268	8	9	9	80	N
1:00 PM	558	605	1,163	7	7	7	80	N
11:00 AM	522	603	1,125	9	7	9	80	N
9:00 AM	492	549	1,041	9	8	9	93	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

Is Signal Warrant 2 met? **NO**



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 3, PEAK HOUR

	MAJOR			MINOR			Calculated	Condition	
	EB	WB	Total	NBTR	SBTR	Max	Threshold (B)	A-2&3	B
4:00 PM	787	803	1,590	5	5	5	100	N	N
3:00 PM	723	735	1,458	11	7	11	100	N	N
5:00 PM	731	709	1,440	11	8	11	102	N	N
2:00 PM	616	737	1,353	6	8	8	116	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A-1 - Stopped Delay
Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled

CONDITION A-2 - Minor Street Volume
Minimum Volume on Higher Minor Street Approach: 100

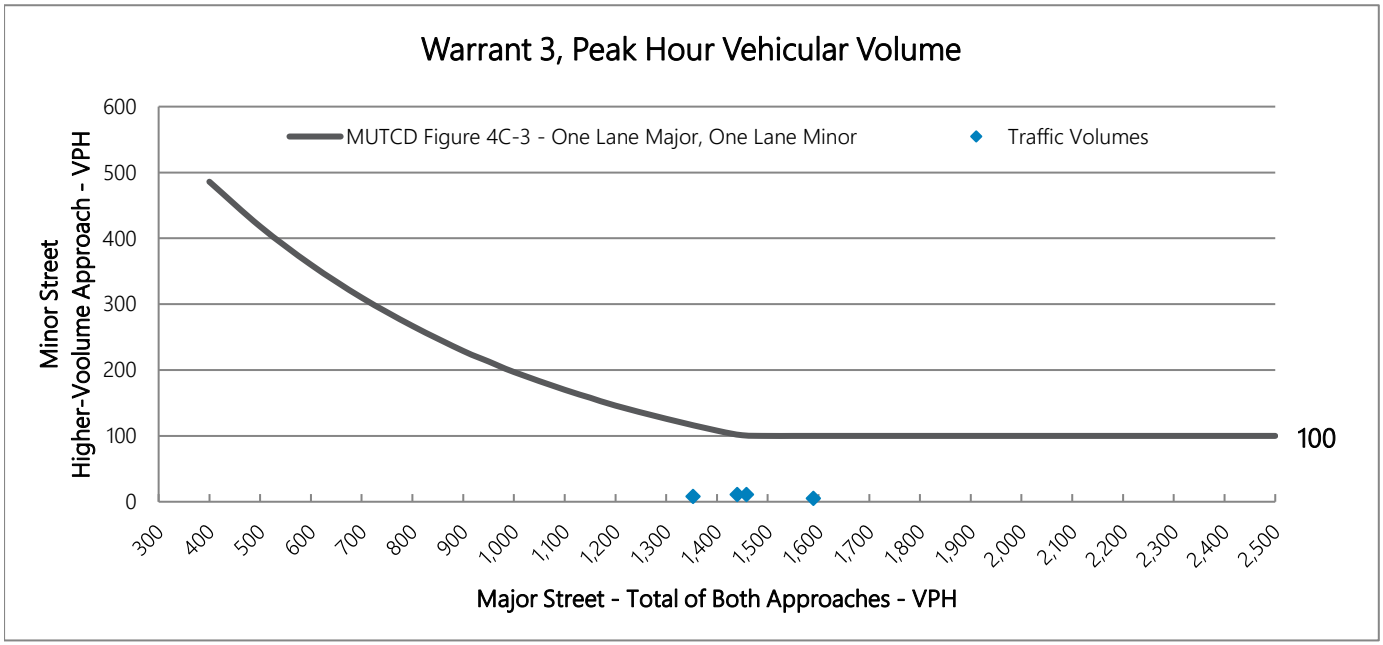
CONDITION A-3 - Total Approach Volume
Minimum Volume of Total Approaches: 800

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

Are Conditions A-2 and A-3 of Signal Warrant 3 met? **NO**
Note: All 3 subsections of Condition A must be met to warrant signal.

Is Condition B of Signal Warrant 3 met? **NO**

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 8, ROADWAY NETWORK

	Entering Volume						
	EB	WB	NBTR	SBTR	Total	Threshold	Condition A or B
4:00 PM	787	803	5	5	1,600	1,000	Y
3:00 PM	723	735	11	7	1,476	1,000	Y
5:00 PM	731	709	11	8	1,459	1,000	Y
2:00 PM	616	737	6	8	1,367	1,000	Y
12:00 PM	587	681	8	9	1,285	1,000	Y
1:00 PM	558	605	7	7	1,177	1,000	Y
11:00 AM	522	603	9	7	1,141	1,000	Y
9:00 AM	492	549	9	8	1,058	1,000	Y

The need for a traffic control signal should be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:
A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or
B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).

Signal Warrants	
Warrant 1, Eight-Hour Vehicular Volume	NO
Warrant 2, Four-Hour Vehicular Volume	NO
Warrant 3, Peak-Hour Vehicular Volume	NO

Is Condition A of Signal Warrant 8 met? **NO**

Is Condition B of Signal Warrant 8 met? No weekend data

Notes:
A major route as used in this signal warrant should have at least one of the following characteristics:
A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.
B. It includes rural or suburban highways outside, entering, or traversing a city.
C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

INTERSECTION INFORMATION

City:	Molalla	Condition:	Year 2030 Buildout Condition
Population:	10,103		Left-Turn Lane
Intersection Location:	Urban		

Major Street Name:	Main (OR 211)	Minor Street Name:	Leroy Ave
Number of Moving	1	Number of Moving	1
Speed:	35 mph	Speed:	25 mph
Street Width:	55 ft	Street Width:	50 ft

Direction:	EB	WB	Direction:	NBL	SBL
Hour Beginning:			Hour Beginning:		
12:00 AM			12:00 AM		
1:00 AM			1:00 AM		
2:00 AM			2:00 AM		
3:00 AM			3:00 AM		
4:00 AM			4:00 AM		
5:00 AM			5:00 AM		
6:00 AM	328	457	6:00 AM	24	16
7:00 AM	510	554	7:00 AM	17	35
8:00 AM	423	519	8:00 AM	14	8
9:00 AM	494	549	9:00 AM	22	16
10:00 AM	461	553	10:00 AM	24	18
11:00 AM	524	603	11:00 AM	24	10
12:00 PM	590	681	12:00 PM	36	8
1:00 PM	564	605	1:00 PM	25	10
2:00 PM	641	737	2:00 PM	20	13
3:00 PM	731	735	3:00 PM	27	10
4:00 PM	816	798	4:00 PM	27	23
5:00 PM	754	709	5:00 PM	33	22
6:00 PM			6:00 PM		
7:00 PM			7:00 PM		
8:00 PM			8:00 PM		
9:00 PM			9:00 PM		
10:00 PM			10:00 PM		
11:00 PM			11:00 PM		
24-hour Total	6,836	7,500	24-hour Total	293	189

Warrants Evaluted:

Warrant 1, Eight-Hour Vehicular Volume - Evaluated for Conditions A & B
Warrant 2 , Four-Hour Vehicular Volume - Evaluated
Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
Warrant 4, Pedestrian Volume - Not Analyzed
Warrant 5, School Crossing - Not Analyzed
Warrant 6, Coordinated Signal System - Not Analyzed
Warrant 7, Accident Experience - Not Analyzed
Warrant 8, Roadway Network - Not Analyzed
Warrant 9, Intersection Near a Grade Crossing - Not Analyzed

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Condition			
	EB	WB	Total	NBL	SBL	Max	A	B	A or B	80% A&B
4:00 PM	816	798	1,614	27	23	27	N	N	N	N
5:00 PM	754	709	1,463	33	22	33	N	N	N	N
3:00 PM	731	735	1,466	27	10	27	N	N	N	N
2:00 PM	641	737	1,378	20	13	20	N	N	N	N
12:00 PM	590	681	1,271	36	8	36	N	N	N	N
1:00 PM	564	605	1,169	25	10	25	N	N	N	N
11:00 AM	524	603	1,127	24	10	24	N	N	N	N
7:00 AM	510	554	1,064	17	35	35	N	N	N	N
9:00 AM	494	549	1,043	22	16	22	N	N	N	N
10:00 AM	461	553	1,014	24	18	24	N	N	N	N
8:00 AM	423	519	942	14	8	14	N	N	N	N
6:00 AM	328	457	785	24	16	24	N	N	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A - Minimum Vehicular Volume
Minimum Volume on Combined Major Street Approaches: 500
Minimum Volume on Higher Minor Street Approach: 150

CONDITION B - Interruption of Continuous Traffic
Minimum Volume on Combined Major Street Approaches: 750
Minimum Volume on Higher Minor Street Approach: 75

Is Condition A of Signal Warrant 1 met? **NO**
Is Condition B of Signal Warrant 1 met? **NO**
Is Combination of Condition A or B met? **NO**
Is 80% of Condition A and Condition B met? **NO**

Notes:
A. Signal Warrant 1 is met if either Condition A or Condition B is met.
B. Signal Warrant 1 is met if a combination of Condition A and Condition B is met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems."
C. Signal Warrant 1 is met if 80% of Condition A and Condition B are met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems,"

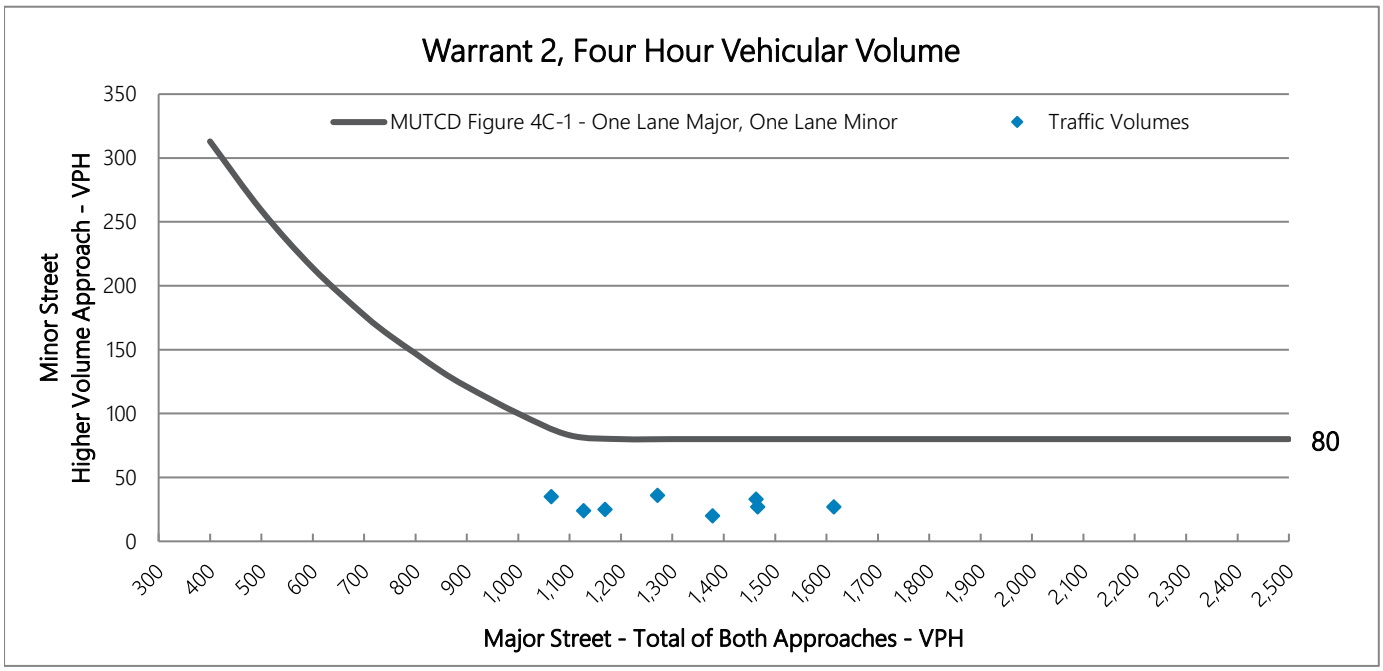
TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Calculated	
	EB	WB	Total	NBL	SBL	Max	Threshold	Condition
4:00 PM	816	798	1,614	27	23	27	80	N
5:00 PM	754	709	1,463	33	22	33	80	N
3:00 PM	731	735	1,466	27	10	27	80	N
2:00 PM	641	737	1,378	20	13	20	80	N
12:00 PM	590	681	1,271	36	8	36	80	N
1:00 PM	564	605	1,169	25	10	25	80	N
11:00 AM	524	603	1,127	24	10	24	80	N
7:00 AM	510	554	1,064	17	35	35	89	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

Is Signal Warrant 2 met? **NO**



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 3, PEAK HOUR

	MAJOR			MINOR			Calculated	Condition	
	EB	WB	Total	NBL	SBL	Max	Threshold (B)	A-2&3	B
4:00 PM	816	798	1,614	27	23	27	100	N	N
5:00 PM	754	709	1,463	33	22	33	100	N	N
3:00 PM	731	735	1,466	27	10	27	100	N	N
2:00 PM	641	737	1,378	20	13	20	112	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A-1 - Stopped Delay
Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled

CONDITION A-2 - Minor Street Volume
Minimum Volume on Higher Minor Street Approach: 100

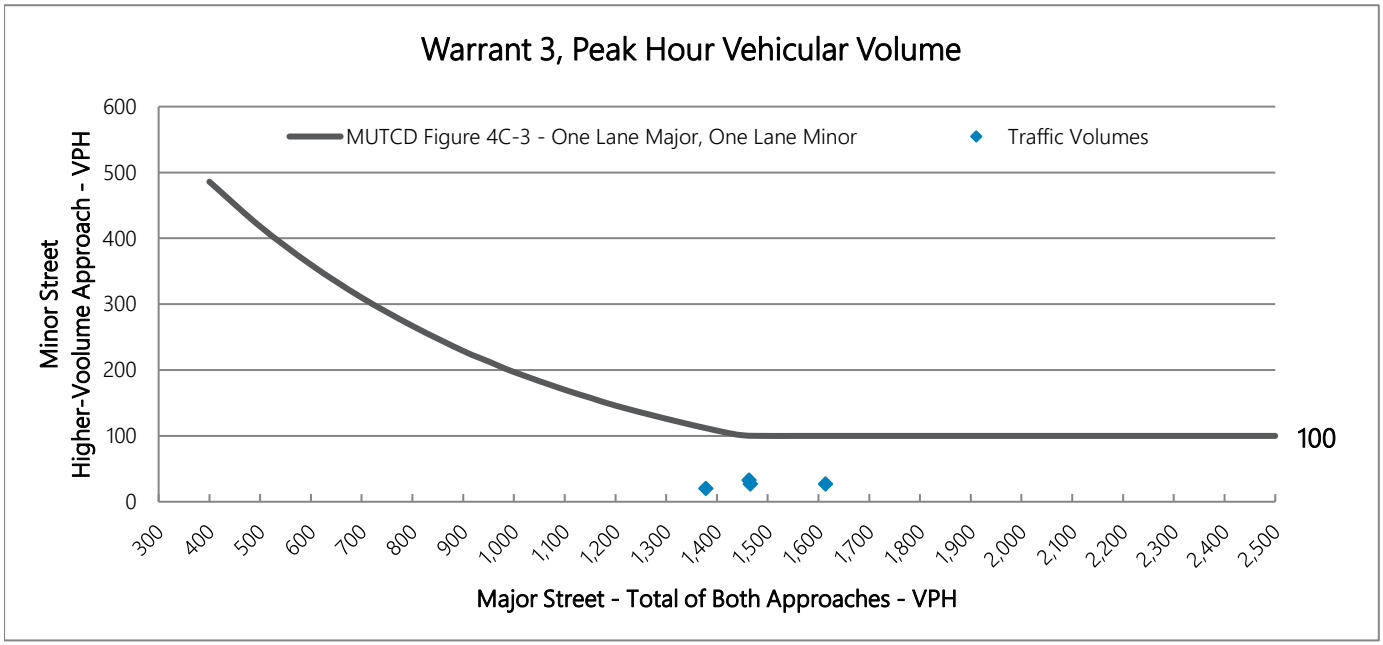
CONDITION A-3 - Total Approach Volume
Minimum Volume of Total Approaches: 800

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

Are Conditions A-2 and A-3 of Signal Warrant 3 met? **NO**
Note: All 3 subsections of Condition A must be met to warrant signal.

Is Condition B of Signal Warrant 3 met? **NO**

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 8, ROADWAY NETWORK

	Entering Volume						
	EB	WB	NBL	SBL	Total	Threshold	Condition A or B
4:00 PM	816	798	27	23	1,664	1,000	Y
5:00 PM	754	709	33	22	1,518	1,000	Y
3:00 PM	731	735	27	10	1,503	1,000	Y
2:00 PM	641	737	20	13	1,411	1,000	Y
12:00 PM	590	681	36	8	1,315	1,000	Y
1:00 PM	564	605	25	10	1,204	1,000	Y
11:00 AM	524	603	24	10	1,161	1,000	Y
7:00 AM	510	554	17	35	1,116	1,000	Y

The need for a traffic control signal should be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:
A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or
B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).

Signal Warrants	
Warrant 1, Eight-Hour Vehicular Volume	NO
Warrant 2, Four-Hour Vehicular Volume	NO
Warrant 3, Peak-Hour Vehicular Volume	NO

Is Condition A of Signal Warrant 8 met?	**NO**
Is Condition B of Signal Warrant 8 met?	**YES**

Notes:
A major route as used in this signal warrant should have at least one of the following characteristics:
A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.
B. It includes rural or suburban highways outside, entering, or traversing a city.
C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

INTERSECTION INFORMATION

City:	Molalla	Condition:	Year 2030 Buildout Condition
Population:	10,103		Shard Through-Right
Intersection Location:	Urban		Right-Turn Discount - 50%
			100%
Major Street Name:	Main (OR 211)	Minor Street Name:	Leroy Ave
Number of Moving	1	Number of Moving	1
Speed:	35 mph	Speed:	25 mph
Street Width:	55 ft	Street Width:	50 ft

Direction:	EB	WB	Direction:	NBTR	SBTR
Hour Beginning:			Hour Beginning:		
12:00 AM			12:00 AM		
1:00 AM			1:00 AM		
2:00 AM			2:00 AM		
3:00 AM			3:00 AM		
4:00 AM			4:00 AM		
5:00 AM			5:00 AM		
6:00 AM	328	457	6:00 AM	4	2
7:00 AM	510	554	7:00 AM	3	4
8:00 AM	423	519	8:00 AM	9	7
9:00 AM	494	549	9:00 AM	9	8
10:00 AM	461	553	10:00 AM	9	8
11:00 AM	524	603	11:00 AM	9	7
12:00 PM	590	681	12:00 PM	8	9
1:00 PM	564	605	1:00 PM	7	7
2:00 PM	641	737	2:00 PM	6	8
3:00 PM	731	735	3:00 PM	11	7
4:00 PM	816	798	4:00 PM	5	5
5:00 PM	754	709	5:00 PM	11	8
6:00 PM			6:00 PM		
7:00 PM			7:00 PM		
8:00 PM			8:00 PM		
9:00 PM			9:00 PM		
10:00 PM			10:00 PM		
11:00 PM			11:00 PM		
24-hour Total	6,836	7,500	24-hour Total	91	80

Warrants Evaluted:

Warrant 1, Eight-Hour Vehicular Volume - Evaluated for Conditions A & B
Warrant 2 , Four-Hour Vehicular Volume - Evaluated
Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
Warrant 4, Pedestrian Volume - Not Analyzed
Warrant 5, School Crossing - Not Analyzed
Warrant 6, Coordinated Signal System - Not Analyzed
Warrant 7, Accident Experience - Not Analyzed
Warrant 8, Roadway Network - Not Analyzed
Warrant 9, Intersection Near a Grade Crossing - Not Analyzed

TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Condition			
	EB	WB	Total	NBTR	SBTR	Max	A	B	A or B	80% A&B
4:00 PM	816	798	1,614	5	5	5	N	N	N	N
3:00 PM	731	735	1,466	11	7	11	N	N	N	N
5:00 PM	754	709	1,463	11	8	11	N	N	N	N
2:00 PM	641	737	1,378	6	8	8	N	N	N	N
12:00 PM	590	681	1,271	8	9	9	N	N	N	N
1:00 PM	564	605	1,169	7	7	7	N	N	N	N
11:00 AM	524	603	1,127	9	7	9	N	N	N	N
7:00 AM	510	554	1,064	3	4	4	N	N	N	N
9:00 AM	494	549	1,043	9	8	9	N	N	N	N
10:00 AM	461	553	1,014	9	8	9	N	N	N	N
8:00 AM	423	519	942	9	7	9	N	N	N	N
6:00 AM	328	457	785	4	2	4	N	N	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A - Minimum Vehicular Volume
Minimum Volume on Combined Major Street Approaches: 500
Minimum Volume on Higher Minor Street Approach: 150

CONDITION B - Interruption of Continuous Traffic
Minimum Volume on Combined Major Street Approaches: 750
Minimum Volume on Higher Minor Street Approach: 75

Is Condition A of Signal Warrant 1 met? **NO**
Is Condition B of Signal Warrant 1 met? **NO**
Is Combination of Condition A or B met? **NO**
Is 80% of Condition A and Condition B met? **NO**

Notes:
A. Signal Warrant 1 is met if either Condition A or Condition B is met.
B. Signal Warrant 1 is met if a combination of Condition A and Condition B is met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems."
C. Signal Warrant 1 is met if 80% of Condition A and Condition B are met "after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems,"

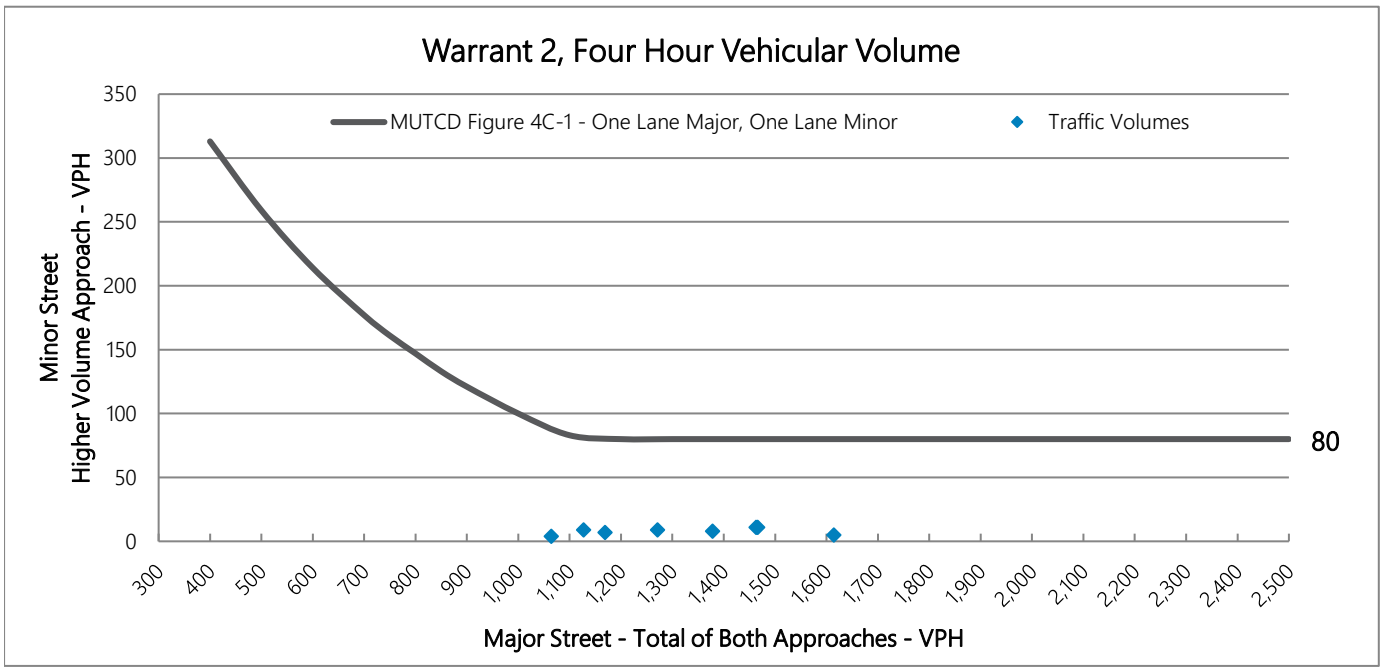
TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			Calculated	
	EB	WB	Total	NBTR	SBTR	Max	Threshold	Condition
4:00 PM	816	798	1,614	5	5	5	80	N
3:00 PM	731	735	1,466	11	7	11	80	N
5:00 PM	754	709	1,463	11	8	11	80	N
2:00 PM	641	737	1,378	6	8	8	80	N
12:00 PM	590	681	1,271	8	9	9	80	N
1:00 PM	564	605	1,169	7	7	7	80	N
11:00 AM	524	603	1,127	9	7	9	80	N
7:00 AM	510	554	1,064	3	4	4	89	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

Is Signal Warrant 2 met? **NO**



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 3, PEAK HOUR

	MAJOR			MINOR			Calculated	Condition	
	EB	WB	Total	NBTR	SBTR	Max	Threshold (B)	A-2&3	B
4:00 PM	816	798	1,614	5	5	5	100	N	N
3:00 PM	731	735	1,466	11	7	11	100	N	N
5:00 PM	754	709	1,463	11	8	11	100	N	N
2:00 PM	641	737	1,378	6	8	8	112	N	N

Warrant Requirements:
Major Street Lanes: 1
Minor Street Lanes: 1

CONDITION A-1 - Stopped Delay
Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled

CONDITION A-2 - Minor Street Volume
Minimum Volume on Higher Minor Street Approach: 100

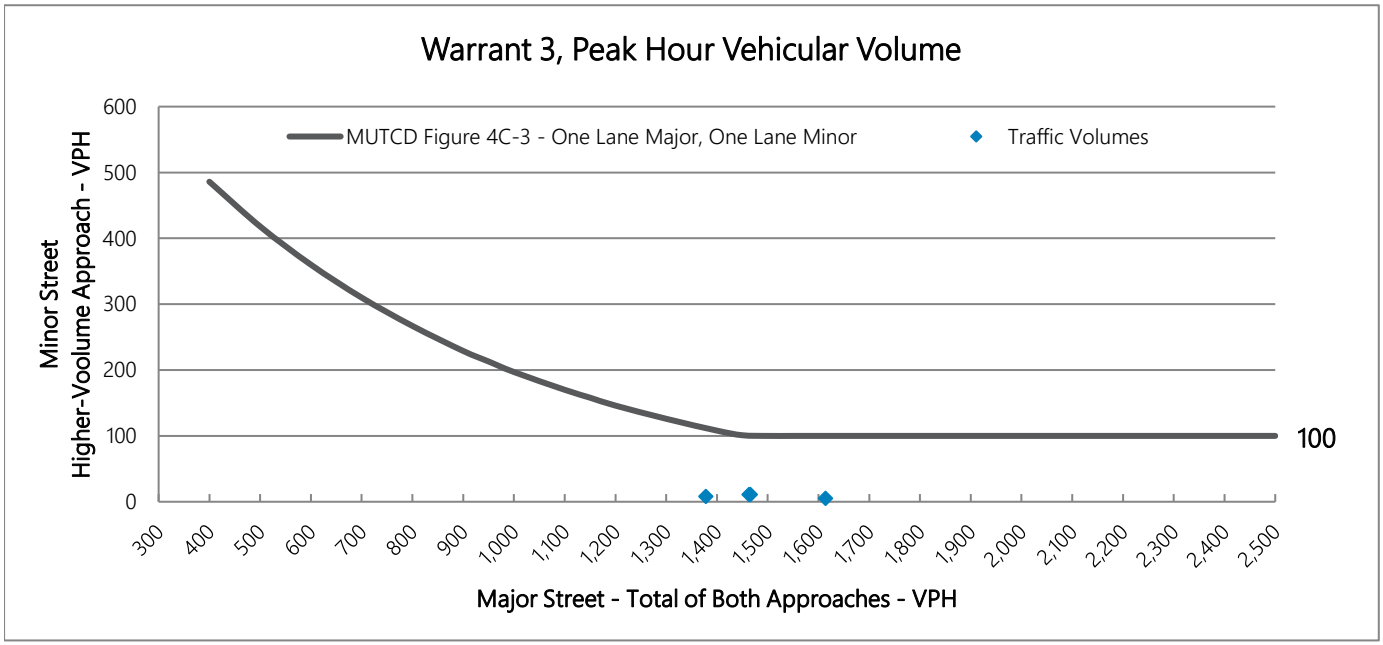
CONDITION A-3 - Total Approach Volume
Minimum Volume of Total Approaches: 800

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

Are Conditions A-2 and A-3 of Signal Warrant 3 met? **NO**
Note: All 3 subsections of Condition A must be met to warrant signal.

Is Condition B of Signal Warrant 3 met? **NO**

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



TRAFFIC SIGNAL WARRANTS - BASED ON 2023 MUTCD

WARRANT 8, ROADWAY NETWORK

	Entering Volume						
	EB	WB	NBTR	SBTR	Total	Threshold	Condition A or B
4:00 PM	816	798	5	5	1,624	1,000	Y
3:00 PM	731	735	11	7	1,484	1,000	Y
5:00 PM	754	709	11	8	1,482	1,000	Y
2:00 PM	641	737	6	8	1,392	1,000	Y
12:00 PM	590	681	8	9	1,288	1,000	Y
1:00 PM	564	605	7	7	1,183	1,000	Y
11:00 AM	524	603	9	7	1,143	1,000	Y
7:00 AM	510	554	3	4	1,071	1,000	Y

The need for a traffic control signal should be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:
A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or
B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).

Signal Warrants	
Warrant 1, Eight-Hour Vehicular Volume	NO
Warrant 2, Four-Hour Vehicular Volume	NO
Warrant 3, Peak-Hour Vehicular Volume	NO

Is Condition A of Signal Warrant 8 met? **NO**

Is Condition B of Signal Warrant 8 met? No weekend data

Notes:
A major route as used in this signal warrant should have at least one of the following characteristics:
A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.
B. It includes rural or suburban highways outside, entering, or traversing a city.
C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.

Appendix D - Operations

Definitions

Synchro Reports

Queuing Reports

Level of Service Definitions

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

- *Level of service A:* Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.
- *Level of service B:* Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.
- *Level of service C:* Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.
- *Level of service D:* Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.
- *Level of service E:* Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.
- *Level of service F:* Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

Level of Service Criteria
For Signalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

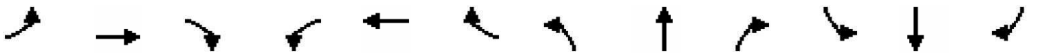
Level of Service Criteria
For Unsignalized Intersections

Level of Service (LOS)	Control Delay per Vehicle (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	94	157	589	530
Demand Flow Rate, veh/h	94	157	599	539
Vehicles Circulating, veh/h	604	511	99	134
Vehicles Exiting, veh/h	69	187	599	534
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.2	6.4	8.0	7.7
Approach LOS	A	A	A	A

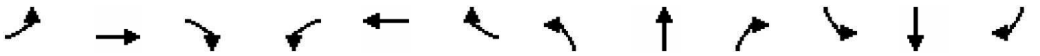
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	94	157	599	539
Cap Entry Lane, veh/h	745	819	1247	1204
Entry HV Adj Factor	1.000	1.000	0.983	0.983
Flow Entry, veh/h	94	157	589	530
Cap Entry, veh/h	745	819	1226	1183
V/C Ratio	0.126	0.192	0.480	0.448
Control Delay, s/veh	6.2	6.4	8.0	7.7
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	186	21	127	193	169	10	144	91	213	175	94
Future Volume (vph)	99	186	21	127	193	169	10	144	91	213	175	94
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1646	1678		1646	1683	1458	1662	1716	1378	1642	1606	
Flt Permitted	0.57	1.00		0.41	1.00	1.00	0.58	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	987	1678		704	1683	1458	1011	1716	1378	849	1606	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	110	207	23	141	214	188	11	160	101	237	194	104
RTOR Reduction (vph)	0	4	0	0	0	137	0	0	76	0	16	0
Lane Group Flow (vph)	110	226	0	141	214	51	11	160	25	237	282	0
Confl. Peds. (#/hr)							1		6	6		6
Heavy Vehicles (%)	1%	3%	0%	1%	4%	2%	0%	2%	5%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	25.8	19.0		30.6	21.4	21.4	19.9	19.3	19.3	39.6	34.0	
Effective Green, g (s)	27.8	20.0		32.6	22.4	22.4	21.9	20.3	20.3	40.6	35.0	
Actuated g/C Ratio	0.34	0.24		0.39	0.27	0.27	0.26	0.25	0.25	0.49	0.42	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	393	405		393	455	394	279	420	337	572	678	
v/s Ratio Prot	0.03	c0.13		c0.04	0.13		0.00	0.09		c0.08	c0.18	
v/s Ratio Perm	0.07			0.10		0.03	0.01		0.02	0.12		
v/c Ratio	0.28	0.56		0.36	0.47	0.13	0.04	0.38	0.07	0.41	0.42	
Uniform Delay, d1	19.6	27.5		17.0	25.2	22.8	22.5	26.0	24.0	12.9	16.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.3		0.4	0.6	0.1	0.0	0.4	0.1	0.4	0.3	
Delay (s)	19.9	28.9		17.5	25.8	22.9	22.6	26.4	24.1	13.2	17.0	
Level of Service	B	C		B	C	C	C	C	C	B	B	
Approach Delay (s/veh)		26.0			22.6			25.4			15.3	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	186	21	127	193	169	10	144	91	213	175	94
Future Volume (veh/h)	99	186	21	127	193	169	10	144	91	213	175	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1709	1750	1736	1695	1723	1750	1723	1682	1736	1709	1736
Adj Flow Rate, veh/h	110	207	23	141	214	188	11	160	101	237	194	104
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	3	0	1	4	2	0	2	5	1	3	1
Cap, veh/h	410	320	36	421	383	330	395	363	296	548	351	188
Arrive On Green	0.10	0.21	0.19	0.11	0.23	0.23	0.03	0.21	0.21	0.16	0.34	0.32
Sat Flow, veh/h	1654	1511	168	1654	1695	1460	1667	1723	1405	1654	1043	559
Grp Volume(v), veh/h	110	0	230	141	214	188	11	160	101	237	0	298
Grp Sat Flow(s),veh/h/ln	1654	0	1679	1654	1695	1460	1667	1723	1405	1654	0	1602
Q Serve(g_s), s	2.6	0.0	6.5	3.3	5.8	5.9	0.3	4.2	3.2	5.1	0.0	7.9
Cycle Q Clear(g_c), s	2.6	0.0	6.5	3.3	5.8	5.9	0.3	4.2	3.2	5.1	0.0	7.9
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	410	0	356	421	383	330	395	363	296	548	0	540
V/C Ratio(X)	0.27	0.00	0.65	0.34	0.56	0.57	0.03	0.44	0.34	0.43	0.00	0.55
Avail Cap(c_a), veh/h	602	0	1196	653	1273	1096	532	1061	866	984	0	1480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	18.7	13.5	17.8	17.9	15.0	17.8	17.4	11.1	0.0	14.2
Incr Delay (d2), s/veh	0.3	0.0	1.5	0.3	1.0	1.2	0.0	0.6	0.5	0.4	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.4	1.1	2.1	1.8	0.1	1.5	0.9	1.5	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.9	0.0	20.2	13.9	18.8	19.0	15.0	18.5	17.9	11.5	0.0	14.8
LnGrp LOS	B		C	B	B	B	B	B	B	B		B
Approach Vol, veh/h		340			543			272			535	
Approach Delay, s/veh		18.2			17.6			18.1			13.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	15.0	5.7	21.5	9.0	15.7	12.3	14.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	5.3	8.5	2.3	9.9	4.6	7.9	7.1	6.2
Green Ext Time (p_c), s	0.1	1.1	0.0	1.5	0.1	1.5	0.4	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	16.4
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	2	1	150	0	2
Future Vol, veh/h	195	2	1	150	0	2
Conflicting Peds, #/hr	0	15	15	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	238	2	1	183	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	255	0	439	254
Stage 1	-	-	-	-	254	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1321	-	579	790
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	851	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	570	778
Mov Cap-2 Maneuver	-	-	-	-	570	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	850	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	9.64
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	778	-	-	12	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-
HCM Ctrl Dly (s/v)	9.6	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	13	31	9	15	32
Future Vol, veh/h	11	13	31	9	15	32
Conflicting Peds, #/hr	0	15	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	17	41	12	20	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	137	69	0	0	60	0
Stage 1	54	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	861	999	-	-	1556	-
Stage 1	973	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	844	978	-	-	1546	-
Mov Cap-2 Maneuver	844	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	933	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.09	0	2.35
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	912	574	-
HCM Lane V/C Ratio	-	-	0.035	0.013	-
HCM Ctrl Dly (s/v)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	536	7	22	553	19	11	2	18	10	1	27
Future Vol, veh/h	26	536	7	22	553	19	11	2	18	10	1	27
Conflicting Peds, #/hr	10	0	9	9	0	10	0	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	29	596	8	24	614	21	12	2	20	11	1	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	646	0	0	612	0	0	1346	1361	624	1354	1354	651
Stage 1	-	-	-	-	-	-	666	666	-	684	684	-
Stage 2	-	-	-	-	-	-	680	694	-	670	670	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	949	-	-	977	-	-	130	150	489	128	151	472
Stage 1	-	-	-	-	-	-	452	460	-	442	452	-
Stage 2	-	-	-	-	-	-	444	447	-	450	458	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	940	-	-	968	-	-	111	139	477	111	140	460
Mov Cap-2 Maneuver	-	-	-	-	-	-	111	139	-	111	140	-
Stage 1	-	-	-	-	-	-	434	442	-	427	436	-
Stage 2	-	-	-	-	-	-	398	432	-	409	441	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.41	0.33	24.34	21.17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	111	384	940	-	-	968	-	-	111	426
HCM Lane V/C Ratio	0.11	0.058	0.031	-	-	0.025	-	-	0.1	0.073
HCM Ctrl Dly (s/v)	41.4	15	8.9	-	-	8.8	-	-	40.9	14.1
HCM Lane LOS	E	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.4	0.2	0.1	-	-	0.1	-	-	0.3	0.2

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	132	65	42	99	0	52	0	46	0	1	0
Future Vol, veh/h	0	132	65	42	99	0	52	0	46	0	1	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	161	79	51	121	0	63	0	56	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	8.7	8.5	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	53%	0%	30%	0%
Vol Thru, %	0%	67%	70%	100%
Vol Right, %	47%	33%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	98	197	141	1
LT Vol	52	0	42	0
Through Vol	0	132	99	1
RT Vol	46	65	0	0
Lane Flow Rate	120	240	172	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.153	0.279	0.215	0.002
Departure Headway (Hd)	4.623	4.18	4.494	4.959
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	860	800	721
Service Time	2.652	2.198	2.515	2.996
HCM Lane V/C Ratio	0.155	0.279	0.215	0.001
HCM Control Delay, s/veh	8.5	8.8	8.7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	1.1	0.8	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	2	1	0	0	2	97	0	0	106	1
Future Vol, veh/h	0	0	2	1	0	0	2	97	0	0	106	1
Conflicting Peds, #/hr	2	0	0	0	0	2	41	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	4	2	0	0	4	170	0	0	186	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	407	405	228	363	406	172	229	0	0	170	0	0
Stage 1	228	228	-	177	177	-	-	-	-	-	-	-
Stage 2	179	177	-	186	229	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	558	538	816	596	537	877	1351	-	-	1419	-	-
Stage 1	779	719	-	829	756	-	-	-	-	-	-	-
Stage 2	827	756	-	820	719	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	534	515	785	592	515	875	1299	-	-	1419	-	-
Mov Cap-2 Maneuver	534	515	-	592	515	-	-	-	-	-	-	-
Stage 1	749	691	-	827	754	-	-	-	-	-	-	-
Stage 2	823	754	-	817	691	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.61	11.1	0.16	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	36	-	-	785	592	1419	-	-
HCM Lane V/C Ratio	0.003	-	-	0.004	0.003	-	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	9.6	11.1	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	8	13	4	7	8	10	49	7	23	53	15
Future Vol, veh/h	27	8	13	4	7	8	10	49	7	23	53	15
Conflicting Peds, #/hr	0	0	0	0	0	0	23	0	4	4	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	53	16	25	8	14	16	20	96	14	45	104	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	374	385	142	348	393	107	156	0	0	114	0	0
Stage 1	232	232	-	146	146	-	-	-	-	-	-	-
Stage 2	142	153	-	202	247	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	587	552	911	610	547	953	1436	-	-	1488	-	-
Stage 1	776	716	-	861	780	-	-	-	-	-	-	-
Stage 2	866	775	-	805	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	524	512	892	546	507	949	1404	-	-	1482	-	-
Mov Cap-2 Maneuver	524	512	-	546	507	-	-	-	-	-	-	-
Stage 1	734	678	-	845	765	-	-	-	-	-	-	-
Stage 2	824	760	-	738	668	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.3	10.94	1.15	1.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	266	-	-	587	643	436	-	-
HCM Lane V/C Ratio	0.014	-	-	0.16	0.058	0.03	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	12.3	10.9	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	505	14	45	527	34	10	5	45	12	6	49
Future Vol, veh/h	29	505	14	45	527	34	10	5	45	12	6	49
Conflicting Peds, #/hr	3	0	0	0	0	3	20	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	31	543	15	48	567	37	11	5	48	13	6	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	606	0	0	558	0	0	1300	1316	552	1294	1305	608
Stage 1	-	-	-	-	-	-	613	613	-	685	685	-
Stage 2	-	-	-	-	-	-	687	703	-	609	620	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	982	-	-	1023	-	-	140	159	538	141	162	499
Stage 1	-	-	-	-	-	-	483	487	-	441	452	-
Stage 2	-	-	-	-	-	-	440	443	-	486	483	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	979	-	-	1023	-	-	108	146	537	114	149	489
Mov Cap-2 Maneuver	-	-	-	-	-	-	108	146	-	114	149	-
Stage 1	-	-	-	-	-	-	468	471	-	419	429	-
Stage 2	-	-	-	-	-	-	362	421	-	422	467	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0.65	19.25	20.28
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	108	424	979	-	-	1023	-	-	114	391
HCM Lane V/C Ratio	0.099	0.127	0.032	-	-	0.047	-	-	0.113	0.151
HCM Ctrl Dly (s/v)	41.9	14.7	8.8	-	-	8.7	-	-	40.6	15.8
HCM Lane LOS	E	B	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	0.4	0.5

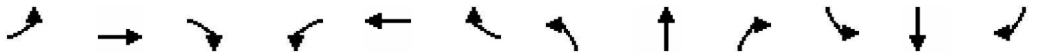
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	117	104	166	187	78
Future Vol, veh/h	57	117	104	166	187	78
Conflicting Peds, #/hr	0	5	0	0	0	12
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	73	150	133	213	240	100

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	781	307	352	0	-	0
Stage 1	302	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	366	738	1218	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	318	726	1204	-	-	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.38	3.22	0
HCM LOS	C		

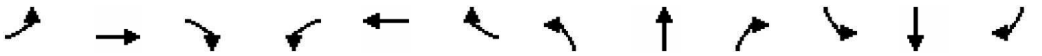
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1204	-	511	-	-
HCM Lane V/C Ratio	0.111	-	0.436	-	-
HCM Ctrl Dly (s/v)	8.4	-	17.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	359	62	9	370	43	52	56	11	50	79	105
Future Volume (vph)	56	359	62	9	370	43	52	56	11	50	79	105
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.99			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1451	1658	1673			1684			1601	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.82			0.91	
Satd. Flow (perm)	1663	1716	1451	1658	1673			1418			1480	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	399	69	10	411	48	58	62	12	56	88	117
RTOR Reduction (vph)	0	0	36	0	5	0	0	4	0	0	34	0
Lane Group Flow (vph)	62	399	33	10	454	0	0	128	0	0	227	0
Confl. Peds. (#/hr)	5		3	3		5	5		3	3		3
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	2%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	3.9	25.1	25.1	0.9	22.1			15.3			15.3	
Effective Green, g (s)	3.9	25.6	25.6	0.9	22.6			15.8			15.8	
Actuated g/C Ratio	0.07	0.48	0.48	0.02	0.42			0.30			0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	121	824	696	27	709			420			438	
v/s Ratio Prot	c0.04	c0.23		0.01	c0.27							
v/s Ratio Perm			0.02					0.09			c0.15	
v/c Ratio	0.51	0.48	0.05	0.37	0.64			0.30			0.52	
Uniform Delay, d1	23.8	9.4	7.4	25.9	12.1			14.5			15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.7	0.3	0.0	6.1	1.8			0.3			0.8	
Delay (s)	26.5	9.7	7.4	32.1	13.9			14.8			16.4	
Level of Service	C	A	A	C	B			B			B	
Approach Delay (s/veh)		11.4			14.3			14.8			16.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	359	62	9	370	43	52	56	11	50	79	105
Future Volume (veh/h)	56	359	62	9	370	43	52	56	11	50	79	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1709	1750	1750	1750	1750	1723	1750	1750
Adj Flow Rate, veh/h	62	399	69	10	411	48	58	62	12	56	88	117
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	2	0	0
Cap, veh/h	125	742	635	26	557	65	274	253	39	171	175	190
Arrive On Green	0.08	0.43	0.43	0.02	0.37	0.36	0.26	0.27	0.26	0.26	0.27	0.26
Sat Flow, veh/h	1667	1723	1474	1667	1501	175	520	926	145	217	640	696
Grp Volume(v), veh/h	62	399	69	10	0	459	132	0	0	261	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1474	1667	0	1676	1590	0	0	1553	0	0
Q Serve(g_s), s	1.4	6.7	1.1	0.2	0.0	9.3	0.0	0.0	0.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	1.4	6.7	1.1	0.2	0.0	9.3	2.4	0.0	0.0	5.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.10	0.44		0.09	0.21		0.45
Lane Grp Cap(c), veh/h	125	742	635	26	0	622	546	0	0	516	0	0
V/C Ratio(X)	0.50	0.54	0.11	0.38	0.00	0.74	0.24	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	382	1735	1485	382	0	1688	1268	0	0	1283	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	8.3	6.7	19.1	0.0	10.7	11.3	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.5	0.1	6.6	0.0	1.3	0.2	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.8	0.2	0.1	0.0	2.7	0.8	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.7	8.7	6.7	25.7	0.0	12.0	11.5	0.0	0.0	13.1	0.0	0.0
LnGrp LOS	B	A	A	C		B	B			B		
Approach Vol, veh/h		530			469			132			261	
Approach Delay, s/veh		9.7			12.3			11.5			13.1	
Approach LOS		A			B			B			B	

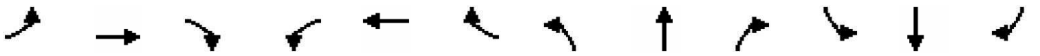
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	20.4		14.2	6.9	18.1		14.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	8.7		7.7	3.4	11.3		4.4				
Green Ext Time (p_c), s	0.0	1.7		1.3	0.0	2.5		0.6				

Intersection Summary		
HCM 7th Control Delay, s/veh	11.4	
HCM 7th LOS	B	

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	54	161	562	314
Demand Flow Rate, veh/h	54	162	567	335
Vehicles Circulating, veh/h	385	502	68	132
Vehicles Exiting, veh/h	82	133	371	532
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.4	6.4	7.2	5.8
Approach LOS	A	A	A	A

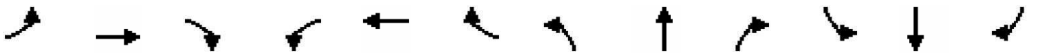
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	54	162	567	335
Cap Entry Lane, veh/h	932	827	1287	1206
Entry HV Adj Factor	1.000	0.994	0.992	0.936
Flow Entry, veh/h	54	161	562	314
Cap Entry, veh/h	932	822	1277	1129
V/C Ratio	0.058	0.196	0.440	0.278
Control Delay, s/veh	4.4	6.4	7.2	5.8
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	149	0	85	227	193	16	198	107	86	103	77
Future Volume (vph)	74	149	0	85	227	193	16	198	107	86	103	77
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1667		1599	1699	1442	1663	1733	1473	1599	1512	
Flt Permitted	0.49	1.00		0.62	1.00	1.00	0.64	1.00	1.00	0.46	1.00	
Satd. Flow (perm)	830	1667		1050	1699	1442	1117	1733	1473	769	1512	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	78	157	0	89	239	203	17	208	113	91	108	81
RTOR Reduction (vph)	0	0	0	0	0	147	0	0	81	0	24	0
Lane Group Flow (vph)	78	157	0	89	239	56	17	208	32	91	165	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	24.4	18.5		24.6	18.6	18.6	19.9	19.3	19.3	31.3	25.7	
Effective Green, g (s)	26.4	19.5		26.6	19.6	19.6	21.9	20.3	20.3	32.3	26.7	
Actuated g/C Ratio	0.37	0.28		0.38	0.28	0.28	0.31	0.29	0.29	0.46	0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	384	459		448	470	399	357	496	422	444	570	
v/s Ratio Prot	c0.02	0.09		0.02	c0.14		0.00	c0.12		c0.02	0.11	
v/s Ratio Perm	0.06			0.05		0.04	0.01		0.02	0.07		
v/c Ratio	0.20	0.34		0.20	0.51	0.14	0.05	0.42	0.08	0.20	0.29	
Uniform Delay, d1	14.7	20.5		14.6	21.5	19.3	17.1	20.5	18.4	11.4	15.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.3		0.2	0.6	0.1	0.0	0.4	0.1	0.2	0.2	
Delay (s)	14.9	20.8		14.8	22.2	19.4	17.1	20.9	18.5	11.6	15.6	
Level of Service	B	C		B	C	B	B	C	B	B	B	
Approach Delay (s/veh)		18.9			19.9			19.9			14.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	149	0	85	227	193	16	198	107	86	103	77
Future Volume (veh/h)	74	149	0	85	227	193	16	198	107	86	103	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	78	157	0	89	239	203	17	208	113	91	108	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	433	422	0	525	438	376	417	349	296	413	230	172
Arrive On Green	0.09	0.25	0.00	0.10	0.26	0.26	0.04	0.20	0.20	0.10	0.26	0.23
Sat Flow, veh/h	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	899	675
Grp Volume(v), veh/h	78	157	0	89	239	203	17	208	113	91	0	189
Grp Sat Flow(s),veh/h/ln	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	0	1574
Q Serve(g_s), s	1.5	3.5	0.0	1.7	5.5	5.4	0.4	4.9	3.0	1.9	0.0	4.6
Cycle Q Clear(g_c), s	1.5	3.5	0.0	1.7	5.5	5.4	0.4	4.9	3.0	1.9	0.0	4.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	433	422	0	525	438	376	417	349	296	413	0	402
V/C Ratio(X)	0.18	0.37	0.00	0.17	0.55	0.54	0.04	0.60	0.38	0.22	0.00	0.47
Avail Cap(c_a), veh/h	678	1377	0	834	1475	1267	566	1230	1042	1042	0	1672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.6	14.0	0.0	10.3	14.5	14.5	13.1	16.4	15.6	11.8	0.0	14.4
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.8	0.9	0.0	1.2	0.6	0.2	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.2	0.0	0.5	1.8	1.6	0.1	1.7	0.9	0.6	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.8	14.4	0.0	10.4	15.3	15.4	13.1	17.6	16.2	12.0	0.0	15.1
LnGrp LOS	B	B		B	B	B	B	B	B	B		B
Approach Vol, veh/h		235			531			338			280	
Approach Delay, s/veh		13.2			14.5			16.9			14.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	15.3	6.0	15.5	8.1	15.6	8.4	13.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	3.7	5.5	2.4	6.6	3.5	7.5	3.9	6.9
Green Ext Time (p_c), s	0.1	0.7	0.0	0.9	0.1	1.7	0.1	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	14.8
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	0	1	148	2	1
Future Vol, veh/h	166	0	1	148	2	1
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	286	0	2	255	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	294	0	553	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	259	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1279	-	498	750
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1269	-	493	744
Mov Cap-2 Maneuver	-	-	-	-	493	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	11.54
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	556	-	-	12	-
HCM Lane V/C Ratio	0.009	-	-	0.001	-
HCM Ctrl Dly (s/v)	11.5	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	8	13	8	19	36
Future Vol, veh/h	18	8	13	8	19	36
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	12	20	12	29	55

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	144	28	0	0	34	0
Stage 1	28	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	853	1053	-	-	1590	-
Stage 1	1000	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	834	1051	-	-	1587	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.23	0	2.53
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	890	622	-
HCM Lane V/C Ratio	-	-	0.045	0.018	-
HCM Ctrl Dly (s/v)	-	-	9.2	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	346	2	10	473	14	25	2	14	8	2	49
Future Vol, veh/h	18	346	2	10	473	14	25	2	14	8	2	49
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	21	398	2	11	544	16	29	2	16	9	2	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	407	0	0	1024	1030	415	1024	1023	561
Stage 1	-	-	-	-	-	-	447	447	-	575	575	-
Stage 2	-	-	-	-	-	-	577	583	-	449	448	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1021	-	-	1163	-	-	216	235	642	216	238	531
Stage 1	-	-	-	-	-	-	594	577	-	507	506	-
Stage 2	-	-	-	-	-	-	506	502	-	593	576	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1021	-	-	1155	-	-	182	227	632	200	229	527
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	227	-	200	229	-
Stage 1	-	-	-	-	-	-	579	561	-	502	501	-
Stage 2	-	-	-	-	-	-	441	497	-	559	561	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.42	0.16	22.11	14.59
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	182	517	1021	-	-	1155	-	-	200	501
HCM Lane V/C Ratio	0.158	0.036	0.02	-	-	0.01	-	-	0.046	0.117
HCM Ctrl Dly (s/v)	28.4	12.2	8.6	-	-	8.1	-	-	23.9	13.1
HCM Lane LOS	D	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.5	0.1	0.1	-	-	0	-	-	0.1	0.4

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	98	69	104	98	0	50	1	30	0	0	1
Future Vol, veh/h	0	98	69	104	98	0	50	1	30	0	0	1
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	169	119	179	169	0	86	2	52	0	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.9	11.6	9.6	8
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	0%	51%	0%
Vol Thru, %	1%	59%	49%	0%
Vol Right, %	37%	41%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	167	202	1
LT Vol	50	0	104	0
Through Vol	1	98	98	0
RT Vol	30	69	0	1
Lane Flow Rate	140	288	348	2
Geometry Grp	1	1	1	1
Degree of Util (X)	0.202	0.353	0.453	0.002
Departure Headway (Hd)	5.206	4.419	4.682	4.94
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	809	766	716
Service Time	3.272	2.467	2.729	3.03
HCM Lane V/C Ratio	0.205	0.356	0.454	0.003
HCM Control Delay, s/veh	9.6	9.9	11.6	8
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.8	1.6	2.4	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	5	0	0	0	83	2	1	173	0
Future Vol, veh/h	1	0	0	5	0	0	0	83	2	1	173	0
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	0	11	0	0	0	177	4	2	368	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	566	570	385	551	568	179	385	0	0	181	0	0
Stage 1	389	389	-	179	179	-	-	-	-	-	-	-
Stage 2	177	181	-	372	389	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	438	434	667	448	435	869	1184	-	-	1407	-	-
Stage 1	639	612	-	828	755	-	-	-	-	-	-	-
Stage 2	830	754	-	652	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	430	426	656	447	427	869	1165	-	-	1407	-	-
Mov Cap-2 Maneuver	430	426	-	447	427	-	-	-	-	-	-	-
Stage 1	627	601	-	828	755	-	-	-	-	-	-	-
Stage 2	830	754	-	651	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.41	13.24	0	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1165	-	-	430	447	10	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.024	0.002	-	-
HCM Ctrl Dly (s/v)	0	-	-	13.4	13.2	7.6	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	27	25	4	2	7	7	70	3	33	76	5
Future Vol, veh/h	23	27	25	4	2	7	7	70	3	33	76	5
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	44	52	48	8	4	13	13	135	6	63	146	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	450	456	161	466	458	140	165	0	0	142	0	0
Stage 1	287	287	-	166	166	-	-	-	-	-	-	-
Stage 2	163	169	-	300	292	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	523	497	889	510	502	914	1426	-	-	1453	-	-
Stage 1	725	671	-	840	764	-	-	-	-	-	-	-
Stage 2	843	755	-	713	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	477	464	881	405	468	912	1414	-	-	1450	-	-
Mov Cap-2 Maneuver	477	464	-	405	468	-	-	-	-	-	-	-
Stage 1	684	633	-	830	755	-	-	-	-	-	-	-
Stage 2	818	745	-	589	637	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.72	11.31	0.66	2.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	156	-	-	556	596	515	-	-
HCM Lane V/C Ratio	0.01	-	-	0.259	0.042	0.044	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13.7	11.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	338	4	2	409	49	6	1	5	35	1	60
Future Vol, veh/h	29	338	4	2	409	49	6	1	5	35	1	60
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	34	398	5	2	481	58	7	1	6	41	1	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	539	0	0	403	0	0	967	1013	401	981	986	521
Stage 1	-	-	-	-	-	-	469	469	-	515	515	-
Stage 2	-	-	-	-	-	-	497	544	-	466	472	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1040	-	-	1166	-	-	236	241	653	230	250	559
Stage 1	-	-	-	-	-	-	578	564	-	547	538	-
Stage 2	-	-	-	-	-	-	558	523	-	580	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1040	-	-	1165	-	-	195	232	653	219	241	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	232	-	219	241	-
Stage 1	-	-	-	-	-	-	559	545	-	545	537	-
Stage 2	-	-	-	-	-	-	480	522	-	555	544	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.67	0.04	18.2	17.21
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	195	502	1040	-	-	1165	-	-	219	542
HCM Lane V/C Ratio	0.036	0.014	0.033	-	-	0.002	-	-	0.188	0.132
HCM Ctrl Dly (s/v)	24.1	12.3	8.6	-	-	8.1	-	-	25.2	12.7
HCM Lane LOS	C	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0	0.1	-	-	0	-	-	0.7	0.5

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	96	103	85	182	111	56
Future Vol, veh/h	96	103	85	182	111	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	130	139	115	246	150	76

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	664	188	226	0	-	0
Stage 1	188	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	429	859	1355	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	859	1355	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	629	-	-	-	-	-

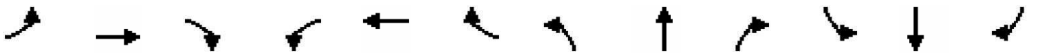
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.81	2.52	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1355	-	546	-	-
HCM Lane V/C Ratio	0.085	-	0.492	-	-
HCM Ctrl Dly (s/v)	7.9	-	17.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	262	23	9	358	32	53	65	9	52	28	27
Future Volume (vph)	41	262	23	9	358	32	53	65	9	52	28	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1663	1716	1488	1663	1697			1697			1650	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.85			0.85	
Satd. Flow (perm)	1663	1716	1488	1663	1697			1472			1443	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	279	24	10	381	34	56	69	10	55	30	29
RTOR Reduction (vph)	0	0	12	0	3	0	0	4	0	0	16	0
Lane Group Flow (vph)	44	279	12	10	412	0	0	131	0	0	98	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	2.3	22.6	22.6	0.8	21.1			9.5			9.5	
Effective Green, g (s)	2.3	23.1	23.1	0.8	21.6			10.0			10.0	
Actuated g/C Ratio	0.05	0.51	0.51	0.02	0.48			0.22			0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	85	882	765	29	816			327			321	
v/s Ratio Prot	c0.03	0.16		0.01	c0.24							
v/s Ratio Perm			0.01					c0.09			0.07	
v/c Ratio	0.52	0.32	0.02	0.34	0.50			0.40			0.30	
Uniform Delay, d1	20.8	6.3	5.3	21.8	8.0			14.9			14.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.9	0.2	0.0	5.1	0.4			0.6			0.4	
Delay (s)	24.7	6.5	5.3	26.9	8.3			15.5			14.9	
Level of Service	C	A	A	C	A			B			B	
Approach Delay (s/veh)		8.7			8.8			15.5			14.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	262	23	9	358	32	53	65	9	52	28	27
Future Volume (veh/h)	41	262	23	9	358	32	53	65	9	52	28	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	44	279	24	10	381	34	56	69	10	55	30	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	100	674	580	26	542	48	274	282	33	306	160	107
Arrive On Green	0.06	0.39	0.39	0.02	0.35	0.33	0.26	0.28	0.26	0.26	0.28	0.26
Sat Flow, veh/h	1667	1723	1483	1667	1559	139	461	1019	118	551	579	385
Grp Volume(v), veh/h	44	279	24	10	0	415	135	0	0	114	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1698	1598	0	0	1515	0	0
Q Serve(g_s), s	0.9	4.1	0.3	0.2	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	4.1	0.3	0.2	0.0	7.4	2.2	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	0.41		0.07	0.48		0.25
Lane Grp Cap(c), veh/h	100	674	580	26	0	590	566	0	0	551	0	0
V/C Ratio(X)	0.44	0.41	0.04	0.38	0.00	0.70	0.24	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	431	1954	1682	431	0	1925	1493	0	0	1429	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.8	7.7	6.6	17.0	0.0	9.8	10.0	0.0	0.0	9.9	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.3	0.0	6.5	0.0	1.2	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.0	0.1	0.1	0.0	2.1	0.7	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.1	8.0	6.6	23.4	0.0	11.0	10.1	0.0	0.0	10.1	0.0	0.0
LnGrp LOS	B	A	A	C		B	B			B		
Approach Vol, veh/h		347			425			135			114	
Approach Delay, s/veh		9.2			11.3			10.1			10.1	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	17.1		13.1	6.1	15.6		13.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	6.1		3.9	2.9	9.4		4.2				
Green Ext Time (p_c), s	0.0	1.3		0.5	0.0	2.2		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	5	12	5	1	8	0	65	10	7	99	4
Future Vol, veh/h	26	5	12	5	1	8	0	65	10	7	99	4
Conflicting Peds, #/hr	1	0	9	9	0	1	42	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	55	55	55	55	55	55	55	55	55
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	47	9	22	9	2	15	0	118	18	13	180	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	371	387	235	346	382	128	229	0	0	136	0	0
Stage 1	251	251	-	127	127	-	-	-	-	-	-	-
Stage 2	120	136	-	219	255	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	589	550	809	612	554	927	1351	-	-	1460	-	-
Stage 1	758	703	-	881	795	-	-	-	-	-	-	-
Stage 2	889	787	-	788	700	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	549	523	770	574	527	926	1297	-	-	1460	-	-
Mov Cap-2 Maneuver	549	523	-	574	527	-	-	-	-	-	-	-
Stage 1	720	668	-	881	795	-	-	-	-	-	-	-
Stage 2	872	787	-	741	666	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.99	10.13	0	0.48
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	593	727	114	-	-
HCM Lane V/C Ratio	-	-	-	0.132	0.035	0.009	-	-
HCM Ctrl Dly (s/v)	0	-	-	12	10.1	7.5	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	6	0	0	0	15	69	0	0	98	19
Future Vol, veh/h	7	0	6	0	0	0	15	69	0	0	98	19
Conflicting Peds, #/hr	0	0	0	0	0	0	72	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	0	11	0	0	0	26	121	0	0	172	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	434	434	261	346	451	121	277	0	0	121	0	0
Stage 1	261	261	-	174	174	-	-	-	-	-	-	-
Stage 2	174	174	-	172	277	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	535	518	783	613	507	936	1297	-	-	1479	-	-
Stage 1	749	696	-	833	759	-	-	-	-	-	-	-
Stage 2	833	759	-	835	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	487	471	729	590	461	936	1208	-	-	1479	-	-
Mov Cap-2 Maneuver	487	471	-	590	461	-	-	-	-	-	-	-
Stage 1	697	648	-	813	741	-	-	-	-	-	-	-
Stage 2	813	741	-	823	638	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.52	0	1.44	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	321	-	-	575	-	1479	-	-
HCM Lane V/C Ratio	0.022	-	-	0.04	-	-	-	-
HCM Ctrl Dly (s/v)	8	0	-	11.5	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	2	82	92	11
Future Vol, veh/h	3	1	2	82	92	11
Conflicting Peds, #/hr	10	1	52	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	2	4	144	161	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	384	224	233	0	-	0
Stage 1	223	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	623	820	1347	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	779	1280	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.04	0.19	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	43	-	603	-	-
HCM Lane V/C Ratio	0.003	-	0.012	-	-
HCM Ctrl Dly (s/v)	7.8	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	6	9	12	1	8	2	50	4	3	172	3
Future Vol, veh/h	27	6	9	12	1	8	2	50	4	3	172	3
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	46	46	46	46	46	46	46	46	46	46	46	46
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	59	13	20	26	2	17	4	109	9	7	374	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	528	535	403	522	534	113	399	0	0	117	0	0
Stage 1	409	409	-	122	122	-	-	-	-	-	-	-
Stage 2	118	126	-	400	412	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	464	454	652	468	455	945	1170	-	-	1484	-	-
Stage 1	623	599	-	887	799	-	-	-	-	-	-	-
Stage 2	891	796	-	630	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	441	442	636	433	442	945	1149	-	-	1484	-	-
Mov Cap-2 Maneuver	441	442	-	433	442	-	-	-	-	-	-	-
Stage 1	609	585	-	884	796	-	-	-	-	-	-	-
Stage 2	869	792	-	590	583	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.44	12.18	0.29	0.13
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	63	-	-	472	547	30	-	-
HCM Lane V/C Ratio	0.004	-	-	0.193	0.083	0.004	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	14.4	12.2	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.3	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	5	0	0	0	18	55	0	0	147	49
Future Vol, veh/h	2	0	5	0	0	0	18	55	0	0	147	49
Conflicting Peds, #/hr	0	0	0	0	0	0	84	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	0	11	0	0	0	38	117	0	0	313	104

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	643	643	449	506	695	117	501	0	0	117	0	0
Stage 1	449	449	-	194	194	-	-	-	-	-	-	-
Stage 2	194	194	-	313	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	390	395	614	480	368	940	1074	-	-	1484	-	-
Stage 1	593	576	-	813	744	-	-	-	-	-	-	-
Stage 2	813	744	-	702	546	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	343	348	565	451	325	940	988	-	-	1484	-	-
Mov Cap-2 Maneuver	343	348	-	451	325	-	-	-	-	-	-	-
Stage 1	546	530	-	779	713	-	-	-	-	-	-	-
Stage 2	779	713	-	689	502	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.79	0	2.17	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	444	-	-	477	-	1484	-	-
HCM Lane V/C Ratio	0.039	-	-	0.031	-	-	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	12.8	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	31	70	116	39
Future Vol, veh/h	1	0	31	70	116	39
Conflicting Peds, #/hr	0	0	12	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	0	66	149	247	83

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	581	300	342	0	-	0
Stage 1	300	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	479	744	1229	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	441	736	1215	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	762	-	-	-	-	-

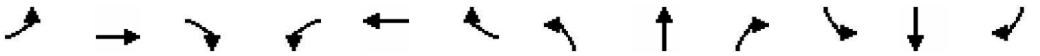
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.21	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	552	-	441	-	-
HCM Lane V/C Ratio	0.054	-	0.005	-	-
HCM Ctrl Dly (s/v)	8.1	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	158	164	598	682
Demand Flow Rate, veh/h	158	165	602	728
Vehicles Circulating, veh/h	803	484	173	164
Vehicles Exiting, veh/h	89	291	788	485
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	6.3	9.1	11.7
Approach LOS	A	A	A	B

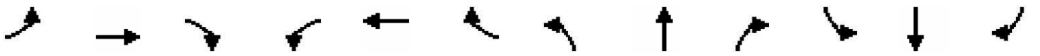
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	158	165	602	728
Cap Entry Lane, veh/h	608	842	1157	1167
Entry HV Adj Factor	1.000	0.994	0.993	0.937
Flow Entry, veh/h	158	164	598	682
Cap Entry, veh/h	608	837	1148	1094
V/C Ratio	0.260	0.196	0.520	0.624
Control Delay, s/veh	9.3	6.3	9.1	11.7
LOS	A	A	A	B
95th %tile Queue, veh	1	1	3	5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	282	20	162	219	172	16	186	141	234	222	140
Future Volume (vph)	125	282	20	162	219	172	16	186	141	234	222	140
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1655		1599	1699	1442	1663	1733	1473	1599	1529	
Flt Permitted	0.50	1.00		0.31	1.00	1.00	0.54	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	833	1655		516	1699	1442	938	1733	1473	721	1529	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	297	21	171	231	181	17	196	148	246	234	147
RTOR Reduction (vph)	0	2	0	0	0	132	0	0	112	0	19	0
Lane Group Flow (vph)	132	316	0	171	231	49	17	196	36	246	362	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	31.0	21.9		33.0	22.9	22.9	21.8	20.2	20.2	41.1	34.5	
Effective Green, g (s)	33.0	22.9		35.0	23.9	23.9	23.8	21.2	21.2	42.1	35.5	
Actuated g/C Ratio	0.37	0.26		0.40	0.27	0.27	0.27	0.24	0.24	0.48	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	399	430		341	460	391	274	417	354	512	616	
v/s Ratio Prot	0.04	c0.19		c0.06	0.14		0.00	0.11		c0.09	c0.24	
v/s Ratio Perm	0.09			0.14		0.03	0.01		0.02	0.14		
v/c Ratio	0.33	0.73		0.50	0.50	0.13	0.06	0.47	0.10	0.48	0.59	
Uniform Delay, d1	18.9	29.8		18.8	27.1	24.2	23.7	28.6	26.0	14.7	20.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	6.0		0.8	0.6	0.1	0.1	0.6	0.1	0.5	1.2	
Delay (s)	19.3	35.9		19.6	27.7	24.3	23.8	29.3	26.1	15.2	21.8	
Level of Service	B	D		B	C	C	C	C	C	B	C	
Approach Delay (s/veh)		31.0			24.3			27.7			19.2	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	282	20	162	219	172	16	186	141	234	222	140
Future Volume (veh/h)	125	282	20	162	219	172	16	186	141	234	222	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	132	297	21	171	231	181	17	196	148	246	234	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	446	403	29	407	481	413	275	308	261	468	299	188
Arrive On Green	0.10	0.26	0.24	0.12	0.28	0.28	0.04	0.18	0.18	0.17	0.31	0.29
Sat Flow, veh/h	1615	1552	110	1615	1709	1469	1667	1736	1471	1615	974	612
Grp Volume(v), veh/h	132	0	318	171	231	181	17	196	148	246	0	381
Grp Sat Flow(s),veh/h/ln	1615	0	1662	1615	1709	1469	1667	1736	1471	1615	0	1585
Q Serve(g_s), s	3.3	0.0	10.2	4.3	6.5	5.9	0.5	6.1	5.4	6.5	0.0	12.8
Cycle Q Clear(g_c), s	3.3	0.0	10.2	4.3	6.5	5.9	0.5	6.1	5.4	6.5	0.0	12.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	446	0	432	407	481	413	275	308	261	468	0	486
V/C Ratio(X)	0.30	0.00	0.74	0.42	0.48	0.44	0.06	0.64	0.57	0.53	0.00	0.78
Avail Cap(c_a), veh/h	591	0	1057	573	1145	984	384	955	809	808	0	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	19.7	13.6	17.4	17.1	18.4	22.2	21.9	14.0	0.0	18.6
Incr Delay (d2), s/veh	0.3	0.0	1.8	0.5	0.6	0.5	0.1	1.6	1.4	0.7	0.0	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.8	1.4	2.3	1.8	0.2	2.4	1.8	2.1	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.6	0.0	21.6	14.1	17.9	17.7	18.4	23.8	23.3	14.7	0.0	20.7
LnGrp LOS	B		C	B	B	B	B	C	C	B		C
Approach Vol, veh/h		450			583			361			627	
Approach Delay, s/veh		19.2			16.7			23.4			18.3	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	19.1	6.2	21.8	9.8	20.4	13.7	14.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	6.3	12.2	2.5	14.8	5.3	8.5	8.5	8.1
Green Ext Time (p_c), s	0.2	1.6	0.0	2.0	0.1	1.5	0.4	1.2

Intersection Summary	
HCM 7th Control Delay, s/veh	19.0
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	248	1	2	165	0	2
Future Vol, veh/h	248	1	2	165	0	2
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	428	2	3	284	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	437	0	728	436
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1133	-	393	624
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1125	-	389	619
Mov Cap-2 Maneuver	-	-	-	-	389	-
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.1	10.84
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	619	-	-	22	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Ctrl Dly (s/v)	10.8	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	22	51	16	16	26
Future Vol, veh/h	8	22	51	16	16	26
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	34	78	25	25	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	184	93	0	0	105	0
Stage 1	93	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	810	970	-	-	1499	-
Stage 1	936	-	-	-	-	-
Stage 2	937	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	793	968	-	-	1496	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.15	0	2.84
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	914	686	-
HCM Lane V/C Ratio	-	-	0.05	0.016	-
HCM Ctrl Dly (s/v)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	706	12	19	640	14	14	1	7	10	0	29
Future Vol, veh/h	48	706	12	19	640	14	14	1	7	10	0	29
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	55	811	14	22	736	16	16	1	8	11	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	752	0	0	832	0	0	1724	1731	834	1719	1730	753
Stage 1	-	-	-	-	-	-	936	936	-	787	787	-
Stage 2	-	-	-	-	-	-	788	795	-	931	943	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	867	-	-	809	-	-	71	89	371	71	89	413
Stage 1	-	-	-	-	-	-	321	347	-	388	406	-
Stage 2	-	-	-	-	-	-	387	402	-	323	344	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	867	-	-	804	-	-	58	81	365	62	81	410
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	81	-	62	81	-
Stage 1	-	-	-	-	-	-	298	322	-	377	395	-
Stage 2	-	-	-	-	-	-	343	391	-	292	320	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.59	0.27	63.67	30.2
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	58	253	867	-	-	804	-	-	62	410
HCM Lane V/C Ratio	0.276	0.036	0.064	-	-	0.027	-	-	0.185	0.081
HCM Ctrl Dly (s/v)	88.8	19.7	9.4	-	-	9.6	-	-	75.5	14.6
HCM Lane LOS	F	C	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	1	0.1	0.2	-	-	0.1	-	-	0.6	0.3

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	179	74	41	118	0	50	0	38	0	0	0
Future Vol, veh/h	0	179	74	41	118	0	50	0	38	0	0	0
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	309	128	71	203	0	86	0	66	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.6	10.7	9.9	0
HCM LOS	B	B	A	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	0%	26%	0%
Vol Thru, %	0%	71%	74%	100%
Vol Right, %	43%	29%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	88	253	159	0
LT Vol	50	0	41	0
Through Vol	0	179	118	0
RT Vol	38	74	0	0
Lane Flow Rate	152	436	274	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.224	0.539	0.368	0
Departure Headway (Hd)	5.305	4.451	4.83	5.859
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	671	807	740	0
Service Time	3.388	2.506	2.894	3.859
HCM Lane V/C Ratio	0.227	0.54	0.37	0
HCM Control Delay, s/veh	9.9	12.6	10.7	8.9
HCM Lane LOS	A	B	B	N
HCM 95th-tile Q	0.9	3.3	1.7	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	3	0	2	2	87	2	3	116	1
Future Vol, veh/h	1	0	1	3	0	2	2	87	2	3	116	1
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	2	6	0	4	4	185	4	6	247	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	471	476	265	455	474	187	266	0	0	189	0	0
Stage 1	278	278	-	196	196	-	-	-	-	-	-	-
Stage 2	194	198	-	260	279	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	506	491	779	519	492	860	1310	-	-	1397	-	-
Stage 1	733	684	-	811	743	-	-	-	-	-	-	-
Stage 2	813	741	-	750	684	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	491	479	766	513	479	860	1288	-	-	1397	-	-
Mov Cap-2 Maneuver	491	479	-	513	479	-	-	-	-	-	-	-
Stage 1	717	670	-	808	740	-	-	-	-	-	-	-
Stage 2	806	738	-	744	669	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.06	10.99	0.17	0.19
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	39	-	-	598	611	45	-	-
HCM Lane V/C Ratio	0.003	-	-	0.007	0.017	0.005	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	11.1	11	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	6	9	13	0	7	10	70	12	12	76	16
Future Vol, veh/h	14	6	9	13	0	7	10	70	12	12	76	16
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	27	12	17	25	0	13	19	135	23	23	146	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	390	415	172	386	419	148	186	0	0	160	0	0
Stage 1	217	217	-	187	187	-	-	-	-	-	-	-
Stage 2	173	198	-	199	232	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	573	525	877	576	528	904	1401	-	-	1432	-	-
Stage 1	790	720	-	820	749	-	-	-	-	-	-	-
Stage 2	833	733	-	807	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	541	502	869	533	506	902	1389	-	-	1429	-	-
Mov Cap-2 Maneuver	541	502	-	533	506	-	-	-	-	-	-	-
Stage 1	769	701	-	806	737	-	-	-	-	-	-	-
Stage 2	809	721	-	764	697	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.59	11.17	0.83	0.87
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	190	-	-	602	622	201	-	-
HCM Lane V/C Ratio	0.014	-	-	0.093	0.062	0.016	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	11.6	11.2	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	622	27	57	575	41	13	3	59	23	2	58
Future Vol, veh/h	48	622	27	57	575	41	13	3	59	23	2	58
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	56	732	32	67	676	48	15	4	69	27	2	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	725	0	0	765	0	0	1684	1720	749	1681	1712	712
Stage 1	-	-	-	-	-	-	862	862	-	835	835	-
Stage 2	-	-	-	-	-	-	823	859	-	846	877	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	887	-	-	858	-	-	75	90	415	76	91	436
Stage 1	-	-	-	-	-	-	353	375	-	365	386	-
Stage 2	-	-	-	-	-	-	371	376	-	360	369	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	887	-	-	857	-	-	53	78	415	52	79	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	78	-	52	79	-
Stage 1	-	-	-	-	-	-	330	351	-	336	356	-
Stage 2	-	-	-	-	-	-	283	347	-	278	345	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.64	0.81	32.28	48.66
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	53	343	887	-	-	857	-	-	52	375
HCM Lane V/C Ratio	0.29	0.213	0.064	-	-	0.078	-	-	0.517	0.188
HCM Ctrl Dly (s/v)	98.9	18.3	9.3	-	-	9.6	-	-	131.8	16.8
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1	0.8	0.2	-	-	0.3	-	-	2	0.7

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	159	114	166	228	60
Future Vol, veh/h	42	159	114	166	228	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	57	215	154	224	308	81

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	881	349	389	0	-	0
Stage 1	349	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	320	699	1180	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	278	699	1180	-	-	-
Mov Cap-2 Maneuver	278	-	-	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	593	-	-	-	-	-

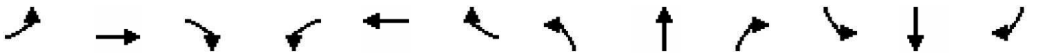
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.66	3.46	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1180	-	531	-	-
HCM Lane V/C Ratio	0.131	-	0.511	-	-
HCM Ctrl Dly (s/v)	8.5	-	18.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	425	108	15	433	42	69	77	18	73	103	84
Future Volume (vph)	60	425	108	15	433	42	69	77	18	73	103	84
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1488	1663	1696			1688			1651	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.80			0.89	
Satd. Flow (perm)	1663	1716	1488	1663	1696			1373			1483	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	452	115	16	461	45	73	82	19	78	110	89
RTOR Reduction (vph)	0	0	59	0	4	0	0	5	0	0	20	0
Lane Group Flow (vph)	64	452	56	16	502	0	0	169	0	0	257	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	4.0	27.6	27.6	0.9	24.5			17.3			17.3	
Effective Green, g (s)	4.0	28.1	28.1	0.9	25.0			17.8			17.8	
Actuated g/C Ratio	0.07	0.49	0.49	0.02	0.43			0.31			0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	115	834	723	25	733			422			456	
v/s Ratio Prot	c0.04	c0.26		0.01	c0.30							
v/s Ratio Perm			0.04					0.12			c0.17	
v/c Ratio	0.56	0.54	0.08	0.64	0.68			0.40			0.56	
Uniform Delay, d1	26.0	10.4	7.9	28.3	13.2			15.8			16.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.6	0.6	0.0	40.2	2.4			0.5			1.3	
Delay (s)	30.6	10.9	8.0	68.5	15.7			16.2			18.0	
Level of Service	C	B	A	E	B			B			B	
Approach Delay (s/veh)		12.4			17.3			16.2			18.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	425	108	15	433	42	69	77	18	73	103	84
Future Volume (veh/h)	60	425	108	15	433	42	69	77	18	73	103	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	64	452	115	16	461	45	73	82	19	78	110	89
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	127	763	657	41	604	59	254	246	46	199	193	131
Arrive On Green	0.08	0.44	0.44	0.02	0.39	0.38	0.25	0.26	0.25	0.25	0.26	0.25
Sat Flow, veh/h	1667	1723	1483	1667	1545	151	492	948	176	325	742	505
Grp Volume(v), veh/h	64	452	115	16	0	506	174	0	0	277	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1696	1616	0	0	1572	0	0
Q Serve(g_s), s	1.5	8.0	1.9	0.4	0.0	10.5	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	1.5	8.0	1.9	0.4	0.0	10.5	3.4	0.0	0.0	6.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.09	0.42		0.11	0.28		0.32
Lane Grp Cap(c), veh/h	127	763	657	41	0	663	527	0	0	503	0	0
V/C Ratio(X)	0.50	0.59	0.18	0.39	0.00	0.76	0.33	0.00	0.00	0.55	0.00	0.00
Avail Cap(c_a), veh/h	372	1687	1452	372	0	1660	1244	0	0	1257	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.9	8.5	6.8	19.4	0.0	10.7	12.4	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.5	0.1	4.5	0.0	1.4	0.3	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	0.4	0.2	0.0	3.1	1.1	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.2	9.0	6.9	23.9	0.0	12.1	12.7	0.0	0.0	14.2	0.0	0.0
LnGrp LOS	C	A	A	C		B	B			B		
Approach Vol, veh/h		631			522			174			277	
Approach Delay, s/veh		9.8			12.4			12.7			14.2	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	21.4		14.0	7.1	19.3		14.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.4	10.0		8.3	3.5	12.5		5.4				
Green Ext Time (p_c), s	0.0	1.9		1.4	0.0	2.8		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.7									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	4	6	1	2	4	78	8	6	103	10
Future Vol, veh/h	10	0	4	6	1	2	4	78	8	6	103	10
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	46	46	46	46	46	46	46	46	46	46	46	46
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	22	0	9	13	2	4	9	170	17	13	224	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	468	484	261	453	486	178	265	0	0	187	0	0
Stage 1	280	280	-	196	196	-	-	-	-	-	-	-
Stage 2	188	204	-	257	291	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	509	485	783	521	484	870	1311	-	-	1400	-	-
Stage 1	731	683	-	811	743	-	-	-	-	-	-	-
Stage 2	818	736	-	752	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	486	468	763	502	467	870	1287	-	-	1400	-	-
Mov Cap-2 Maneuver	486	468	-	502	467	-	-	-	-	-	-	-
Stage 1	710	663	-	805	737	-	-	-	-	-	-	-
Stage 2	806	731	-	731	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.04	11.8	0.35	0.38
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	79	-	-	542	549	89	-	-
HCM Lane V/C Ratio	0.007	-	-	0.056	0.036	0.009	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	12	11.8	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	18	0	0	0	11	67	1	0	89	32
Future Vol, veh/h	15	0	18	0	0	0	11	67	1	0	89	32
Conflicting Peds, #/hr	0	0	0	0	0	0	84	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	32	0	38	0	0	0	23	143	2	0	189	68

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	497	499	307	380	532	144	341	0	0	145	0	0
Stage 1	307	307	-	190	190	-	-	-	-	-	-	-
Stage 2	189	191	-	189	341	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	487	476	737	582	456	909	1229	-	-	1450	-	-
Stage 1	707	664	-	816	746	-	-	-	-	-	-	-
Stage 2	817	746	-	817	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	438	428	678	536	410	909	1131	-	-	1450	-	-
Mov Cap-2 Maneuver	438	428	-	536	410	-	-	-	-	-	-	-
Stage 1	650	611	-	798	730	-	-	-	-	-	-	-
Stage 2	799	729	-	771	591	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.62	0	1.15	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	250	-	-	543	-	1450	-	-
HCM Lane V/C Ratio	0.021	-	-	0.129	-	-	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	12.6	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	99	99	3
Future Vol, veh/h	0	1	1	99	99	3
Conflicting Peds, #/hr	0	0	12	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	2	2	211	211	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	441	226	229	0	-	0
Stage 1	226	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	578	819	1351	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	564	809	1336	-	-	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	816	-	-	-	-	-

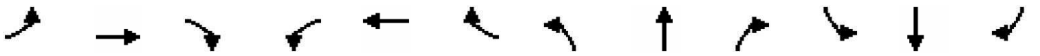
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.46	0.08	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	18	-	809	-	-
HCM Lane V/C Ratio	0.002	-	0.003	-	-
HCM Ctrl Dly (s/v)	7.7	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	7.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	69	170	597	335
Demand Flow Rate, veh/h	69	171	602	358
Vehicles Circulating, veh/h	410	534	84	141
Vehicles Exiting, veh/h	89	152	395	564
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.7	6.8	7.8	6.1
Approach LOS	A	A	A	A

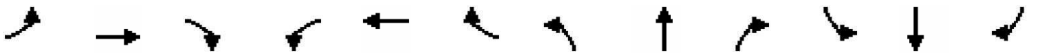
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	69	171	602	358
Cap Entry Lane, veh/h	908	800	1267	1195
Entry HV Adj Factor	1.000	0.994	0.992	0.936
Flow Entry, veh/h	69	170	597	335
Cap Entry, veh/h	908	796	1256	1118
V/C Ratio	0.076	0.214	0.475	0.300
Control Delay, s/veh	4.7	6.8	7.8	6.1
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	198	0	103	262	226	17	200	141	102	103	89
Future Volume (vph)	77	198	0	103	262	226	17	200	141	102	103	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1667		1599	1699	1442	1663	1733	1473	1599	1498	
Flt Permitted	0.44	1.00		0.53	1.00	1.00	0.63	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	748	1667		891	1699	1442	1104	1733	1473	755	1498	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	208	0	108	276	238	18	211	148	107	108	94
RTOR Reduction (vph)	0	0	0	0	0	170	0	0	106	0	27	0
Lane Group Flow (vph)	81	208	0	108	276	68	18	211	42	107	175	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	25.4	19.5		26.2	19.9	19.9	20.2	19.6	19.6	32.3	26.7	
Effective Green, g (s)	27.4	20.5		28.2	20.9	20.9	22.2	20.6	20.6	33.3	27.7	
Actuated g/C Ratio	0.37	0.28		0.39	0.29	0.29	0.30	0.28	0.28	0.46	0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	360	467		414	485	412	347	488	415	444	567	
v/s Ratio Prot	0.02	0.12		c0.03	c0.16		0.00	c0.12		c0.03	0.12	
v/s Ratio Perm	0.06			0.07		0.05	0.01		0.03	0.08		
v/c Ratio	0.23	0.45		0.26	0.57	0.17	0.05	0.43	0.10	0.24	0.31	
Uniform Delay, d1	15.2	21.6		14.9	22.3	19.6	17.9	21.5	19.4	12.0	16.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.2	1.2	0.1	0.0	0.4	0.1	0.2	0.2	
Delay (s)	15.5	22.1		15.1	23.5	19.7	18.0	21.9	19.5	12.2	16.2	
Level of Service	B	C		B	C	B	B	C	B	B	B	
Approach Delay (s/veh)		20.3			20.6			20.8			14.8	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	198	0	103	262	226	17	200	141	102	103	89
Future Volume (veh/h)	77	198	0	103	262	226	17	200	141	102	103	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	81	208	0	108	276	238	18	211	148	107	108	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	403	415	0	483	441	379	409	352	299	414	219	190
Arrive On Green	0.09	0.25	0.00	0.10	0.26	0.26	0.04	0.20	0.20	0.10	0.26	0.24
Sat Flow, veh/h	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	836	728
Grp Volume(v), veh/h	81	208	0	108	276	238	18	211	148	107	0	202
Grp Sat Flow(s),veh/h/ln	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	0	1564
Q Serve(g_s), s	1.6	4.9	0.0	2.2	6.6	6.6	0.4	5.1	4.1	2.2	0.0	5.1
Cycle Q Clear(g_c), s	1.6	4.9	0.0	2.2	6.6	6.6	0.4	5.1	4.1	2.2	0.0	5.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	403	415	0	483	441	379	409	352	299	414	0	409
V/C Ratio(X)	0.20	0.50	0.00	0.22	0.63	0.63	0.04	0.60	0.50	0.26	0.00	0.49
Avail Cap(c_a), veh/h	639	1343	0	771	1438	1236	552	1199	1016	1015	0	1620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	15.0	0.0	10.8	15.2	15.2	13.4	16.8	16.4	11.9	0.0	14.7
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.2	1.1	1.3	0.0	1.2	0.9	0.2	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	0.0	0.6	2.2	2.0	0.1	1.8	1.2	0.7	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	15.7	0.0	11.0	16.3	16.5	13.4	18.0	17.3	12.1	0.0	15.4
LnGrp LOS	B	B		B	B	B	B	B	B	B		B
Approach Vol, veh/h		289			622			377			309	
Approach Delay, s/veh		14.5			15.4			17.5			14.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	15.4	6.0	16.1	8.2	16.0	8.7	13.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	4.2	6.9	2.4	7.1	3.6	8.6	4.2	7.1
Green Ext Time (p_c), s	0.1	1.0	0.0	1.0	0.1	2.0	0.2	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	15.5
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	187	0	1	158	2	1
Future Vol, veh/h	187	0	1	158	2	1
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	322	0	2	272	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	330	0	606	330
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1240	-	463	716
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1231	-	459	710
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	11.99
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	-	-	11	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Ctrl Dly (s/v)	12	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	8	16	8	20	40
Future Vol, veh/h	19	8	16	8	20	40
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	29	12	25	12	31	62

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	158	33	0	0	39	0
Stage 1	33	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	838	1047	-	-	1584	-
Stage 1	995	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	818	1045	-	-	1581	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	886	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.32	0	2.44
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	874	600	-
HCM Lane V/C Ratio	-	-	0.048	0.019	-
HCM Ctrl Dly (s/v)	-	-	9.3	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	456	2	11	545	17	26	2	15	10	2	51
Future Vol, veh/h	19	456	2	11	545	17	26	2	15	10	2	51
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	22	524	2	13	626	20	30	2	17	11	2	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	646	0	0	533	0	0	1238	1247	541	1239	1239	645
Stage 1	-	-	-	-	-	-	576	576	-	661	661	-
Stage 2	-	-	-	-	-	-	662	671	-	578	577	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	949	-	-	1044	-	-	154	175	545	154	177	476
Stage 1	-	-	-	-	-	-	506	505	-	455	463	-
Stage 2	-	-	-	-	-	-	454	458	-	505	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	949	-	-	1038	-	-	126	168	537	140	170	472
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	168	-	140	170	-
Stage 1	-	-	-	-	-	-	491	491	-	449	457	-
Stage 2	-	-	-	-	-	-	388	452	-	471	490	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.35	0.16	30.91	17.38
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	126	426	949	-	-	1038	-	-	140	442
HCM Lane V/C Ratio	0.236	0.046	0.023	-	-	0.012	-	-	0.082	0.138
HCM Ctrl Dly (s/v)	42.1	13.9	8.9	-	-	8.5	-	-	32.9	14.4
HCM Lane LOS	E	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.9	0.1	0.1	-	-	0	-	-	0.3	0.5

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	115	73	115	105	0	54	1	38	0	0	1
Future Vol, veh/h	0	115	73	115	105	0	54	1	38	0	0	1
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	198	126	198	181	0	93	2	66	0	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.8	12.7	10.1	8.3
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	0%	52%	0%
Vol Thru, %	1%	61%	48%	0%
Vol Right, %	41%	39%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	93	188	220	1
LT Vol	54	0	115	0
Through Vol	1	115	105	0
RT Vol	38	73	0	1
Lane Flow Rate	160	324	379	2
Geometry Grp	1	1	1	1
Degree of Util (X)	0.238	0.409	0.505	0.003
Departure Headway (Hd)	5.335	4.545	4.796	5.278
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	667	784	747	682
Service Time	3.422	2.611	2.861	3.278
HCM Lane V/C Ratio	0.24	0.413	0.507	0.003
HCM Control Delay, s/veh	10.1	10.8	12.7	8.3
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	0.9	2	2.9	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	5	0	0	0	94	2	1	189	0
Future Vol, veh/h	1	0	0	5	0	0	0	94	2	1	189	0
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	0	11	0	0	0	200	4	2	402	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	623	628	419	609	626	202	419	0	0	204	0	0
Stage 1	423	423	-	202	202	-	-	-	-	-	-	-
Stage 2	200	204	-	406	423	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	401	402	638	410	404	844	1151	-	-	1379	-	-
Stage 1	612	591	-	804	738	-	-	-	-	-	-	-
Stage 2	806	736	-	625	591	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	394	395	628	410	396	844	1132	-	-	1379	-	-
Mov Cap-2 Maneuver	394	395	-	410	396	-	-	-	-	-	-	-
Stage 1	601	580	-	804	738	-	-	-	-	-	-	-
Stage 2	806	736	-	624	580	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.19	14.02	0	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1132	-	-	394	410	9	-	-
HCM Lane V/C Ratio	-	-	-	0.005	0.026	0.002	-	-
HCM Ctrl Dly (s/v)	0	-	-	14.2	14	7.6	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	28	26	4	2	7	7	81	3	35	87	5
Future Vol, veh/h	24	28	26	4	2	7	7	81	3	35	87	5
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	46	54	50	8	4	13	13	156	6	67	167	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	500	506	182	517	508	161	186	0	0	164	0	0
Stage 1	316	316	-	188	188	-	-	-	-	-	-	-
Stage 2	185	190	-	330	321	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	484	466	866	472	471	890	1401	-	-	1427	-	-
Stage 1	700	652	-	819	749	-	-	-	-	-	-	-
Stage 2	822	739	-	688	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	440	432	857	366	437	888	1389	-	-	1425	-	-
Mov Cap-2 Maneuver	440	432	-	366	437	-	-	-	-	-	-	-
Stage 1	657	612	-	809	739	-	-	-	-	-	-	-
Stage 2	797	730	-	559	616	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.68	11.78	0.59	2.11
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	137	-	-	521	556	491	-	-
HCM Lane V/C Ratio	0.01	-	-	0.288	0.045	0.047	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	14.7	11.8	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	427	16	33	461	53	19	4	26	39	4	65
Future Vol, veh/h	32	427	16	33	461	53	19	4	26	39	4	65
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	38	502	19	39	542	62	22	5	31	46	5	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	605	0	0	522	0	0	1221	1270	513	1231	1249	585
Stage 1	-	-	-	-	-	-	588	588	-	651	651	-
Stage 2	-	-	-	-	-	-	633	682	-	580	597	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	983	-	-	1055	-	-	158	169	565	156	175	515
Stage 1	-	-	-	-	-	-	499	499	-	461	468	-
Stage 2	-	-	-	-	-	-	471	453	-	504	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	1054	-	-	120	157	565	133	162	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	120	157	-	133	162	-
Stage 1	-	-	-	-	-	-	479	480	-	444	450	-
Stage 2	-	-	-	-	-	-	378	436	-	454	475	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.59	0.52	25.04	25.95
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	120	419	983	-	-	1054	-	-	133	453
HCM Lane V/C Ratio	0.187	0.084	0.038	-	-	0.037	-	-	0.346	0.179
HCM Ctrl Dly (s/v)	41.9	14.4	8.8	-	-	8.5	-	-	45.9	14.7
HCM Lane LOS	E	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.7	0.3	0.1	-	-	0.1	-	-	1.4	0.6

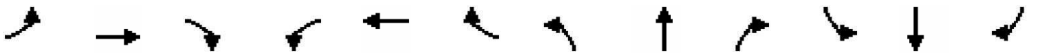
Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	108	89	208	137	90
Future Vol, veh/h	105	108	89	208	137	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	142	146	120	281	185	122

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	768	246	307	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	373	798	1265	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	337	798	1265	-	-	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.37	2.44	0
HCM LOS	C		

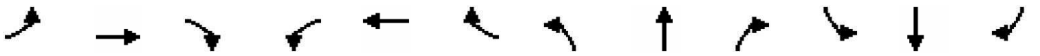
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1265	-	477	-	-
HCM Lane V/C Ratio	0.095	-	0.603	-	-
HCM Ctrl Dly (s/v)	8.1	-	23.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	3.9	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	309	39	9	426	34	82	68	9	55	29	53
Future Volume (vph)	63	309	39	9	426	34	82	68	9	55	29	53
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1663	1716	1488	1663	1699			1692			1627	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.79			0.84	
Satd. Flow (perm)	1663	1716	1488	1663	1699			1370			1400	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	67	329	41	10	453	36	87	72	10	59	31	56
RTOR Reduction (vph)	0	0	18	0	3	0	0	3	0	0	30	0
Lane Group Flow (vph)	67	329	23	10	486	0	0	166	0	0	116	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	3.9	29.0	29.0	0.9	26.0			10.0			10.0	
Effective Green, g (s)	3.9	29.5	29.5	0.9	26.5			10.5			10.5	
Actuated g/C Ratio	0.08	0.57	0.57	0.02	0.51			0.20			0.20	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	124	975	845	28	867			277			283	
v/s Ratio Prot	c0.04	c0.19		0.01	c0.29							
v/s Ratio Perm			0.02					c0.12			0.08	
v/c Ratio	0.54	0.34	0.03	0.36	0.56			0.60			0.41	
Uniform Delay, d1	23.1	6.0	4.9	25.2	8.7			18.8			18.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.8	0.2	0.0	5.6	0.7			2.9			0.7	
Delay (s)	26.9	6.1	4.9	30.8	9.4			21.7			18.7	
Level of Service	C	A	A	C	A			C			B	
Approach Delay (s/veh)		9.2			9.8			21.7			18.7	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	309	39	9	426	34	82	68	9	55	29	53
Future Volume (veh/h)	63	309	39	9	426	34	82	68	9	55	29	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	67	329	41	10	453	36	87	72	10	59	31	56
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	132	767	661	26	602	48	303	216	24	241	132	152
Arrive On Green	0.08	0.45	0.45	0.02	0.38	0.37	0.25	0.26	0.25	0.25	0.26	0.25
Sat Flow, veh/h	1667	1723	1483	1667	1575	125	636	832	92	433	509	586
Grp Volume(v), veh/h	67	329	41	10	0	489	169	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1700	1560	0	0	1527	0	0
Q Serve(g_s), s	1.5	5.2	0.6	0.2	0.0	9.8	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	5.2	0.6	0.2	0.0	9.8	3.3	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.51		0.06	0.40		0.38
Lane Grp Cap(c), veh/h	132	767	661	26	0	649	524	0	0	505	0	0
V/C Ratio(X)	0.51	0.43	0.06	0.38	0.00	0.75	0.32	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	381	1727	1487	381	0	1705	1292	0	0	1259	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	7.5	6.2	19.2	0.0	10.6	12.1	0.0	0.0	12.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.3	0.0	6.6	0.0	1.3	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	0.1	0.1	0.0	2.9	1.0	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.6	7.8	6.3	25.8	0.0	11.9	12.4	0.0	0.0	12.3	0.0	0.0
LnGrp LOS	B	A	A	C		B	B			B		
Approach Vol, veh/h		437			499			169			146	
Approach Delay, s/veh		9.4			12.2			12.4			12.3	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	21.0		13.7	7.1	18.5		13.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	7.2		4.9	3.5	11.8		5.3				
Green Ext Time (p_c), s	0.0	1.5		0.7	0.0	2.7		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	6	9	13	1	8	2	60	4	3	188	3
Future Vol, veh/h	28	6	9	13	1	8	2	60	4	3	188	3
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	46	46	46	46	46	46	46	46	46	46	46	46
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	61	13	20	28	2	17	4	130	9	7	409	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	584	592	438	579	591	135	434	0	0	139	0	0
Stage 1	444	444	-	143	143	-	-	-	-	-	-	-
Stage 2	140	148	-	435	447	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	426	422	623	430	422	919	1136	-	-	1457	-	-
Stage 1	597	579	-	864	782	-	-	-	-	-	-	-
Stage 2	868	779	-	603	577	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	404	410	608	396	411	919	1116	-	-	1457	-	-
Mov Cap-2 Maneuver	404	410	-	396	411	-	-	-	-	-	-	-
Stage 1	583	565	-	860	779	-	-	-	-	-	-	-
Stage 2	845	775	-	563	563	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.51	12.95	0.25	0.12
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	54	-	-	436	500	28	-	-
HCM Lane V/C Ratio	0.004	-	-	0.215	0.096	0.004	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	15.5	13	7.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.3	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	5	0	0	0	19	65	0	0	161	51
Future Vol, veh/h	2	0	5	0	0	0	19	65	0	0	161	51
Conflicting Peds, #/hr	0	0	0	0	0	0	84	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	0	11	0	0	0	40	138	0	0	343	109

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	700	481	562	754	138	535	0	0	138	0	0
Stage 1	481	481	-	219	219	-	-	-	-	-	-	-
Stage 2	219	219	-	343	535	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	357	366	589	441	341	915	1043	-	-	1458	-	-
Stage 1	570	557	-	788	726	-	-	-	-	-	-	-
Stage 2	788	726	-	677	527	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	313	321	542	413	299	915	960	-	-	1458	-	-
Mov Cap-2 Maneuver	313	321	-	413	299	-	-	-	-	-	-	-
Stage 1	525	513	-	752	692	-	-	-	-	-	-	-
Stage 2	752	692	-	664	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.3	0	2.02	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	407	-	-	448	-	1458	-	-
HCM Lane V/C Ratio	0.042	-	-	0.033	-	-	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	13.3	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	33	81	129	41
Future Vol, veh/h	1	0	33	81	129	41
Conflicting Peds, #/hr	0	0	12	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	0	70	172	274	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	643	330	374	0	-	0
Stage 1	330	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	441	716	1196	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	708	1182	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.98	2.38	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	521	-	403	-	-
HCM Lane V/C Ratio	0.059	-	0.005	-	-
HCM Ctrl Dly (s/v)	8.2	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

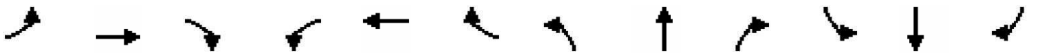
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	102	177	623	563
Demand Flow Rate, veh/h	102	177	634	573
Vehicles Circulating, veh/h	642	541	106	153
Vehicles Exiting, veh/h	84	199	638	565
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.6	6.9	8.6	8.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	102	177	634	573
Cap Entry Lane, veh/h	717	795	1238	1180
Entry HV Adj Factor	1.000	1.000	0.983	0.983
Flow Entry, veh/h	102	177	623	563
Cap Entry, veh/h	717	795	1218	1160
V/C Ratio	0.142	0.223	0.512	0.485
Control Delay, s/veh	6.6	6.9	8.6	8.4
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	219	22	153	240	194	10	145	108	236	178	106
Future Volume (vph)	103	219	22	153	240	194	10	145	108	236	178	106
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1646	1681		1646	1683	1458	1662	1716	1378	1642	1599	
Flt Permitted	0.49	1.00		0.34	1.00	1.00	0.57	1.00	1.00	0.48	1.00	
Satd. Flow (perm)	847	1681		595	1683	1458	995	1716	1378	833	1599	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	243	24	170	267	216	11	161	120	262	198	118
RTOR Reduction (vph)	0	3	0	0	0	155	0	0	91	0	17	0
Lane Group Flow (vph)	114	264	0	170	267	61	11	161	29	262	299	0
Confl. Peds. (#/hr)							1		6	6		6
Heavy Vehicles (%)	1%	3%	0%	1%	4%	2%	0%	2%	5%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	27.4	20.5		33.4	23.5	23.5	20.2	19.6	19.6	41.3	35.7	
Effective Green, g (s)	29.4	21.5		35.4	24.5	24.5	22.2	20.6	20.6	42.3	36.7	
Actuated g/C Ratio	0.34	0.25		0.41	0.28	0.28	0.26	0.24	0.24	0.49	0.42	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	360	416		375	475	412	267	407	327	571	676	
v/s Ratio Prot	0.03	c0.16		c0.06	0.16		0.00	0.09		c0.09	0.19	
v/s Ratio Perm	0.08			0.13		0.04	0.01		0.02	c0.13		
v/c Ratio	0.32	0.63		0.45	0.56	0.15	0.04	0.40	0.09	0.46	0.44	
Uniform Delay, d1	20.4	29.1		17.7	26.5	23.3	24.2	27.8	25.7	13.8	17.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	2.8		0.6	1.2	0.1	0.0	0.5	0.1	0.4	0.3	
Delay (s)	20.8	31.9		18.3	27.8	23.4	24.2	28.3	25.8	14.3	18.1	
Level of Service	C	C		B	C	C	C	C	C	B	B	
Approach Delay (s/veh)		28.6			23.9			27.1			16.3	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	219	22	153	240	194	10	145	108	236	178	106
Future Volume (veh/h)	103	219	22	153	240	194	10	145	108	236	178	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1709	1750	1736	1695	1723	1750	1723	1682	1736	1709	1736
Adj Flow Rate, veh/h	114	243	24	170	267	216	11	161	120	262	198	118
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	3	0	1	4	2	0	2	5	1	3	1
Cap, veh/h	386	342	34	418	431	372	366	341	277	537	337	201
Arrive On Green	0.09	0.22	0.21	0.12	0.25	0.25	0.03	0.20	0.20	0.17	0.34	0.32
Sat Flow, veh/h	1654	1531	151	1654	1695	1460	1667	1723	1404	1654	999	596
Grp Volume(v), veh/h	114	0	267	170	267	216	11	161	120	262	0	316
Grp Sat Flow(s),veh/h/ln	1654	0	1682	1654	1695	1460	1667	1723	1404	1654	0	1595
Q Serve(g_s), s	2.8	0.0	8.2	4.2	7.8	7.3	0.3	4.6	4.2	6.3	0.0	9.2
Cycle Q Clear(g_c), s	2.8	0.0	8.2	4.2	7.8	7.3	0.3	4.6	4.2	6.3	0.0	9.2
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	386	0	375	418	431	372	366	341	277	537	0	537
V/C Ratio(X)	0.30	0.00	0.71	0.41	0.62	0.58	0.03	0.47	0.43	0.49	0.00	0.59
Avail Cap(c_a), veh/h	558	0	1109	597	1178	1015	491	982	800	903	0	1364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	20.2	14.1	18.5	18.3	16.8	19.9	19.8	12.4	0.0	15.6
Incr Delay (d2), s/veh	0.3	0.0	1.9	0.5	1.1	1.1	0.0	0.8	0.8	0.5	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.1	1.4	2.8	2.3	0.1	1.7	1.3	2.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.8	0.0	22.0	14.5	19.6	19.4	16.8	20.7	20.5	12.9	0.0	16.3
LnGrp LOS	B		C	B	B	B	B	C	C	B		B
Approach Vol, veh/h		381			653			292			578	
Approach Delay, s/veh		19.9			18.2			20.5			14.8	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	16.5	5.8	22.9	9.2	18.3	13.6	15.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	6.2	10.2	2.3	11.2	4.8	9.8	8.3	6.6
Green Ext Time (p_c), s	0.2	1.3	0.0	1.7	0.1	1.8	0.4	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	17.8
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	208	2	1	169	0	2
Future Vol, veh/h	208	2	1	169	0	2
Conflicting Peds, #/hr	0	15	15	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	254	2	1	206	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	271	0	478	270
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	209	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1304	-	549	774
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	541	763
Mov Cap-2 Maneuver	-	-	-	-	541	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	9.74
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	763	-	-	11	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-
HCM Ctrl Dly (s/v)	9.7	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	14	35	9	16	36
Future Vol, veh/h	12	14	35	9	16	36
Conflicting Peds, #/hr	0	15	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	16	19	47	12	21	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	150	75	0	0	66	0
Stage 1	60	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	846	992	-	-	1549	-
Stage 1	968	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	829	972	-	-	1539	-
Mov Cap-2 Maneuver	829	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.16	0	2.27
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	900	554	-
HCM Lane V/C Ratio	-	-	0.039	0.014	-
HCM Ctrl Dly (s/v)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	608	7	23	655	22	12	2	19	13	1	28
Future Vol, veh/h	27	608	7	23	655	22	12	2	19	13	1	28
Conflicting Peds, #/hr	10	0	9	9	0	10	0	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	30	676	8	26	728	24	13	2	21	14	1	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	762	0	0	692	0	0	1544	1562	704	1554	1553	766
Stage 1	-	-	-	-	-	-	748	748	-	801	801	-
Stage 2	-	-	-	-	-	-	795	813	-	753	752	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	859	-	-	912	-	-	95	113	440	93	114	406
Stage 1	-	-	-	-	-	-	407	422	-	381	400	-
Stage 2	-	-	-	-	-	-	384	395	-	405	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	851	-	-	904	-	-	79	104	430	79	105	396
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	104	-	79	105	-
Stage 1	-	-	-	-	-	-	390	404	-	367	385	-
Stage 2	-	-	-	-	-	-	337	380	-	364	402	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.39	0.3	32.31	29.64
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	79	331	851	-	-	904	-	-	79	362
HCM Lane V/C Ratio	0.169	0.07	0.035	-	-	0.028	-	-	0.182	0.089
HCM Ctrl Dly (s/v)	59.6	16.7	9.4	-	-	9.1	-	-	60.2	15.9
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.6	0.2	0.1	-	-	0.1	-	-	0.6	0.3

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	141	69	48	114	0	56	0	52	0	1	0
Future Vol, veh/h	0	141	69	48	114	0	56	0	52	0	1	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	172	84	59	139	0	68	0	63	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.1	9.1	8.7	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	52%	0%	30%	0%
Vol Thru, %	0%	67%	70%	100%
Vol Right, %	48%	33%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	210	162	1
LT Vol	56	0	48	0
Through Vol	0	141	114	1
RT Vol	52	69	0	0
Lane Flow Rate	132	256	198	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.172	0.302	0.25	0.002
Departure Headway (Hd)	4.71	4.245	4.548	5.08
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	848	790	702
Service Time	2.745	2.27	2.575	3.127
HCM Lane V/C Ratio	0.173	0.302	0.251	0.001
HCM Control Delay, s/veh	8.7	9.1	9.1	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	1.3	1	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	2	1	0	0	2	107	0	0	116	1
Future Vol, veh/h	0	0	2	1	0	0	2	107	0	0	116	1
Conflicting Peds, #/hr	2	0	0	0	0	2	41	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	4	2	0	0	4	188	0	0	204	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	442	440	245	398	441	190	246	0	0	188	0	0
Stage 1	245	245	-	195	195	-	-	-	-	-	-	-
Stage 2	197	195	-	204	246	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	529	514	798	566	513	857	1332	-	-	1399	-	-
Stage 1	763	707	-	812	743	-	-	-	-	-	-	-
Stage 2	810	743	-	803	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	506	492	767	561	492	856	1280	-	-	1399	-	-
Mov Cap-2 Maneuver	506	492	-	561	492	-	-	-	-	-	-	-
Stage 1	733	679	-	809	741	-	-	-	-	-	-	-
Stage 2	806	741	-	799	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.71	11.43	0.14	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	33	-	-	767	561	1399	-	-
HCM Lane V/C Ratio	0.003	-	-	0.005	0.003	-	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	9.7	11.4	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	8	14	4	7	8	11	56	7	24	61	16
Future Vol, veh/h	28	8	14	4	7	8	11	56	7	24	61	16
Conflicting Peds, #/hr	0	0	0	0	0	0	23	0	4	4	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	16	27	8	14	16	22	110	14	47	120	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	412	423	158	385	432	121	174	0	0	128	0	0
Stage 1	252	252	-	164	164	-	-	-	-	-	-	-
Stage 2	160	171	-	222	268	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	554	526	892	577	520	936	1415	-	-	1471	-	-
Stage 1	756	702	-	843	766	-	-	-	-	-	-	-
Stage 2	847	761	-	785	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	491	486	873	512	480	933	1384	-	-	1465	-	-
Mov Cap-2 Maneuver	491	486	-	512	480	-	-	-	-	-	-	-
Stage 1	714	662	-	826	751	-	-	-	-	-	-	-
Stage 2	804	746	-	717	652	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.81	11.25	1.14	1.79
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	262	-	-	559	613	411	-	-
HCM Lane V/C Ratio	0.016	-	-	0.175	0.061	0.032	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	12.8	11.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	556	37	75	611	37	23	7	72	14	8	53
Future Vol, veh/h	32	556	37	75	611	37	23	7	72	14	8	53
Conflicting Peds, #/hr	3	0	0	0	0	3	20	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	34	598	40	81	657	40	25	8	77	15	9	57

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	700	0	0	638	0	0	1529	1548	619	1513	1548	700
Stage 1	-	-	-	-	-	-	687	687	-	841	841	-
Stage 2	-	-	-	-	-	-	843	861	-	671	706	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	906	-	-	956	-	-	97	115	492	99	115	443
Stage 1	-	-	-	-	-	-	440	451	-	362	383	-
Stage 2	-	-	-	-	-	-	361	375	-	449	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	904	-	-	956	-	-	67	101	492	69	101	433
Mov Cap-2 Maneuver	-	-	-	-	-	-	67	101	-	69	101	-
Stage 1	-	-	-	-	-	-	424	434	-	331	350	-
Stage 2	-	-	-	-	-	-	275	343	-	357	425	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0.95	33.37	29.74
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	67	367	904	-	-	956	-	-	69	303
HCM Lane V/C Ratio	0.368	0.232	0.038	-	-	0.084	-	-	0.219	0.217
HCM Ctrl Dly (s/v)	87	17.8	9.1	-	-	9.1	-	-	71.6	20.1
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.4	0.9	0.1	-	-	0.3	-	-	0.8	0.8

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	123	109	215	214	86
Future Vol, veh/h	60	123	109	215	214	86
Conflicting Peds, #/hr	0	5	0	0	0	12
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	77	158	140	276	274	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	897	346	397	0	-	0
Stage 1	341	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	313	701	1173	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	269	690	1160	-	-	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	572	-	-	-	-	-

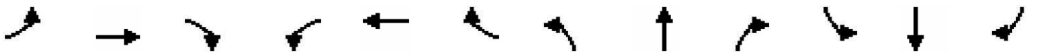
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.96	2.87	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1160	-	456	-	-
HCM Lane V/C Ratio	0.121	-	0.515	-	-
HCM Ctrl Dly (s/v)	8.5	-	21	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	413	85	9	422	45	69	59	12	53	83	129
Future Volume (vph)	78	413	85	9	422	45	69	59	12	53	83	129
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1450	1658	1675			1682			1592	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.72			0.91	
Satd. Flow (perm)	1663	1716	1450	1658	1675			1239			1467	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	459	94	10	469	50	77	66	13	59	92	143
RTOR Reduction (vph)	0	0	46	0	5	0	0	4	0	0	40	0
Lane Group Flow (vph)	87	459	48	10	514	0	0	152	0	0	254	0
Confl. Peds. (#/hr)	5		3	3		5	5		3	3		3
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	2%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	6.0	30.9	30.9	0.9	25.8			17.2			17.2	
Effective Green, g (s)	6.0	31.4	31.4	0.9	26.3			17.7			17.7	
Actuated g/C Ratio	0.10	0.51	0.51	0.01	0.43			0.29			0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	163	883	746	24	722			359			425	
v/s Ratio Prot	c0.05	0.27		0.01	c0.31							
v/s Ratio Perm			0.03					0.12			c0.17	
v/c Ratio	0.53	0.52	0.06	0.42	0.71			0.42			0.60	
Uniform Delay, d1	26.2	9.8	7.4	29.8	14.2			17.5			18.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.6	0.4	0.0	8.3	3.1			0.6			1.9	
Delay (s)	28.8	10.2	7.5	38.1	17.4			18.1			20.5	
Level of Service	C	B	A	D	B			B			C	
Approach Delay (s/veh)		12.3			17.8			18.1			20.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	413	85	9	422	45	69	59	12	53	83	129
Future Volume (veh/h)	78	413	85	9	422	45	69	59	12	53	83	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1709	1750	1750	1750	1750	1723	1750	1750
Adj Flow Rate, veh/h	87	459	94	10	469	50	77	66	13	59	92	143
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	2	0	0
Cap, veh/h	148	806	690	26	598	64	274	206	33	153	157	202
Arrive On Green	0.09	0.47	0.47	0.02	0.39	0.38	0.26	0.27	0.26	0.26	0.27	0.26
Sat Flow, veh/h	1667	1723	1475	1667	1517	162	570	767	122	207	586	751
Grp Volume(v), veh/h	87	459	94	10	0	519	156	0	0	294	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1475	1667	0	1679	1458	0	0	1544	0	0
Q Serve(g_s), s	2.2	8.6	1.6	0.3	0.0	12.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	8.6	1.6	0.3	0.0	12.0	3.6	0.0	0.0	7.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.10	0.49		0.08	0.20		0.49
Lane Grp Cap(c), veh/h	148	806	690	26	0	662	497	0	0	495	0	0
V/C Ratio(X)	0.59	0.57	0.14	0.38	0.00	0.78	0.31	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	338	1534	1313	338	0	1495	1075	0	0	1130	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.4	8.6	6.7	21.6	0.0	11.8	13.2	0.0	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.5	0.1	6.7	0.0	1.6	0.3	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.4	0.4	0.1	0.0	3.7	1.1	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.1	9.0	6.8	28.3	0.0	13.4	13.5	0.0	0.0	15.6	0.0	0.0
LnGrp LOS	C	A	A	C		B	B			B		
Approach Vol, veh/h		640			529			156			294	
Approach Delay, s/veh		10.5			13.6			13.5			15.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	24.2		15.4	7.9	21.0		15.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.3	10.6		9.6	4.2	14.0		5.6				
Green Ext Time (p_c), s	0.0	2.0		1.5	0.0	2.9		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.7									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	5	13	5	1	8	0	73	11	7	109	4
Future Vol, veh/h	27	5	13	5	1	8	0	73	11	7	109	4
Conflicting Peds, #/hr	1	0	9	9	0	1	42	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	55	55	55	55	55	55	55	55	55
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	49	9	24	9	2	15	0	133	20	13	198	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	404	422	253	380	416	144	247	0	0	153	0	0
Stage 1	269	269	-	143	143	-	-	-	-	-	-	-
Stage 2	135	153	-	237	273	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	561	526	791	582	531	909	1330	-	-	1440	-	-
Stage 1	741	690	-	865	783	-	-	-	-	-	-	-
Stage 2	874	775	-	771	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	522	500	753	543	504	908	1277	-	-	1440	-	-
Mov Cap-2 Maneuver	522	500	-	543	504	-	-	-	-	-	-	-
Stage 1	704	656	-	865	783	-	-	-	-	-	-	-
Stage 2	857	775	-	722	654	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.38	10.34	0	0.44
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1277	-	-	570	700	104	-	-
HCM Lane V/C Ratio	-	-	-	0.144	0.036	0.009	-	-
HCM Ctrl Dly (s/v)	0	-	-	12.4	10.3	7.5	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	6	0	0	0	16	77	0	0	108	20
Future Vol, veh/h	7	0	6	0	0	0	16	77	0	0	108	20
Conflicting Peds, #/hr	0	0	0	0	0	0	72	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	0	11	0	0	0	28	135	0	0	189	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	470	470	279	381	488	135	297	0	0	135	0	0
Stage 1	279	279	-	191	191	-	-	-	-	-	-	-
Stage 2	191	191	-	189	297	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	507	494	765	581	483	919	1276	-	-	1462	-	-
Stage 1	732	683	-	815	746	-	-	-	-	-	-	-
Stage 2	815	746	-	817	672	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	460	449	712	558	439	919	1189	-	-	1462	-	-
Mov Cap-2 Maneuver	460	449	-	558	439	-	-	-	-	-	-	-
Stage 1	682	637	-	794	727	-	-	-	-	-	-	-
Stage 2	794	727	-	805	625	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.83	0	1.39	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	310	-	-	550	-	1462	-	-
HCM Lane V/C Ratio	0.024	-	-	0.041	-	-	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	11.8	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	2	91	102	12
Future Vol, veh/h	3	1	2	91	102	12
Conflicting Peds, #/hr	10	1	52	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	2	4	160	179	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	418	242	252	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	595	801	1325	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	536	761	1259	-	-	-
Mov Cap-2 Maneuver	536	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.3	0.17	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	39	-	579	-	-
HCM Lane V/C Ratio	0.003	-	0.012	-	-
HCM Ctrl Dly (s/v)	7.9	0	11.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	4	6	1	2	4	87	8	6	114	10
Future Vol, veh/h	10	0	4	6	1	2	4	87	8	6	114	10
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	46	46	46	46	46	46	46	46	46	46	46	46
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	22	0	9	13	2	4	9	189	17	13	248	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	511	528	285	496	530	198	289	0	0	207	0	0
Stage 1	304	304	-	215	215	-	-	-	-	-	-	-
Stage 2	208	224	-	281	315	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	476	459	759	487	457	848	1285	-	-	1377	-	-
Stage 1	710	667	-	792	728	-	-	-	-	-	-	-
Stage 2	799	722	-	730	659	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	454	442	740	469	441	848	1262	-	-	1377	-	-
Mov Cap-2 Maneuver	454	442	-	469	441	-	-	-	-	-	-	-
Stage 1	689	647	-	785	723	-	-	-	-	-	-	-
Stage 2	786	716	-	709	640	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.5	12.24	0.32	0.35
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	72	-	-	511	517	82	-	-
HCM Lane V/C Ratio	0.007	-	-	0.06	0.038	0.009	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	12.5	12.2	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	19	0	0	0	11	75	1	0	99	34
Future Vol, veh/h	16	0	19	0	0	0	11	75	1	0	99	34
Conflicting Peds, #/hr	0	0	0	0	0	0	84	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	34	0	40	0	0	0	23	160	2	0	211	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	537	539	331	418	574	161	367	0	0	162	0	0
Stage 1	331	331	-	207	207	-	-	-	-	-	-	-
Stage 2	206	209	-	211	367	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	458	452	715	549	432	890	1203	-	-	1429	-	-
Stage 1	687	649	-	799	734	-	-	-	-	-	-	-
Stage 2	800	733	-	796	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	411	406	658	503	388	890	1106	-	-	1429	-	-
Mov Cap-2 Maneuver	411	406	-	503	388	-	-	-	-	-	-	-
Stage 1	632	597	-	781	717	-	-	-	-	-	-	-
Stage 2	782	716	-	747	576	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.14	0	1.05	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	227	-	-	516	-	1429	-	-
HCM Lane V/C Ratio	0.021	-	-	0.144	-	-	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	13.1	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	1	108	109	3
Future Vol, veh/h	0	1	1	108	109	3
Conflicting Peds, #/hr	0	0	12	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	2	2	230	232	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	481	247	250	0	-	0
Stage 1	247	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	547	797	1327	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	534	787	1312	-	-	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	800	-	-	-	-	-

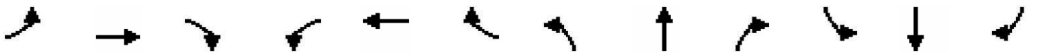
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.58	0.07	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	17	-	787	-	-
HCM Lane V/C Ratio	0.002	-	0.003	-	-
HCM Ctrl Dly (s/v)	7.7	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	167	185	632	724
Demand Flow Rate, veh/h	167	186	637	773
Vehicles Circulating, veh/h	852	512	184	185
Vehicles Exiting, veh/h	106	309	835	513
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.2	6.9	9.9	13.5
Approach LOS	B	A	A	B

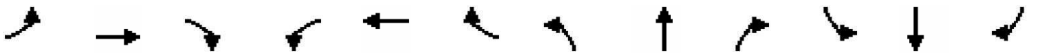
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	167	186	637	773
Cap Entry Lane, veh/h	579	819	1144	1143
Entry HV Adj Factor	1.000	0.995	0.993	0.937
Flow Entry, veh/h	167	185	632	724
Cap Entry, veh/h	579	814	1136	1071
V/C Ratio	0.289	0.227	0.557	0.677
Control Delay, s/veh	10.2	6.9	9.9	13.5
LOS	B	A	A	B
95th %tile Queue, veh	1	1	4	6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	323	21	192	271	200	17	189	162	259	227	155
Future Volume (vph)	130	323	21	192	271	200	17	189	162	259	227	155
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1656		1599	1699	1442	1663	1733	1473	1599	1521	
Flt Permitted	0.43	1.00		0.25	1.00	1.00	0.53	1.00	1.00	0.41	1.00	
Satd. Flow (perm)	717	1656		417	1699	1442	920	1733	1473	696	1521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	340	22	202	285	211	18	199	171	273	239	163
RTOR Reduction (vph)	0	2	0	0	0	150	0	0	131	0	20	0
Lane Group Flow (vph)	137	360	0	202	285	61	18	199	40	273	382	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	33.6	24.4		36.8	26.0	26.0	22.3	20.7	20.7	43.2	36.6	
Effective Green, g (s)	35.6	25.4		38.8	27.0	27.0	24.3	21.7	21.7	44.2	37.6	
Actuated g/C Ratio	0.38	0.27		0.42	0.29	0.29	0.26	0.23	0.23	0.47	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	369	450		322	491	416	260	402	342	508	612	
v/s Ratio Prot	0.04	c0.22		c0.08	0.17		0.00	0.11		c0.11	c0.25	
v/s Ratio Perm	0.10			0.18		0.04	0.02		0.03	0.15		
v/c Ratio	0.37	0.80		0.63	0.58	0.15	0.07	0.50	0.12	0.54	0.62	
Uniform Delay, d1	19.9	31.6		19.8	28.4	24.6	25.8	31.1	28.3	16.2	22.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	9.3		3.3	1.4	0.1	0.1	0.7	0.1	0.9	1.7	
Delay (s)	20.3	40.9		23.0	29.8	24.8	25.9	31.8	28.4	17.1	24.0	
Level of Service	C	D		C	C	C	C	C	C	B	C	
Approach Delay (s/veh)		35.3			26.3			30.0			21.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	93.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	323	21	192	271	200	17	189	162	259	227	155
Future Volume (veh/h)	130	323	21	192	271	200	17	189	162	259	227	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	137	340	22	202	285	211	18	199	171	273	239	163
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	419	435	28	395	530	456	249	301	255	461	295	201
Arrive On Green	0.10	0.28	0.26	0.13	0.31	0.31	0.04	0.17	0.17	0.18	0.31	0.30
Sat Flow, veh/h	1615	1562	101	1615	1709	1469	1667	1736	1471	1615	939	641
Grp Volume(v), veh/h	137	0	362	202	285	211	18	199	171	273	0	402
Grp Sat Flow(s),veh/h/ln	1615	0	1663	1615	1709	1469	1667	1736	1471	1615	0	1580
Q Serve(g_s), s	3.8	0.0	13.3	5.6	9.1	7.6	0.6	7.1	7.2	8.3	0.0	15.5
Cycle Q Clear(g_c), s	3.8	0.0	13.3	5.6	9.1	7.6	0.6	7.1	7.2	8.3	0.0	15.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	419	0	463	395	530	456	249	301	255	461	0	496
V/C Ratio(X)	0.33	0.00	0.78	0.51	0.54	0.46	0.07	0.66	0.67	0.59	0.00	0.81
Avail Cap(c_a), veh/h	530	0	931	504	1008	867	339	840	712	712	0	1147
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	22.0	14.9	18.9	18.4	21.2	25.5	25.6	16.1	0.0	21.1
Incr Delay (d2), s/veh	0.3	0.0	2.2	0.8	0.6	0.5	0.1	1.8	2.3	0.9	0.0	2.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	5.1	1.9	3.4	2.4	0.2	2.9	2.5	2.8	0.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.9	0.0	24.2	15.6	19.5	18.9	21.3	27.3	27.8	17.0	0.0	23.5
LnGrp LOS	B		C	B	B	B	C	C	C	B		C
Approach Vol, veh/h		499			698			388			675	
Approach Delay, s/veh		21.7			18.2			27.3			20.9	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	22.4	6.4	24.8	10.4	24.5	15.7	15.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	7.6	15.3	2.6	17.5	5.8	11.1	10.3	9.2
Green Ext Time (p_c), s	0.2	1.8	0.0	2.2	0.1	1.9	0.4	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	21.3
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	263	1	2	185	0	2
Future Vol, veh/h	263	1	2	185	0	2
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	453	2	3	319	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	463	0	788	462
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	326	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1109	-	363	604
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	736	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1100	-	359	599
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.09	11.04
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	-	-	19	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Ctrl Dly (s/v)	11	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	23	56	16	17	29
Future Vol, veh/h	8	23	56	16	17	29
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	35	86	25	26	45

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	199	100	0	0	113	0
Stage 1	100	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	794	960	-	-	1489	-
Stage 1	929	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	959	-	-	1486	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.2	0	2.76
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	904	665	-
HCM Lane V/C Ratio	-	-	0.053	0.018	-
HCM Ctrl Dly (s/v)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	793	13	20	755	17	15	1	7	13	0	30
Future Vol, veh/h	50	793	13	20	755	17	15	1	7	13	0	30
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	57	911	15	23	868	20	17	1	8	15	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	887	0	0	933	0	0	1964	1974	935	1960	1972	887
Stage 1	-	-	-	-	-	-	1041	1041	-	924	924	-
Stage 2	-	-	-	-	-	-	923	933	-	1036	1048	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	772	-	-	742	-	-	48	63	325	48	63	346
Stage 1	-	-	-	-	-	-	280	310	-	326	351	-
Stage 2	-	-	-	-	-	-	326	347	-	282	307	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	772	-	-	737	-	-	38	56	320	41	56	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	38	56	-	41	56	-
Stage 1	-	-	-	-	-	-	258	285	-	316	340	-
Stage 2	-	-	-	-	-	-	282	337	-	251	282	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.59	0.25	113.85	52.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	38	201	772	-	-	737	-	-	41	343
HCM Lane V/C Ratio	0.453	0.046	0.074	-	-	0.031	-	-	0.364	0.1
HCM Ctrl Dly (s/v)	161.9	23.7	10	-	-	10	-	-	136.2	16.7
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.6	0.1	0.2	-	-	0.1	-	-	1.2	0.3

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	190	78	47	135	0	53	0	44	0	0	0
Future Vol, veh/h	0	190	78	47	135	0	53	0	44	0	0	0
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	328	134	81	233	0	91	0	76	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14	11.7	10.5	0
HCM LOS	B	B	B	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	0%	26%	0%
Vol Thru, %	0%	71%	74%	100%
Vol Right, %	45%	29%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	97	268	182	0
LT Vol	53	0	47	0
Through Vol	0	190	135	0
RT Vol	44	78	0	0
Lane Flow Rate	167	462	314	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.258	0.585	0.429	0
Departure Headway (Hd)	5.543	4.558	4.922	6.098
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	652	786	722	0
Service Time	3.543	2.637	3.012	4.105
HCM Lane V/C Ratio	0.256	0.588	0.435	0
HCM Control Delay, s/veh	10.5	14	11.7	9.1
HCM Lane LOS	B	B	B	N
HCM 95th-tile Q	1	3.9	2.2	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	3	0	2	2	96	2	3	127	1
Future Vol, veh/h	1	0	1	3	0	2	2	96	2	3	127	1
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	2	6	0	4	4	204	4	6	270	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	514	518	288	498	517	206	289	0	0	209	0	0
Stage 1	301	301	-	215	215	-	-	-	-	-	-	-
Stage 2	213	217	-	283	302	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	474	465	756	486	465	839	1284	-	-	1374	-	-
Stage 1	712	669	-	792	729	-	-	-	-	-	-	-
Stage 2	794	727	-	728	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	460	453	743	480	453	839	1263	-	-	1374	-	-
Mov Cap-2 Maneuver	460	453	-	480	453	-	-	-	-	-	-	-
Stage 1	697	654	-	789	726	-	-	-	-	-	-	-
Stage 2	787	724	-	722	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.38	11.33	0.16	0.17
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	36	-	-	568	579	41	-	-
HCM Lane V/C Ratio	0.003	-	-	0.007	0.018	0.005	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	11.4	11.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	6	9	14	0	7	10	78	13	13	86	16
Future Vol, veh/h	15	6	9	14	0	7	10	78	13	13	86	16
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	29	12	17	27	0	13	19	150	25	25	165	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	428	455	191	425	458	165	205	0	0	177	0	0
Stage 1	240	240	-	203	203	-	-	-	-	-	-	-
Stage 2	188	215	-	222	255	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	540	498	856	543	502	885	1378	-	-	1411	-	-
Stage 1	768	703	-	804	737	-	-	-	-	-	-	-
Stage 2	818	721	-	785	700	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	509	475	848	500	479	884	1366	-	-	1409	-	-
Mov Cap-2 Maneuver	509	475	-	500	479	-	-	-	-	-	-	-
Stage 1	746	683	-	789	724	-	-	-	-	-	-	-
Stage 2	793	708	-	740	680	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.04	11.62	0.76	0.86
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	173	-	-	569	584	197	-	-
HCM Lane V/C Ratio	0.014	-	-	0.101	0.069	0.018	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	12	11.6	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	16.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	682	53	91	668	43	27	5	90	25	5	63
Future Vol, veh/h	52	682	53	91	668	43	27	5	90	25	5	63
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	61	802	62	107	786	51	32	6	106	29	6	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	836	0	0	866	0	0	1971	2007	835	1953	2013	822
Stage 1	-	-	-	-	-	-	957	957	-	1025	1025	-
Stage 2	-	-	-	-	-	-	1014	1051	-	928	988	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	806	-	-	786	-	-	47	60	371	49	59	377
Stage 1	-	-	-	-	-	-	312	339	-	286	315	-
Stage 2	-	-	-	-	-	-	290	306	-	324	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	806	-	-	785	-	-	~ 27	48	370	~ 25	47	373
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 27	48	-	~ 25	47	-
Stage 1	-	-	-	-	-	-	288	313	-	247	272	-
Stage 2	-	-	-	-	-	-	194	265	-	210	303	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.65	1.17	120.32	144.82
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	27	273	806	-	-	785	-	-	25	248
HCM Lane V/C Ratio	1.18	0.409	0.076	-	-	0.136	-	-	1.176	0.323
HCM Ctrl Dly (s/v)	$ 448.7	27	9.8	-	-	10.3	-	-	$ 467.2	26.3
HCM Lane LOS	F	D	A	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	3.8	1.9	0.2	-	-	0.5	-	-	3.6	1.3

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	167	120	219	259	63
Future Vol, veh/h	44	167	120	219	259	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	226	162	296	350	85

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1013	393	435	0	-	0
Stage 1	393	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	267	661	1135	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	229	661	1135	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	540	-	-	-	-	-

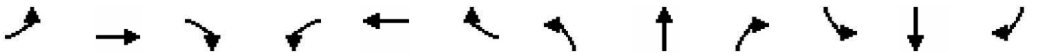
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.39	3.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1135	-	474	-	-
HCM Lane V/C Ratio	0.143	-	0.601	-	-
HCM Ctrl Dly (s/v)	8.7	-	23.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	3.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	487	136	16	492	44	88	81	19	77	108	110
Future Volume (vph)	84	487	136	16	492	44	88	81	19	77	108	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1488	1663	1697			1686			1641	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.69			0.88	
Satd. Flow (perm)	1663	1716	1488	1663	1697			1196			1465	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	89	518	145	17	523	47	94	86	20	82	115	117
RTOR Reduction (vph)	0	0	70	0	3	0	0	5	0	0	25	0
Lane Group Flow (vph)	89	518	75	17	567	0	0	195	0	0	289	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	6.1	33.7	33.7	1.1	28.7			19.4			19.4	
Effective Green, g (s)	6.1	34.2	34.2	1.1	29.2			19.9			19.9	
Actuated g/C Ratio	0.09	0.52	0.52	0.02	0.44			0.30			0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	153	886	768	27	748			359			440	
v/s Ratio Prot	c0.05	0.30		0.01	c0.33							
v/s Ratio Perm			0.05					0.16			c0.20	
v/c Ratio	0.58	0.58	0.10	0.63	0.76			0.54			0.66	
Uniform Delay, d1	28.8	11.1	8.1	32.3	15.5			19.4			20.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.6	0.8	0.0	33.6	4.2			1.3			3.1	
Delay (s)	33.4	11.9	8.2	65.9	19.7			20.7			23.3	
Level of Service	C	B	A	E	B			C			C	
Approach Delay (s/veh)		13.7			21.1			20.7			23.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	487	136	16	492	44	88	81	19	77	108	110
Future Volume (veh/h)	84	487	136	16	492	44	88	81	19	77	108	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	89	518	145	17	523	47	94	86	20	82	115	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	146	823	708	42	648	58	253	204	38	178	181	157
Arrive On Green	0.09	0.48	0.48	0.03	0.42	0.41	0.25	0.27	0.25	0.25	0.27	0.25
Sat Flow, veh/h	1667	1723	1483	1667	1558	140	532	769	145	312	684	592
Grp Volume(v), veh/h	89	518	145	17	0	570	200	0	0	314	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1698	1446	0	0	1587	0	0
Q Serve(g_s), s	2.4	10.7	2.7	0.5	0.0	14.0	0.0	0.0	0.0	3.2	0.0	0.0
Cycle Q Clear(g_c), s	2.4	10.7	2.7	0.5	0.0	14.0	5.3	0.0	0.0	8.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	0.47		0.10	0.26		0.37
Lane Grp Cap(c), veh/h	146	823	708	42	0	706	480	0	0	500	0	0
V/C Ratio(X)	0.61	0.63	0.20	0.40	0.00	0.81	0.42	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	316	1434	1234	316	0	1413	1007	0	0	1071	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.9	9.3	7.2	22.8	0.0	12.2	14.8	0.0	0.0	16.0	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.6	0.1	4.5	0.0	1.7	0.4	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	0.7	0.2	0.0	4.5	1.7	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.0	9.9	7.3	27.3	0.0	13.9	15.2	0.0	0.0	17.0	0.0	0.0
LnGrp LOS	C	A	A	C		B	B			B		
Approach Vol, veh/h		752			587			200			314	
Approach Delay, s/veh		11.0			14.3			15.2			17.0	
Approach LOS		B			B			B			B	

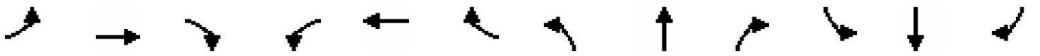
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	26.2		16.1	8.1	23.2		16.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.5	12.7		10.5	4.4	16.0		7.3				
Green Ext Time (p_c), s	0.0	2.1		1.6	0.0	3.2		1.0				

Intersection Summary			
HCM 7th Control Delay, s/veh		13.5	
HCM 7th LOS		B	

Intersection	
Intersection Delay, s/veh	7.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	69	170	597	335
Demand Flow Rate, veh/h	69	171	602	358
Vehicles Circulating, veh/h	410	534	84	141
Vehicles Exiting, veh/h	89	152	395	564
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.7	6.8	7.8	6.1
Approach LOS	A	A	A	A

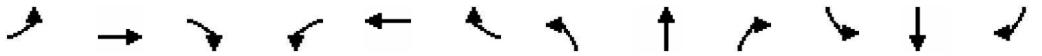
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	69	171	602	358
Cap Entry Lane, veh/h	908	800	1267	1195
Entry HV Adj Factor	1.000	0.994	0.992	0.936
Flow Entry, veh/h	69	170	597	335
Cap Entry, veh/h	908	796	1256	1118
V/C Ratio	0.076	0.214	0.475	0.300
Control Delay, s/veh	4.7	6.8	7.8	6.1
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	198	0	103	262	226	17	200	141	102	103	89
Future Volume (vph)	77	198	0	103	262	226	17	200	141	102	103	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1667		1599	1699	1442	1663	1733	1473	1599	1498	
Flt Permitted	0.44	1.00		0.53	1.00	1.00	0.63	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	748	1667		891	1699	1442	1104	1733	1473	755	1498	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	208	0	108	276	238	18	211	148	107	108	94
RTOR Reduction (vph)	0	0	0	0	0	170	0	0	106	0	27	0
Lane Group Flow (vph)	81	208	0	108	276	68	18	211	42	107	175	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	25.4	19.5		26.2	19.9	19.9	20.2	19.6	19.6	32.3	26.7	
Effective Green, g (s)	27.4	20.5		28.2	20.9	20.9	22.2	20.6	20.6	33.3	27.7	
Actuated g/C Ratio	0.37	0.28		0.39	0.29	0.29	0.30	0.28	0.28	0.46	0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	360	467		414	485	412	347	488	415	444	567	
v/s Ratio Prot	0.02	0.12		c0.03	c0.16		0.00	c0.12		c0.03	0.12	
v/s Ratio Perm	0.06			0.07		0.05	0.01		0.03	0.08		
v/c Ratio	0.23	0.45		0.26	0.57	0.17	0.05	0.43	0.10	0.24	0.31	
Uniform Delay, d1	15.2	21.6		14.9	22.3	19.6	17.9	21.5	19.4	12.0	16.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.2	1.2	0.1	0.0	0.4	0.1	0.2	0.2	
Delay (s)	15.5	22.1		15.1	23.5	19.7	18.0	21.9	19.5	12.2	16.2	
Level of Service	B	C		B	C	B	B	C	B	B	B	
Approach Delay (s/veh)		20.3			20.6			20.8			14.8	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	198	0	103	262	226	17	200	141	102	103	89
Future Volume (veh/h)	77	198	0	103	262	226	17	200	141	102	103	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	81	208	0	108	276	238	18	211	148	107	108	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	403	415	0	483	441	379	409	352	299	414	219	190
Arrive On Green	0.09	0.25	0.00	0.10	0.26	0.26	0.04	0.20	0.20	0.10	0.26	0.24
Sat Flow, veh/h	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	836	728
Grp Volume(v), veh/h	81	208	0	108	276	238	18	211	148	107	0	202
Grp Sat Flow(s),veh/h/ln	1615	1682	0	1615	1709	1469	1667	1736	1471	1615	0	1564
Q Serve(g_s), s	1.6	4.9	0.0	2.2	6.6	6.6	0.4	5.1	4.1	2.2	0.0	5.1
Cycle Q Clear(g_c), s	1.6	4.9	0.0	2.2	6.6	6.6	0.4	5.1	4.1	2.2	0.0	5.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	403	415	0	483	441	379	409	352	299	414	0	409
V/C Ratio(X)	0.20	0.50	0.00	0.22	0.63	0.63	0.04	0.60	0.50	0.26	0.00	0.49
Avail Cap(c_a), veh/h	639	1343	0	771	1438	1236	552	1199	1016	1015	0	1620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	15.0	0.0	10.8	15.2	15.2	13.4	16.8	16.4	11.9	0.0	14.7
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.2	1.1	1.3	0.0	1.2	0.9	0.2	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	0.0	0.6	2.2	2.0	0.1	1.8	1.2	0.7	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	15.7	0.0	11.0	16.3	16.5	13.4	18.0	17.3	12.1	0.0	15.4
LnGrp LOS	B	B		B	B	B	B	B	B	B		B
Approach Vol, veh/h		289			622			377			309	
Approach Delay, s/veh		14.5			15.4			17.5			14.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	15.4	6.0	16.1	8.2	16.0	8.7	13.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	4.2	6.9	2.4	7.1	3.6	8.6	4.2	7.1
Green Ext Time (p_c), s	0.1	1.0	0.0	1.0	0.1	2.0	0.2	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	15.5
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	187	0	1	158	2	1
Future Vol, veh/h	187	0	1	158	2	1
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	322	0	2	272	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	330	0	606	330
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1240	-	463	716
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1231	-	459	710
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	11.99
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	-	-	11	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Ctrl Dly (s/v)	12	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	24	0	5	77
Future Vol, veh/h	0	22	24	0	5	77
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	34	37	0	8	118

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	175	39	0	0	39	0
Stage 1	39	-	-	-	-	-
Stage 2	136	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	820	1038	-	-	1584	-
Stage 1	989	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	812	1037	-	-	1581	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.59	0	0.44
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1037	110	-
HCM Lane V/C Ratio	-	-	0.033	0.005	-
HCM Ctrl Dly (s/v)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	464	2	11	548	25	26	2	15	31	2	48
Future Vol, veh/h	11	464	2	11	548	25	26	2	15	31	2	48
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	13	533	2	13	630	29	30	2	17	36	2	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	659	0	0	543	0	0	1232	1251	550	1238	1237	653
Stage 1	-	-	-	-	-	-	567	567	-	670	670	-
Stage 2	-	-	-	-	-	-	665	684	-	569	568	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	939	-	-	1036	-	-	155	174	538	154	177	471
Stage 1	-	-	-	-	-	-	512	510	-	450	459	-
Stage 2	-	-	-	-	-	-	452	452	-	511	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	939	-	-	1029	-	-	130	169	530	142	172	467
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	169	-	142	172	-
Stage 1	-	-	-	-	-	-	502	500	-	444	453	-
Stage 2	-	-	-	-	-	-	389	446	-	481	499	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.2	0.16	30.21	23.75
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	130	423	939	-	-	1029	-	-	142	437
HCM Lane V/C Ratio	0.23	0.046	0.013	-	-	0.012	-	-	0.251	0.132
HCM Ctrl Dly (s/v)	40.9	13.9	8.9	-	-	8.5	-	-	38.7	14.5
HCM Lane LOS	E	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.8	0.1	0	-	-	0	-	-	0.9	0.5

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	115	73	115	105	0	54	1	38	0	0	1
Future Vol, veh/h	0	115	73	115	105	0	54	1	38	0	0	1
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	198	126	198	181	0	93	2	66	0	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.8	12.7	10.1	8.3
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	0%	52%	0%
Vol Thru, %	1%	61%	48%	0%
Vol Right, %	41%	39%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	93	188	220	1
LT Vol	54	0	115	0
Through Vol	1	115	105	0
RT Vol	38	73	0	1
Lane Flow Rate	160	324	379	2
Geometry Grp	1	1	1	1
Degree of Util (X)	0.238	0.409	0.505	0.003
Departure Headway (Hd)	5.335	4.545	4.796	5.278
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	667	784	747	682
Service Time	3.422	2.611	2.861	3.278
HCM Lane V/C Ratio	0.24	0.413	0.507	0.003
HCM Control Delay, s/veh	10.1	10.8	12.7	8.3
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	0.9	2	2.9	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	5	0	0	14	94	2	1	168	21
Future Vol, veh/h	1	0	0	5	0	0	14	94	2	1	168	21
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	0	11	0	0	30	200	4	2	357	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	661	665	397	623	685	202	419	0	0	204	0	0
Stage 1	401	401	-	262	262	-	-	-	-	-	-	-
Stage 2	260	264	-	362	423	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	379	383	657	401	373	844	1151	-	-	1379	-	-
Stage 1	630	604	-	748	695	-	-	-	-	-	-	-
Stage 2	750	694	-	661	591	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	361	365	646	388	356	844	1132	-	-	1379	-	-
Mov Cap-2 Maneuver	361	365	-	388	356	-	-	-	-	-	-	-
Stage 1	618	593	-	726	675	-	-	-	-	-	-	-
Stage 2	727	673	-	660	580	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.03	14.53	1.05	0.04
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	228	-	-	361	388	9	-	-
HCM Lane V/C Ratio	0.026	-	-	0.006	0.027	0.002	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	15	14.5	7.6	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	4	0	9	0	116	3	58	123	22
Future Vol, veh/h	0	1	0	4	0	9	0	116	3	58	123	22
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	2	0	8	0	17	0	223	6	112	237	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	713	721	268	690	739	228	288	0	0	231	0	0
Stage 1	490	490	-	228	228	-	-	-	-	-	-	-
Stage 2	223	231	-	462	511	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	350	351	776	362	348	816	1286	-	-	1349	-	-
Stage 1	564	546	-	779	719	-	-	-	-	-	-	-
Stage 2	784	710	-	584	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	306	313	768	324	310	815	1275	-	-	1346	-	-
Mov Cap-2 Maneuver	306	313	-	324	310	-	-	-	-	-	-	-
Stage 1	504	488	-	778	718	-	-	-	-	-	-	-
Stage 2	767	708	-	524	483	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.56	11.78	0	2.26
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1275	-	-	313	556	499	-	-
HCM Lane V/C Ratio	-	-	-	0.006	0.045	0.083	-	-
HCM Ctrl Dly (s/v)	0	-	-	16.6	11.8	7.9	0	-
HCM Lane LOS	A	-	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.3	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	428	16	33	461	53	19	4	26	38	4	76
Future Vol, veh/h	60	428	16	33	461	53	19	4	26	38	4	76
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	71	504	19	39	542	62	22	5	31	45	5	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	605	0	0	523	0	0	1288	1337	514	1298	1316	585
Stage 1	-	-	-	-	-	-	655	655	-	651	651	-
Stage 2	-	-	-	-	-	-	633	682	-	647	665	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	983	-	-	1053	-	-	142	154	565	140	159	515
Stage 1	-	-	-	-	-	-	458	466	-	461	468	-
Stage 2	-	-	-	-	-	-	471	453	-	463	461	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	1052	-	-	100	138	564	115	142	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	100	138	-	115	142	-
Stage 1	-	-	-	-	-	-	425	432	-	444	450	-
Stage 2	-	-	-	-	-	-	366	436	-	402	428	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.06	0.52	28.81	27.98
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	100	400	983	-	-	1052	-	-	115	451
HCM Lane V/C Ratio	0.222	0.088	0.072	-	-	0.037	-	-	0.39	0.209
HCM Ctrl Dly (s/v)	50.8	14.9	8.9	-	-	8.6	-	-	55.2	15.1
HCM Lane LOS	F	B	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.8	0.3	0.2	-	-	0.1	-	-	1.6	0.8

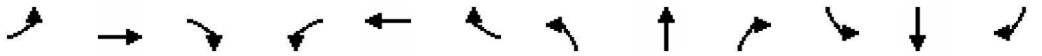
Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	108	89	208	137	90
Future Vol, veh/h	105	108	89	208	137	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	142	146	120	281	185	122

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	768	246	307	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	373	798	1265	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	337	798	1265	-	-	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.37	2.44	0
HCM LOS	C		

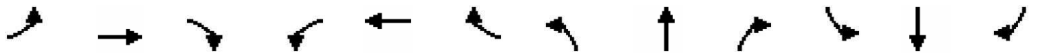
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1265	-	477	-	-
HCM Lane V/C Ratio	0.095	-	0.603	-	-
HCM Ctrl Dly (s/v)	8.1	-	23.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	3.9	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	309	39	9	426	34	82	68	9	55	29	53
Future Volume (vph)	63	309	39	9	426	34	82	68	9	55	29	53
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1663	1716	1488	1663	1699			1692			1627	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.79			0.84	
Satd. Flow (perm)	1663	1716	1488	1663	1699			1370			1400	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	67	329	41	10	453	36	87	72	10	59	31	56
RTOR Reduction (vph)	0	0	18	0	3	0	0	3	0	0	30	0
Lane Group Flow (vph)	67	329	23	10	486	0	0	166	0	0	116	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	3.9	29.0	29.0	0.9	26.0			10.0			10.0	
Effective Green, g (s)	3.9	29.5	29.5	0.9	26.5			10.5			10.5	
Actuated g/C Ratio	0.08	0.57	0.57	0.02	0.51			0.20			0.20	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	124	975	845	28	867			277			283	
v/s Ratio Prot	c0.04	c0.19		0.01	c0.29							
v/s Ratio Perm			0.02					c0.12			0.08	
v/c Ratio	0.54	0.34	0.03	0.36	0.56			0.60			0.41	
Uniform Delay, d1	23.1	6.0	4.9	25.2	8.7			18.8			18.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	3.8	0.2	0.0	5.6	0.7			2.9			0.7	
Delay (s)	26.9	6.1	4.9	30.8	9.4			21.7			18.7	
Level of Service	C	A	A	C	A			C			B	
Approach Delay (s/veh)		9.2			9.8			21.7			18.7	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	309	39	9	426	34	82	68	9	55	29	53
Future Volume (veh/h)	63	309	39	9	426	34	82	68	9	55	29	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	67	329	41	10	453	36	87	72	10	59	31	56
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	132	767	661	26	602	48	303	216	24	241	132	152
Arrive On Green	0.08	0.45	0.45	0.02	0.38	0.37	0.25	0.26	0.25	0.25	0.26	0.25
Sat Flow, veh/h	1667	1723	1483	1667	1575	125	636	832	92	433	509	586
Grp Volume(v), veh/h	67	329	41	10	0	489	169	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1700	1560	0	0	1527	0	0
Q Serve(g_s), s	1.5	5.2	0.6	0.2	0.0	9.8	0.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	5.2	0.6	0.2	0.0	9.8	3.3	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	0.51		0.06	0.40		0.38
Lane Grp Cap(c), veh/h	132	767	661	26	0	649	524	0	0	505	0	0
V/C Ratio(X)	0.51	0.43	0.06	0.38	0.00	0.75	0.32	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	381	1727	1487	381	0	1705	1292	0	0	1259	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	7.5	6.2	19.2	0.0	10.6	12.1	0.0	0.0	12.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.3	0.0	6.6	0.0	1.3	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.4	0.1	0.1	0.0	2.9	1.0	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.6	7.8	6.3	25.8	0.0	11.9	12.4	0.0	0.0	12.3	0.0	0.0
LnGrp LOS	B	A	A	C		B	B			B		
Approach Vol, veh/h		437			499			169			146	
Approach Delay, s/veh		9.4			12.2			12.4			12.3	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	21.0		13.7	7.1	18.5		13.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	7.2		4.9	3.5	11.8		5.3				
Green Ext Time (p_c), s	0.0	1.5		0.7	0.0	2.7		0.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.3									
HCM 7th LOS			B									

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	59	22	0	23	22
Future Vol, veh/h	0	59	22	0	23	22
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	91	34	0	35	34
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	6.8	7.5	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	51%	0%	100%
Vol Thru, %	0%	0%	0%
Vol Right, %	49%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	59	22
LT Vol	23	0	22
Through Vol	0	0	0
RT Vol	22	59	0
Lane Flow Rate	69	91	34
Geometry Grp	1	1	1
Degree of Util (X)	0.075	0.087	0.04
Departure Headway (Hd)	3.924	3.447	4.292
Convergence, Y/N	Yes	Yes	Yes
Cap	912	1036	833
Service Time	1.954	1.481	2.324
HCM Lane V/C Ratio	0.076	0.088	0.041
HCM Control Delay, s/veh	7.3	6.8	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.1

Intersection	
Int Delay, s/veh	7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	35	0	0	0
Future Vol, veh/h	0	0	35	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	60	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	2	0	-	2
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.1	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.2	-	-	3.3
Pot Cap-1 Maneuver	-	0	1634	-	0	1089
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1634	-	-	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	7.29	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	-	-	1634	-
HCM Lane V/C Ratio	-	-	0.037	-
HCM Ctrl Dly (s/v)	0	-	7.3	0
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	22.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	61	0	137	0	0	0	77	52	0	0	109	121
Future Vol, veh/h	61	0	137	0	0	0	77	52	0	0	109	121
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	48	48	48	48	48	48	48	48	48	48	48	48
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	127	0	285	0	0	0	160	108	0	0	227	252

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	801	801	379	663	927	108	498	0	0	108	0	0
Stage 1	372	372	-	429	429	-	-	-	-	-	-	-
Stage 2	429	429	-	234	498	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	320	672	377	270	951	1076	-	-	1495	-	-
Stage 1	653	622	-	608	587	-	-	-	-	-	-	-
Stage 2	608	587	-	773	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	251	263	656	177	223	951	1057	-	-	1495	-	-
Mov Cap-2 Maneuver	251	263	-	177	223	-	-	-	-	-	-	-
Stage 1	641	611	-	510	493	-	-	-	-	-	-	-
Stage 2	510	493	-	434	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	60.53	0	5.38	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	993	-	-	438	-	1495	-	-
HCM Lane V/C Ratio	0.152	-	-	0.942	-	-	-	-
HCM Ctrl Dly (s/v)	9	0	-	60.5	0	0	-	-
HCM Lane LOS	A	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	10.9	-	0	-	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	0	137	0	0	0	77	52	0	0	109	121
Future Vol, veh/h	61	0	137	0	0	0	77	52	0	0	109	121
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	48	48	48	48	48	48	48	48	48	48	48	48
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	127	0	285	0	0	0	160	108	0	0	227	252

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	801	801	379	663	927	108	498	0	0	108	0	0
Stage 1	372	372	-	429	429	-	-	-	-	-	-	-
Stage 2	429	429	-	234	498	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	320	672	377	270	951	1076	-	-	1495	-	-
Stage 1	653	622	-	608	587	-	-	-	-	-	-	-
Stage 2	608	587	-	773	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	254	266	656	179	225	951	1057	-	-	1495	-	-
Mov Cap-2 Maneuver	374	370	-	179	225	-	-	-	-	-	-	-
Stage 1	641	611	-	516	498	-	-	-	-	-	-	-
Stage 2	516	498	-	434	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.14	0	5.38	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1057	-	-	374	656	-	1495	-	-
HCM Lane V/C Ratio	0.152	-	-	0.34	0.435	-	-	-	-
HCM Ctrl Dly (s/v)	9	-	-	19.5	14.7	0	0	-	-
HCM Lane LOS	A	-	-	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.5	2.2	-	0	-	-

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

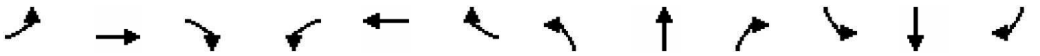
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	102	177	623	563
Demand Flow Rate, veh/h	102	177	634	573
Vehicles Circulating, veh/h	642	541	106	153
Vehicles Exiting, veh/h	84	199	638	565
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.6	6.9	8.6	8.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	102	177	634	573
Cap Entry Lane, veh/h	717	795	1238	1180
Entry HV Adj Factor	1.000	1.000	0.983	0.983
Flow Entry, veh/h	102	177	623	563
Cap Entry, veh/h	717	795	1218	1160
V/C Ratio	0.142	0.223	0.512	0.485
Control Delay, s/veh	6.6	6.9	8.6	8.4
LOS	A	A	A	A
95th %tile Queue, veh	0	1	3	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	219	22	153	240	194	10	145	108	236	178	106
Future Volume (vph)	103	219	22	153	240	194	10	145	108	236	178	106
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1646	1681		1646	1683	1458	1662	1716	1378	1642	1599	
Flt Permitted	0.49	1.00		0.34	1.00	1.00	0.57	1.00	1.00	0.48	1.00	
Satd. Flow (perm)	847	1681		595	1683	1458	995	1716	1378	833	1599	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	243	24	170	267	216	11	161	120	262	198	118
RTOR Reduction (vph)	0	3	0	0	0	155	0	0	91	0	17	0
Lane Group Flow (vph)	114	264	0	170	267	61	11	161	29	262	299	0
Confl. Peds. (#/hr)							1		6	6		6
Heavy Vehicles (%)	1%	3%	0%	1%	4%	2%	0%	2%	5%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	27.4	20.5		33.4	23.5	23.5	20.2	19.6	19.6	41.3	35.7	
Effective Green, g (s)	29.4	21.5		35.4	24.5	24.5	22.2	20.6	20.6	42.3	36.7	
Actuated g/C Ratio	0.34	0.25		0.41	0.28	0.28	0.26	0.24	0.24	0.49	0.42	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	360	416		375	475	412	267	407	327	571	676	
v/s Ratio Prot	0.03	c0.16		c0.06	0.16		0.00	0.09		c0.09	0.19	
v/s Ratio Perm	0.08			0.13		0.04	0.01		0.02	c0.13		
v/c Ratio	0.32	0.63		0.45	0.56	0.15	0.04	0.40	0.09	0.46	0.44	
Uniform Delay, d1	20.4	29.1		17.7	26.5	23.3	24.2	27.8	25.7	13.8	17.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	2.8		0.6	1.2	0.1	0.0	0.5	0.1	0.4	0.3	
Delay (s)	20.8	31.9		18.3	27.8	23.4	24.2	28.3	25.8	14.3	18.1	
Level of Service	C	C		B	C	C	C	C	C	B	B	
Approach Delay (s/veh)		28.6			23.9			27.1			16.3	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	219	22	153	240	194	10	145	108	236	178	106
Future Volume (veh/h)	103	219	22	153	240	194	10	145	108	236	178	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1709	1750	1736	1695	1723	1750	1723	1682	1736	1709	1736
Adj Flow Rate, veh/h	114	243	24	170	267	216	11	161	120	262	198	118
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	3	0	1	4	2	0	2	5	1	3	1
Cap, veh/h	386	342	34	418	431	372	366	341	277	537	337	201
Arrive On Green	0.09	0.22	0.21	0.12	0.25	0.25	0.03	0.20	0.20	0.17	0.34	0.32
Sat Flow, veh/h	1654	1531	151	1654	1695	1460	1667	1723	1404	1654	999	596
Grp Volume(v), veh/h	114	0	267	170	267	216	11	161	120	262	0	316
Grp Sat Flow(s),veh/h/ln	1654	0	1682	1654	1695	1460	1667	1723	1404	1654	0	1595
Q Serve(g_s), s	2.8	0.0	8.2	4.2	7.8	7.3	0.3	4.6	4.2	6.3	0.0	9.2
Cycle Q Clear(g_c), s	2.8	0.0	8.2	4.2	7.8	7.3	0.3	4.6	4.2	6.3	0.0	9.2
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	386	0	375	418	431	372	366	341	277	537	0	537
V/C Ratio(X)	0.30	0.00	0.71	0.41	0.62	0.58	0.03	0.47	0.43	0.49	0.00	0.59
Avail Cap(c_a), veh/h	558	0	1109	597	1178	1015	491	982	800	903	0	1364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	20.2	14.1	18.5	18.3	16.8	19.9	19.8	12.4	0.0	15.6
Incr Delay (d2), s/veh	0.3	0.0	1.9	0.5	1.1	1.1	0.0	0.8	0.8	0.5	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.1	1.4	2.8	2.3	0.1	1.7	1.3	2.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.8	0.0	22.0	14.5	19.6	19.4	16.8	20.7	20.5	12.9	0.0	16.3
LnGrp LOS	B		C	B	B	B	B	C	C	B		B
Approach Vol, veh/h		381			653			292			578	
Approach Delay, s/veh		19.9			18.2			20.5			14.8	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	16.5	5.8	22.9	9.2	18.3	13.6	15.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	6.2	10.2	2.3	11.2	4.8	9.8	8.3	6.6
Green Ext Time (p_c), s	0.2	1.3	0.0	1.7	0.1	1.8	0.4	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	17.8
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	208	2	1	169	0	2
Future Vol, veh/h	208	2	1	169	0	2
Conflicting Peds, #/hr	0	15	15	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	254	2	1	206	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	271	0	478	270
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	209	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1304	-	549	774
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	541	763
Mov Cap-2 Maneuver	-	-	-	-	541	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	9.74
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	763	-	-	11	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-
HCM Ctrl Dly (s/v)	9.7	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	36	35	9	17	57
Future Vol, veh/h	12	36	35	9	17	57
Conflicting Peds, #/hr	0	15	0	7	7	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	16	48	47	12	23	76

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	181	75	0	0	66	0
Stage 1	60	-	-	-	-	-
Stage 2	121	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	813	992	-	-	1549	-
Stage 1	968	-	-	-	-	-
Stage 2	909	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	795	972	-	-	1539	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.2	0	1.69
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	921	414	-
HCM Lane V/C Ratio	-	-	0.07	0.015	-
HCM Ctrl Dly (s/v)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	608	7	23	634	22	12	2	19	13	1	49
Future Vol, veh/h	27	608	7	23	634	22	12	2	19	13	1	49
Conflicting Peds, #/hr	10	0	9	9	0	10	0	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	30	676	8	26	704	24	13	2	21	14	1	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	692	0	0	1521	1538	704	1530	1530	743
Stage 1	-	-	-	-	-	-	748	748	-	778	778	-
Stage 2	-	-	-	-	-	-	772	790	-	753	752	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	877	-	-	912	-	-	98	117	440	97	118	419
Stage 1	-	-	-	-	-	-	407	422	-	392	410	-
Stage 2	-	-	-	-	-	-	395	404	-	405	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	868	-	-	904	-	-	77	108	430	82	109	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	77	108	-	82	109	-
Stage 1	-	-	-	-	-	-	390	404	-	378	394	-
Stage 2	-	-	-	-	-	-	327	389	-	364	403	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.39	0.31	32.78	24.49
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	77	334	868	-	-	904	-	-	82	387
HCM Lane V/C Ratio	0.173	0.07	0.035	-	-	0.028	-	-	0.175	0.144
HCM Ctrl Dly (s/v)	61.1	16.6	9.3	-	-	9.1	-	-	57.7	15.9
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.6	0.2	0.1	-	-	0.1	-	-	0.6	0.5

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	141	69	48	114	0	56	0	52	0	1	0
Future Vol, veh/h	0	141	69	48	114	0	56	0	52	0	1	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	172	84	59	139	0	68	0	63	0	1	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.1	9.1	8.7	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	52%	0%	30%	0%
Vol Thru, %	0%	67%	70%	100%
Vol Right, %	48%	33%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	210	162	1
LT Vol	56	0	48	0
Through Vol	0	141	114	1
RT Vol	52	69	0	0
Lane Flow Rate	132	256	198	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.172	0.302	0.25	0.002
Departure Headway (Hd)	4.71	4.245	4.548	5.08
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	848	790	702
Service Time	2.745	2.27	2.575	3.127
HCM Lane V/C Ratio	0.173	0.302	0.251	0.001
HCM Control Delay, s/veh	8.7	9.1	9.1	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	1.3	1	0

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	0	15	1	0	0	2	95	0	0	116	1
Future Vol, veh/h	12	0	15	1	0	0	2	95	0	0	116	1
Conflicting Peds, #/hr	2	0	0	0	0	2	41	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	57	57	57	57	57	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	21	0	26	2	0	0	4	167	0	0	204	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	421	419	245	377	420	169	246	0	0	167	0	0
Stage 1	245	245	-	174	174	-	-	-	-	-	-	-
Stage 2	176	174	-	204	246	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	546	528	798	584	528	881	1332	-	-	1424	-	-
Stage 1	763	707	-	833	759	-	-	-	-	-	-	-
Stage 2	831	759	-	803	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	522	506	767	562	506	879	1280	-	-	1424	-	-
Mov Cap-2 Maneuver	522	506	-	562	506	-	-	-	-	-	-	-
Stage 1	733	679	-	830	757	-	-	-	-	-	-	-
Stage 2	827	757	-	775	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.13	11.42	0.16	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	37	-	-	635	562	1424	-	-
HCM Lane V/C Ratio	0.003	-	-	0.075	0.003	-	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	11.1	11.4	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	1	0	4	0	15	0	67	7	31	54	48
Future Vol, veh/h	25	1	0	4	0	15	0	67	7	31	54	48
Conflicting Peds, #/hr	0	0	0	0	0	0	23	0	4	4	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	49	2	0	8	0	29	0	131	14	61	106	94

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	429	447	176	371	487	142	223	0	0	149	0	0
Stage 1	298	298	-	142	142	-	-	-	-	-	-	-
Stage 2	131	149	-	228	345	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	540	510	872	590	484	911	1358	-	-	1445	-	-
Stage 1	715	671	-	865	783	-	-	-	-	-	-	-
Stage 2	877	778	-	779	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	486	473	853	557	449	907	1328	-	-	1439	-	-
Mov Cap-2 Maneuver	486	473	-	557	449	-	-	-	-	-	-	-
Stage 1	666	625	-	862	780	-	-	-	-	-	-	-
Stage 2	849	775	-	739	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.28	9.71	0	1.77
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	486	801	383	-	-
HCM Lane V/C Ratio	-	-	-	0.105	0.046	0.042	-	-
HCM Ctrl Dly (s/v)	0	-	-	13.3	9.7	7.6	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	556	37	75	611	37	23	7	72	14	8	32
Future Vol, veh/h	32	556	37	75	611	37	23	7	72	14	8	32
Conflicting Peds, #/hr	3	0	0	0	0	3	20	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	34	598	40	81	657	40	25	8	77	15	9	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	700	0	0	638	0	0	1529	1548	619	1513	1548	700
Stage 1	-	-	-	-	-	-	687	687	-	841	841	-
Stage 2	-	-	-	-	-	-	843	861	-	671	706	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	906	-	-	956	-	-	97	115	492	99	115	443
Stage 1	-	-	-	-	-	-	440	451	-	362	383	-
Stage 2	-	-	-	-	-	-	361	375	-	449	441	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	904	-	-	956	-	-	71	101	492	69	101	433
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	101	-	69	101	-
Stage 1	-	-	-	-	-	-	424	434	-	331	350	-
Stage 2	-	-	-	-	-	-	291	343	-	357	425	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0.95	31.88	34.45
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	71	367	904	-	-	956	-	-	69	262
HCM Lane V/C Ratio	0.347	0.232	0.038	-	-	0.084	-	-	0.219	0.164
HCM Ctrl Dly (s/v)	80.4	17.8	9.1	-	-	9.1	-	-	71.6	21.4
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.3	0.9	0.1	-	-	0.3	-	-	0.8	0.6

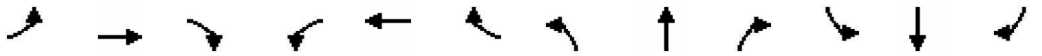
Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	123	109	215	214	86
Future Vol, veh/h	60	123	109	215	214	86
Conflicting Peds, #/hr	0	5	0	0	0	12
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	77	158	140	276	274	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	897	346	397	0	-	0
Stage 1	341	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	313	701	1173	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	269	690	1160	-	-	-
Mov Cap-2 Maneuver	269	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.96	2.87	0
HCM LOS	C		

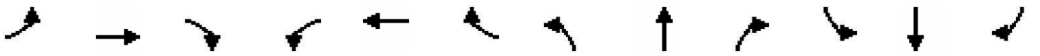
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1160	-	456	-	-
HCM Lane V/C Ratio	0.121	-	0.515	-	-
HCM Ctrl Dly (s/v)	8.5	-	21	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.9	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	413	85	9	422	45	69	59	12	53	83	129
Future Volume (vph)	78	413	85	9	422	45	69	59	12	53	83	129
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1450	1658	1675			1682			1592	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.72			0.91	
Satd. Flow (perm)	1663	1716	1450	1658	1675			1239			1467	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	459	94	10	469	50	77	66	13	59	92	143
RTOR Reduction (vph)	0	0	46	0	5	0	0	4	0	0	40	0
Lane Group Flow (vph)	87	459	48	10	514	0	0	152	0	0	254	0
Confl. Peds. (#/hr)	5		3	3		5	5		3	3		3
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	0%	2%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	6.0	30.9	30.9	0.9	25.8			17.2			17.2	
Effective Green, g (s)	6.0	31.4	31.4	0.9	26.3			17.7			17.7	
Actuated g/C Ratio	0.10	0.51	0.51	0.01	0.43			0.29			0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	163	883	746	24	722			359			425	
v/s Ratio Prot	c0.05	0.27		0.01	c0.31							
v/s Ratio Perm			0.03					0.12			c0.17	
v/c Ratio	0.53	0.52	0.06	0.42	0.71			0.42			0.60	
Uniform Delay, d1	26.2	9.8	7.4	29.8	14.2			17.5			18.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.6	0.4	0.0	8.3	3.1			0.6			1.9	
Delay (s)	28.8	10.2	7.5	38.1	17.4			18.1			20.5	
Level of Service	C	B	A	D	B			B			C	
Approach Delay (s/veh)		12.3			17.8			18.1			20.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	413	85	9	422	45	69	59	12	53	83	129
Future Volume (veh/h)	78	413	85	9	422	45	69	59	12	53	83	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1709	1750	1750	1750	1750	1723	1750	1750
Adj Flow Rate, veh/h	87	459	94	10	469	50	77	66	13	59	92	143
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	0	0	3	0	0	0	0	2	0	0
Cap, veh/h	148	806	690	26	598	64	274	206	33	153	157	202
Arrive On Green	0.09	0.47	0.47	0.02	0.39	0.38	0.26	0.27	0.26	0.26	0.27	0.26
Sat Flow, veh/h	1667	1723	1475	1667	1517	162	570	767	122	207	586	751
Grp Volume(v), veh/h	87	459	94	10	0	519	156	0	0	294	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1475	1667	0	1679	1458	0	0	1544	0	0
Q Serve(g_s), s	2.2	8.6	1.6	0.3	0.0	12.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	8.6	1.6	0.3	0.0	12.0	3.6	0.0	0.0	7.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.10	0.49		0.08	0.20		0.49
Lane Grp Cap(c), veh/h	148	806	690	26	0	662	497	0	0	495	0	0
V/C Ratio(X)	0.59	0.57	0.14	0.38	0.00	0.78	0.31	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	338	1534	1313	338	0	1495	1075	0	0	1130	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.4	8.6	6.7	21.6	0.0	11.8	13.2	0.0	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.5	0.1	6.7	0.0	1.6	0.3	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.4	0.4	0.1	0.0	3.7	1.1	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.1	9.0	6.8	28.3	0.0	13.4	13.5	0.0	0.0	15.6	0.0	0.0
LnGrp LOS	C	A	A	C		B	B			B		
Approach Vol, veh/h		640			529			156			294	
Approach Delay, s/veh		10.5			13.6			13.5			15.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	24.2		15.4	7.9	21.0		15.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.3	10.6		9.6	4.2	14.0		5.6				
Green Ext Time (p_c), s	0.0	2.0		1.5	0.0	2.9		0.8				

Intersection Summary		
HCM 7th Control Delay, s/veh		12.7
HCM 7th LOS		B

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	50	22	0	47	22
Future Vol, veh/h	0	50	22	0	47	22
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	67	29	0	63	29
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	6.8	7.5	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	68%	0%	100%
Vol Thru, %	0%	0%	0%
Vol Right, %	32%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	69	50	22
LT Vol	47	0	22
Through Vol	0	0	0
RT Vol	22	50	0
Lane Flow Rate	92	67	29
Geometry Grp	1	1	1
Degree of Util (X)	0.102	0.065	0.035
Departure Headway (Hd)	4.01	3.483	4.313
Convergence, Y/N	Yes	Yes	Yes
Cap	892	1021	826
Service Time	2.039	1.53	2.359
HCM Lane V/C Ratio	0.103	0.066	0.035
HCM Control Delay, s/veh	7.5	6.8	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	0.2	0.1

Intersection	
Int Delay, s/veh	7.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	25
Future Vol, veh/h	0	0	0	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	2	0	-	2
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.1	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.2	-	-	3.3
Pot Cap-1 Maneuver	-	0	1634	-	0	1088
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1634	-	-	1088
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.45
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	1088	-	1634	-
HCM Lane V/C Ratio	0.04	-	-	-
HCM Ctrl Dly (s/v)	8.4	-	0	-
HCM Lane LOS	A	-	A	-
HCM 95th %tile Q(veh)	0.1	-	0	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	58	0	64	0	0	0	61	47	0	0	82	61
Future Vol, veh/h	58	0	64	0	0	0	61	47	0	0	82	61
Conflicting Peds, #/hr	1	0	9	9	0	1	42	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	55	55	55	55	55	55	55	55	55
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	105	0	116	0	0	0	111	85	0	0	149	111

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	555	554	256	465	609	86	302	0	0	85	0	0
Stage 1	247	247	-	307	307	-	-	-	-	-	-	-
Stage 2	308	307	-	158	302	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	446	443	788	511	412	978	1270	-	-	1524	-	-
Stage 1	762	706	-	707	664	-	-	-	-	-	-	-
Stage 2	706	664	-	849	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	387	385	750	387	358	977	1220	-	-	1524	-	-
Mov Cap-2 Maneuver	387	385	-	387	358	-	-	-	-	-	-	-
Stage 1	731	678	-	639	601	-	-	-	-	-	-	-
Stage 2	638	601	-	711	641	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.04	0	4.66	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1017	-	-	518	-	1524	-	-
HCM Lane V/C Ratio	0.091	-	-	0.428	-	-	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	17	0	0	-	-
HCM Lane LOS	A	A	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	2.1	-	0	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	0	64	0	0	0	61	47	0	0	82	61
Future Vol, veh/h	58	0	64	0	0	0	61	47	0	0	82	61
Conflicting Peds, #/hr	1	0	9	9	0	1	42	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	55	55	55	55	55	55	55	55	55	55	55	55
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	105	0	116	0	0	0	111	85	0	0	149	111

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	555	554	256	465	609	86	302	0	0	85	0	0
Stage 1	247	247	-	307	307	-	-	-	-	-	-	-
Stage 2	308	307	-	158	302	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	446	443	788	511	412	978	1270	-	-	1524	-	-
Stage 1	762	706	-	707	664	-	-	-	-	-	-	-
Stage 2	706	664	-	849	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	388	387	750	389	360	977	1220	-	-	1524	-	-
Mov Cap-2 Maneuver	487	467	-	389	360	-	-	-	-	-	-	-
Stage 1	731	678	-	643	604	-	-	-	-	-	-	-
Stage 2	641	604	-	711	641	-	-	-	-	-	-	-

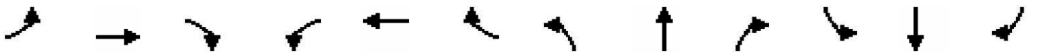
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.45	0	4.66	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1220	-	-	487	750	-	1524	-	-
HCM Lane V/C Ratio	0.091	-	-	0.216	0.155	-	-	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	14.4	10.7	0	0	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.8	0.5	-	0	-	-

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	167	185	632	724
Demand Flow Rate, veh/h	167	186	637	773
Vehicles Circulating, veh/h	852	512	184	185
Vehicles Exiting, veh/h	106	309	835	513
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.2	6.9	9.9	13.5
Approach LOS	B	A	A	B

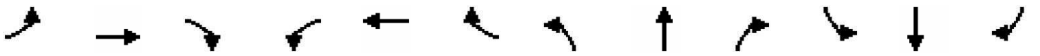
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
A (Intercept)	1380	1380	1380	1380
B (Slope)	1.02e-3	1.02e-3	1.02e-3	1.02e-3
Entry Flow, veh/h	167	186	637	773
Cap Entry Lane, veh/h	579	819	1144	1143
Entry HV Adj Factor	1.000	0.995	0.993	0.937
Flow Entry, veh/h	167	185	632	724
Cap Entry, veh/h	579	814	1136	1071
V/C Ratio	0.289	0.227	0.557	0.677
Control Delay, s/veh	10.2	6.9	9.9	13.5
LOS	B	A	A	B
95th %tile Queue, veh	1	1	4	6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	323	21	192	271	200	17	189	162	259	227	155
Future Volume (vph)	130	323	21	192	271	200	17	189	162	259	227	155
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1598	1656		1599	1699	1442	1663	1733	1473	1599	1521	
Flt Permitted	0.43	1.00		0.25	1.00	1.00	0.53	1.00	1.00	0.41	1.00	
Satd. Flow (perm)	717	1656		417	1699	1442	920	1733	1473	696	1521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	340	22	202	285	211	18	199	171	273	239	163
RTOR Reduction (vph)	0	2	0	0	0	150	0	0	131	0	20	0
Lane Group Flow (vph)	137	360	0	202	285	61	18	199	40	273	382	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	5%	0%	4%	3%	1%	0%	1%	1%	4%	4%	14%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	33.6	24.4		36.8	26.0	26.0	22.3	20.7	20.7	43.2	36.6	
Effective Green, g (s)	35.6	25.4		38.8	27.0	27.0	24.3	21.7	21.7	44.2	37.6	
Actuated g/C Ratio	0.38	0.27		0.42	0.29	0.29	0.26	0.23	0.23	0.47	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	369	450		322	491	416	260	402	342	508	612	
v/s Ratio Prot	0.04	c0.22		c0.08	0.17		0.00	0.11		c0.11	c0.25	
v/s Ratio Perm	0.10			0.18		0.04	0.02		0.03	0.15		
v/c Ratio	0.37	0.80		0.63	0.58	0.15	0.07	0.50	0.12	0.54	0.62	
Uniform Delay, d1	19.9	31.6		19.8	28.4	24.6	25.8	31.1	28.3	16.2	22.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	9.3		3.3	1.4	0.1	0.1	0.7	0.1	0.9	1.7	
Delay (s)	20.3	40.9		23.0	29.8	24.8	25.9	31.8	28.4	17.1	24.0	
Level of Service	C	D		C	C	C	C	C	C	B	C	
Approach Delay (s/veh)		35.3			26.3			30.0			21.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	93.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	323	21	192	271	200	17	189	162	259	227	155
Future Volume (veh/h)	130	323	21	192	271	200	17	189	162	259	227	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1695	1682	1750	1695	1709	1736	1750	1736	1736	1695	1695	1559
Adj Flow Rate, veh/h	137	340	22	202	285	211	18	199	171	273	239	163
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	5	0	4	3	1	0	1	1	4	4	14
Cap, veh/h	419	435	28	395	530	456	249	301	255	461	295	201
Arrive On Green	0.10	0.28	0.26	0.13	0.31	0.31	0.04	0.17	0.17	0.18	0.31	0.30
Sat Flow, veh/h	1615	1562	101	1615	1709	1469	1667	1736	1471	1615	939	641
Grp Volume(v), veh/h	137	0	362	202	285	211	18	199	171	273	0	402
Grp Sat Flow(s),veh/h/ln	1615	0	1663	1615	1709	1469	1667	1736	1471	1615	0	1580
Q Serve(g_s), s	3.8	0.0	13.3	5.6	9.1	7.6	0.6	7.1	7.2	8.3	0.0	15.5
Cycle Q Clear(g_c), s	3.8	0.0	13.3	5.6	9.1	7.6	0.6	7.1	7.2	8.3	0.0	15.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	419	0	463	395	530	456	249	301	255	461	0	496
V/C Ratio(X)	0.33	0.00	0.78	0.51	0.54	0.46	0.07	0.66	0.67	0.59	0.00	0.81
Avail Cap(c_a), veh/h	530	0	931	504	1008	867	339	840	712	712	0	1147
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	22.0	14.9	18.9	18.4	21.2	25.5	25.6	16.1	0.0	21.1
Incr Delay (d2), s/veh	0.3	0.0	2.2	0.8	0.6	0.5	0.1	1.8	2.3	0.9	0.0	2.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	5.1	1.9	3.4	2.4	0.2	2.9	2.5	2.8	0.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.9	0.0	24.2	15.6	19.5	18.9	21.3	27.3	27.8	17.0	0.0	23.5
LnGrp LOS	B		C	B	B	B	C	C	C	B		C
Approach Vol, veh/h		499			698			388			675	
Approach Delay, s/veh		21.7			18.2			27.3			20.9	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	22.4	6.4	24.8	10.4	24.5	15.7	15.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	12.0	36.0	5.0	47.0	10.0	38.0	21.0	31.0
Max Q Clear Time (g_c+I1), s	7.6	15.3	2.6	17.5	5.8	11.1	10.3	9.2
Green Ext Time (p_c), s	0.2	1.8	0.0	2.2	0.1	1.9	0.4	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	21.3
HCM 7th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	262	1	2	185	0	2
Future Vol, veh/h	262	1	2	185	0	2
Conflicting Peds, #/hr	0	8	8	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	58	58	58	58
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	452	2	3	319	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	461	0	786	461
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	326	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1110	-	364	605
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	736	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1102	-	359	600
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.09	11.03
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	600	-	-	19	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Ctrl Dly (s/v)	11	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	23	74	8	17	37
Future Vol, veh/h	2	23	74	8	17	37
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	35	114	12	26	57

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	233	122	0	0	128	0
Stage 1	122	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	759	935	-	-	1470	-
Stage 1	908	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	743	933	-	-	1467	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	900	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.11	0	2.36
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	914	567	-
HCM Lane V/C Ratio	-	-	0.042	0.018	-
HCM Ctrl Dly (s/v)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	793	13	20	756	26	15	1	7	17	0	28
Future Vol, veh/h	51	793	13	20	756	26	15	1	7	17	0	28
Conflicting Peds, #/hr	0	0	7	7	0	0	1	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	170	-	-	150	-	-	250	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	59	911	15	23	869	30	17	1	8	20	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	899	0	0	933	0	0	1967	1988	935	1968	1981	893
Stage 1	-	-	-	-	-	-	1043	1043	-	930	930	-
Stage 2	-	-	-	-	-	-	924	945	-	1038	1051	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	764	-	-	742	-	-	48	62	325	48	62	343
Stage 1	-	-	-	-	-	-	279	309	-	323	349	-
Stage 2	-	-	-	-	-	-	326	343	-	281	306	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	764	-	-	737	-	-	38	55	320	40	55	340
Mov Cap-2 Maneuver	-	-	-	-	-	-	38	55	-	40	55	-
Stage 1	-	-	-	-	-	-	256	283	-	313	338	-
Stage 2	-	-	-	-	-	-	283	332	-	250	281	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.6	0.25	114.15	70.61
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	38	199	764	-	-	737	-	-	40	340
HCM Lane V/C Ratio	0.453	0.046	0.077	-	-	0.031	-	-	0.484	0.095
HCM Ctrl Dly (s/v)	162.3	23.9	10.1	-	-	10	-	-	159.4	16.7
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	1.6	0.1	0.2	-	-	0.1	-	-	1.7	0.3

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	190	78	47	135	0	54	0	44	0	0	0
Future Vol, veh/h	0	190	78	47	135	0	54	0	44	0	0	0
Peak Hour Factor	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	328	134	81	233	0	93	0	76	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14	11.7	10.5	0
HCM LOS	B	B	B	-

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	0%	26%	0%
Vol Thru, %	0%	71%	74%	100%
Vol Right, %	45%	29%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	98	268	182	0
LT Vol	54	0	47	0
Through Vol	0	190	135	0
RT Vol	44	78	0	0
Lane Flow Rate	169	462	314	0
Geometry Grp	1	1	1	1
Degree of Util (X)	0.26	0.586	0.429	0
Departure Headway (Hd)	5.549	4.562	4.927	6.103
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	651	781	722	0
Service Time	3.549	2.641	3.018	4.11
HCM Lane V/C Ratio	0.26	0.592	0.435	0
HCM Control Delay, s/veh	10.5	14	11.7	9.1
HCM Lane LOS	B	B	B	N
HCM 95th-tile Q	1	3.9	2.2	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	9	3	0	2	4	93	2	3	125	3
Future Vol, veh/h	5	0	9	3	0	2	4	93	2	3	125	3
Conflicting Peds, #/hr	0	0	0	0	0	0	17	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	47	47	47	47	47	47	47	47	47	47	47	47
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	0	19	6	0	4	9	198	4	6	266	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	514	518	286	496	519	200	289	0	0	202	0	0
Stage 1	299	299	-	217	217	-	-	-	-	-	-	-
Stage 2	215	219	-	279	302	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	474	465	758	488	464	846	1284	-	-	1382	-	-
Stage 1	714	670	-	790	727	-	-	-	-	-	-	-
Stage 2	792	726	-	732	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	458	451	745	469	450	846	1263	-	-	1382	-	-
Mov Cap-2 Maneuver	458	451	-	469	450	-	-	-	-	-	-	-
Stage 1	699	656	-	784	722	-	-	-	-	-	-	-
Stage 2	782	720	-	710	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.21	11.43	0.32	0.17
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	72	-	-	609	571	41	-	-
HCM Lane V/C Ratio	0.007	-	-	0.049	0.019	0.005	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	11.2	11.4	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	0	14	0	7	0	85	13	19	99	25
Future Vol, veh/h	25	0	0	14	0	7	0	85	13	19	99	25
Conflicting Peds, #/hr	0	0	1	1	0	0	9	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	52	52	52	52	52	52	52	52	52	52	52	52
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	48	0	0	27	0	13	0	163	25	37	190	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	460	487	224	442	499	178	247	0	0	190	0	0
Stage 1	297	297	-	178	178	-	-	-	-	-	-	-
Stage 2	163	190	-	264	321	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.54	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.036	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	515	478	820	529	477	870	1330	-	-	1395	-	-
Stage 1	716	664	-	829	756	-	-	-	-	-	-	-
Stage 2	843	739	-	745	656	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	487	458	812	511	457	869	1319	-	-	1393	-	-
Mov Cap-2 Maneuver	487	458	-	511	457	-	-	-	-	-	-	-
Stage 1	689	639	-	827	754	-	-	-	-	-	-	-
Stage 2	830	738	-	722	630	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.19	11.52	0	1.02
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1319	-	-	487	593	230	-	-
HCM Lane V/C Ratio	-	-	-	0.099	0.068	0.026	-	-
HCM Ctrl Dly (s/v)	0	-	-	13.2	11.5	7.7	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	16

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	684	53	91	668	38	27	5	90	23	5	69
Future Vol, veh/h	54	684	53	91	668	38	27	5	90	23	5	69
Conflicting Peds, #/hr	0	0	1	1	0	0	11	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	5	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	64	805	62	107	786	45	32	6	106	27	6	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	831	0	0	868	0	0	1978	2009	837	1957	2017	819
Stage 1	-	-	-	-	-	-	964	964	-	1022	1022	-
Stage 2	-	-	-	-	-	-	1014	1045	-	935	995	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	810	-	-	785	-	-	47	60	370	48	59	378
Stage 1	-	-	-	-	-	-	309	336	-	287	316	-
Stage 2	-	-	-	-	-	-	290	308	-	321	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	810	-	-	784	-	-	~ 26	48	369	~ 25	47	374
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 26	48	-	~ 25	47	-
Stage 1	-	-	-	-	-	-	285	310	-	248	273	-
Stage 2	-	-	-	-	-	-	190	266	-	207	299	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.67	1.18	126.49	124.44
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	26	272	810	-	-	784	-	-	25	255
HCM Lane V/C Ratio	1.226	0.41	0.078	-	-	0.137	-	-	1.094	0.342
HCM Ctrl Dly (s/v)	$ 476.2	27.1	9.8	-	-	10.3	-	-	$ 440.2	26.3
HCM Lane LOS	F	D	A	-	-	B	-	-	F	D
HCM 95th %tile Q(veh)	3.8	1.9	0.3	-	-	0.5	-	-	3.3	1.5

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	167	120	219	259	63
Future Vol, veh/h	44	167	120	219	259	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	226	162	296	350	85

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1013	393	435	0	-	0
Stage 1	393	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	267	661	1135	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	229	661	1135	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	540	-	-	-	-	-

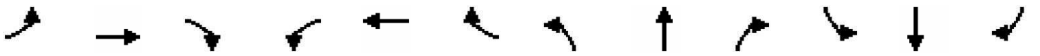
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.39	3.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1135	-	474	-	-
HCM Lane V/C Ratio	0.143	-	0.601	-	-
HCM Ctrl Dly (s/v)	8.7	-	23.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	3.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	487	136	16	492	44	88	81	19	77	108	110
Future Volume (vph)	84	487	136	16	492	44	88	81	19	77	108	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	3.5	3.5	4.0	3.5			3.5			3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.99			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1663	1716	1488	1663	1697			1686			1641	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.69			0.88	
Satd. Flow (perm)	1663	1716	1488	1663	1697			1196			1465	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	89	518	145	17	523	47	94	86	20	82	115	117
RTOR Reduction (vph)	0	0	70	0	3	0	0	5	0	0	25	0
Lane Group Flow (vph)	89	518	75	17	567	0	0	195	0	0	289	0
Confl. Peds. (#/hr)							1					
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	6.1	33.7	33.7	1.1	28.7			19.4			19.4	
Effective Green, g (s)	6.1	34.2	34.2	1.1	29.2			19.9			19.9	
Actuated g/C Ratio	0.09	0.52	0.52	0.02	0.44			0.30			0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5			2.5			2.5	
Lane Grp Cap (vph)	153	886	768	27	748			359			440	
v/s Ratio Prot	c0.05	0.30		0.01	c0.33							
v/s Ratio Perm			0.05					0.16			c0.20	
v/c Ratio	0.58	0.58	0.10	0.63	0.76			0.54			0.66	
Uniform Delay, d1	28.8	11.1	8.1	32.3	15.5			19.4			20.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.6	0.8	0.0	33.6	4.2			1.3			3.1	
Delay (s)	33.4	11.9	8.2	65.9	19.7			20.7			23.3	
Level of Service	C	B	A	E	B			C			C	
Approach Delay (s/veh)		13.7			21.1			20.7			23.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	487	136	16	492	44	88	81	19	77	108	110
Future Volume (veh/h)	84	487	136	16	492	44	88	81	19	77	108	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1750	1750	1723	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	89	518	145	17	523	47	94	86	20	82	115	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	146	823	708	42	648	58	253	204	38	178	181	157
Arrive On Green	0.09	0.48	0.48	0.03	0.42	0.41	0.25	0.27	0.25	0.25	0.27	0.25
Sat Flow, veh/h	1667	1723	1483	1667	1558	140	532	769	145	312	684	592
Grp Volume(v), veh/h	89	518	145	17	0	570	200	0	0	314	0	0
Grp Sat Flow(s),veh/h/ln	1667	1723	1483	1667	0	1698	1446	0	0	1587	0	0
Q Serve(g_s), s	2.4	10.7	2.7	0.5	0.0	14.0	0.0	0.0	0.0	3.2	0.0	0.0
Cycle Q Clear(g_c), s	2.4	10.7	2.7	0.5	0.0	14.0	5.3	0.0	0.0	8.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	0.47		0.10	0.26		0.37
Lane Grp Cap(c), veh/h	146	823	708	42	0	706	480	0	0	500	0	0
V/C Ratio(X)	0.61	0.63	0.20	0.40	0.00	0.81	0.42	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	316	1434	1234	316	0	1413	1007	0	0	1071	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.9	9.3	7.2	22.8	0.0	12.2	14.8	0.0	0.0	16.0	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.6	0.1	4.5	0.0	1.7	0.4	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	0.7	0.2	0.0	4.5	1.7	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.0	9.9	7.3	27.3	0.0	13.9	15.2	0.0	0.0	17.0	0.0	0.0
LnGrp LOS	C	A	A	C		B	B			B		
Approach Vol, veh/h		752			587			200			314	
Approach Delay, s/veh		11.0			14.3			15.2			17.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	26.2		16.1	8.1	23.2		16.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	39.0		30.0	9.0	39.0		30.0				
Max Q Clear Time (g_c+I1), s	2.5	12.7		10.5	4.4	16.0		7.3				
Green Ext Time (p_c), s	0.0	2.1		1.6	0.0	3.2		1.0				

Intersection Summary			
HCM 7th Control Delay, s/veh		13.5	
HCM 7th LOS		B	

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	45	8	0	78	18
Future Vol, veh/h	0	45	8	0	78	18
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	69	12	0	120	28
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay, s/veh	6.9	7.6	7.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	81%	0%	100%
Vol Thru, %	0%	0%	0%
Vol Right, %	19%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	96	45	8
LT Vol	78	0	8
Through Vol	0	0	0
RT Vol	18	45	0
Lane Flow Rate	148	69	12
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.069	0.015
Departure Headway (Hd)	4.092	3.567	4.414
Convergence, Y/N	Yes	Yes	Yes
Cap	877	989	801
Service Time	2.113	1.643	2.495
HCM Lane V/C Ratio	0.169	0.07	0.015
HCM Control Delay, s/veh	7.9	6.9	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.2	0

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	4	0	0	12
Future Vol, veh/h	0	0	4	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	4	0	0	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	1	0	-	1
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.318
Pot Cap-1 Maneuver	-	0	1622	-	0	1083
Stage 1	-	0	-	-	0	-
Stage 2	-	0	-	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1622	-	-	1083
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	7.23	8.36
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBL	WBT
Capacity (veh/h)	1083	-	1622	-
HCM Lane V/C Ratio	0.012	-	0.003	-
HCM Ctrl Dly (s/v)	8.4	-	7.2	0
HCM Lane LOS	A	-	A	A
HCM 95th %tile Q(veh)	0	-	0	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	36	0	61	0	0	0	44	68	0	0	89	63
Future Vol, veh/h	36	0	61	0	0	0	44	68	0	0	89	63
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	48	48	48	48	48	48	48	48	48	48	48	48
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	75	0	127	0	0	0	92	142	0	0	185	131

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	595	595	277	517	661	142	336	0	0	142	0	0
Stage 1	270	270	-	325	325	-	-	-	-	-	-	-
Stage 2	325	325	-	192	336	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	419	420	767	472	385	911	1235	-	-	1454	-	-
Stage 1	740	690	-	692	653	-	-	-	-	-	-	-
Stage 2	692	653	-	814	646	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	378	379	748	357	347	911	1213	-	-	1454	-	-
Mov Cap-2 Maneuver	378	379	-	357	347	-	-	-	-	-	-	-
Stage 1	727	677	-	635	599	-	-	-	-	-	-	-
Stage 2	635	599	-	671	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.35	0	3.23	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	707	-	-	548	-	1454	-	-
HCM Lane V/C Ratio	0.076	-	-	0.369	-	-	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	15.3	0	0	-	-
HCM Lane LOS	A	A	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.7	-	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	0	61	0	0	0	44	68	0	0	89	63
Future Vol, veh/h	36	0	61	0	0	0	44	68	0	0	89	63
Conflicting Peds, #/hr	0	0	7	7	0	0	19	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	48	48	48	48	48	48	48	48	48	48	48	48
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	75	0	127	0	0	0	92	142	0	0	185	131

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	595	595	277	517	661	142	336	0	0	142	0	0
Stage 1	270	270	-	325	325	-	-	-	-	-	-	-
Stage 2	325	325	-	192	336	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	419	420	767	472	385	911	1235	-	-	1454	-	-
Stage 1	740	690	-	692	653	-	-	-	-	-	-	-
Stage 2	692	653	-	814	646	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	380	381	748	360	350	911	1213	-	-	1454	-	-
Mov Cap-2 Maneuver	482	464	-	360	350	-	-	-	-	-	-	-
Stage 1	727	677	-	639	603	-	-	-	-	-	-	-
Stage 2	639	603	-	671	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.92	0	3.23	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1213	-	-	482	748	-	1454	-	-
HCM Lane V/C Ratio	0.076	-	-	0.155	0.17	-	-	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	13.8	10.8	0	0	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.6	-	0	-	-

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	3.9	5.4	8.0	5.4	6.7

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.3
Total Del/Veh (s)	17.4	20.4	15.6	23.1	7.4	19.7	25.0	6.1	18.2	12.2	16.4

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	0.2	1.5	4.7	0.9

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	5.0	0.4	1.4	1.9

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.4
Total Del/Veh (s)	4.7	1.8	3.3	0.9	18.3	7.1	17.3	9.1	2.3

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	6.1	6.2	4.5	4.3	5.8

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	3.7	7.4	0.4	0.8	0.8

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	6.1	4.7	0.5	0.6	1.9

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.4
Total Del/Veh (s)	4.8	0.8	3.8	1.8	15.7	10.1	14.7	6.9	2.7

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.4
Total Del/Veh (s)	9.0	1.7	3.0	0.6	3.8

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.6
Total Del/Veh (s)	22.2	8.4	2.0	24.0	12.8	17.8	7.9	11.8

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	191.8

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	5.5	5.2	8.5	6.9	7.3

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.2
Total Del/Veh (s)	20.4	23.6	19.8	25.7	7.6	15.2	30.8	9.1	20.6	16.3	19.6

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	0.2	1.5	5.9	0.8

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	3.9	0.5	1.3	1.7

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.5
Total Del/Veh (s)	9.0	2.7	5.3	1.4	27.9	11.1	25.8	8.7	3.0

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	6.1	5.7	4.3	6.1	5.5

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.2	3.5	0.3	0.7	0.6

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	5.5	5.3	0.7	0.5	1.9

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.6
Total Del/Veh (s)	6.0	1.1	5.7	2.6	24.1	12.8	22.8	12.1	3.7

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	9.1	2.3	3.3	0.9	3.6

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.7
Total Del/Veh (s)	27.9	11.5	2.7	31.4	15.8	19.5	14.4	14.7

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	275.5

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.4
Total Del/Veh (s)	6.9	4.9	11.3	13.6	11.1

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.2
Total Del/Veh (s)	23.7	32.4	28.0	29.7	8.5	24.9	37.9	13.5	31.3	24.1	26.3

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	0.3	1.6	4.2	0.8

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.6	0.5	1.6	1.7

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.7
Total Del/Veh (s)	8.7	3.3	8.8	1.3	80.8	11.5	47.9	13.1	3.8

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	LTR	LTR	LTR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	6.8	6.2	4.5	6.2

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	6.7	5.6	0.2	0.7	0.6

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.3	4.8	0.6	0.3	1.2

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.7
Total Del/Veh (s)	6.6	1.2	7.5	2.9	56.7	14.6	40.2	13.2	5.0

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.4
Total Del/Veh (s)	9.2	2.4	3.8	0.8	3.8

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.8
Total Del/Veh (s)	37.1	14.9	3.4	34.6	22.0	28.2	17.2	19.3

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	318.7

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	4.1	5.4	7.5	5.3	6.4

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.3
Total Del/Veh (s)	16.4	19.9	16.2	21.8	7.5	15.3	24.2	6.4	19.3	12.0	16.0

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	0.2	1.5	5.6	0.9

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.0	0.3	0.8	1.2

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.3
Total Del/Veh (s)	6.4	1.8	2.8	0.8	17.1	8.3	14.7	7.6	2.3

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	5.9	6.0	4.3	3.7	5.6

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.8	7.3	0.4	0.8	0.8

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	0.3	4.7	0.4	0.6	0.7

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.4
Total Del/Veh (s)	4.6	0.8	4.0	1.8	17.7	9.2	16.0	8.5	3.0

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.4
Total Del/Veh (s)	9.0	1.9	2.7	0.6	3.8

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.6
Total Del/Veh (s)	23.1	7.9	2.1	27.8	13.0	16.0	8.0	11.5

Total Zone Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	201.4

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	4.7	5.2	7.4	6.8	6.7

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.1
Total Del/Veh (s)	18.0	24.2	18.7	24.7	6.9	21.6	32.3	9.0	21.5	17.7	19.8

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	0.2	1.5	7.4	0.8

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.5	0.5	1.2	2.0

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.4
Total Del/Veh (s)	6.5	2.7	5.4	1.4	24.7	10.7	21.7	10.2	3.1

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.1
Total Del/Veh (s)	6.2	5.9	4.4	4.9	5.7

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	5.1	5.7	0.2	0.7	1.0

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.1	4.1	0.4	0.6	1.2

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.6
Total Del/Veh (s)	5.2	1.2	5.7	2.5	27.2	10.7	24.7	10.5	3.4

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	9.5	2.5	3.0	0.8	3.6

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.7
Total Del/Veh (s)	26.0	11.5	2.4	29.1	16.2	19.1	13.9	14.5

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	279.1

1: OR 213 & Toliver Rd Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.4
Total Del/Veh (s)	6.7	4.9	11.8	13.3	11.2

2: OR 213 & OR 211/OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	All
Movements Served	L	TR	L	T	R	L	T	R	L	TR	
Denied Del/Veh (s)											1.2
Total Del/Veh (s)	22.9	32.9	27.8	29.0	8.8	24.8	35.6	13.3	26.7	21.9	25.0

3: N Hezzie Lane & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	0.3	1.5	4.5	0.8

5: Hezzie Ln & West Ln Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.1	0.5	1.3	1.4

6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.8
Total Del/Veh (s)	8.2	3.4	7.3	1.3	69.2	14.7	48.5	12.2	3.9

7: Leroy Ave & Toliver Road Performance by lane

Lane	EB	WB	NB	All
Movements Served	LTR	LTR	LTR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	7.2	6.0	4.6	6.3

9: Leroy Ave & Lynn Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.6	4.2	0.1	0.8	0.9

14: Leroy Ave & West Ln/West Lane Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	4.9	5.4	0.5	0.3	1.0

15: Cascade Plaza/Leroy Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	WB	WB	NB	NB	SB	SB	All
Movements Served	L	TR	L	TR	L	TR	L	TR	
Denied Del/Veh (s)									0.6
Total Del/Veh (s)	8.8	1.2	7.2	2.9	40.9	15.3	47.4	11.9	4.7

16: Molalla Ave & Toliver Rd Performance by lane

Lane	EB	NB	NB	SB	All
Movements Served	LR	L	T	TR	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	9.8	2.4	3.7	0.8	3.9

17: Molalla Ave & OR 211 (W Main) Performance by lane

Lane	EB	EB	EB	WB	WB	NB	SB	All
Movements Served	L	T	R	L	TR	LTR	LTR	
Denied Del/Veh (s)								0.9
Total Del/Veh (s)	35.8	16.0	3.0	39.0	21.0	27.6	18.5	19.3

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	315.8

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	41	79	164	114
Average Queue (ft)	16	34	40	23
95th Queue (ft)	45	71	109	71
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	99	238	130	249	155	37	193	57	134	183
Average Queue (ft)	36	98	51	120	70	11	85	20	53	75
95th Queue (ft)	80	190	97	212	122	31	156	45	103	150
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		0		1					0	0
Queuing Penalty (veh)		0		2					0	0

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	5
95th Queue (ft)	25
Link Distance (ft)	571
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	40	13
Average Queue (ft)	22	1
95th Queue (ft)	50	9
Link Distance (ft)	756	449
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	35	79	35	93	55	45	45	80
Average Queue (ft)	8	8	4	13	21	13	9	32
95th Queue (ft)	32	43	23	56	52	41	34	65
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	104	105	82	27
Average Queue (ft)	49	52	36	1
95th Queue (ft)	81	87	65	11
Link Distance (ft)	784	469	353	421
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	28	35
Average Queue (ft)	2	5
95th Queue (ft)	15	26
Link Distance (ft)		292
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	87	40	27	41
Average Queue (ft)	35	10	2	4
95th Queue (ft)	68	35	13	23
Link Distance (ft)	756	161	394	73
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	45	68	60	83	54	75	66	72
Average Queue (ft)	14	6	14	7	17	20	27	37
95th Queue (ft)	43	36	44	41	47	55	59	62
Link Distance (ft)		338		1154		645		394
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		100	
Storage Blk Time (%)		0		0		0	0	0
Queuing Penalty (veh)		0		0		0	0	0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	134	44
Average Queue (ft)	58	18
95th Queue (ft)	104	48
Link Distance (ft)	769	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	93	195	50	43	333	168	120
Average Queue (ft)	46	78	15	14	143	71	57
95th Queue (ft)	85	146	44	41	250	130	99
Link Distance (ft)		1355			451	676	1993
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)		1			5		
Queuing Penalty (veh)		1			0		

Zone Summary

Zone wide Queuing Penalty: 3

Intersection: 10: Leroy Ave & N Access/W Heintz St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	66	14	18
Average Queue (ft)	27	16	1	1
95th Queue (ft)	65	49	11	11
Link Distance (ft)	126	163	134	112
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Leroy Ave & C Access/Skye Ln

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	38	55	7
Average Queue (ft)	7	8	0
95th Queue (ft)	30	35	5
Link Distance (ft)	109	405	167
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Leroy Ave & S Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	35	47
Average Queue (ft)	2	7
95th Queue (ft)	14	32
Link Distance (ft)	160	73
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	85	248	155
Average Queue (ft)	28	35	43	39
95th Queue (ft)	62	70	146	107
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	138	248	170	247	182	24	189	83	220	245
Average Queue (ft)	49	119	81	112	60	6	76	24	108	103
95th Queue (ft)	109	208	142	201	119	22	151	61	181	195
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		0		0					0	1
Queuing Penalty (veh)		0		2					0	2

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	7	21
Average Queue (ft)	0	2
95th Queue (ft)	5	14
Link Distance (ft)	784	571
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	35	28
Average Queue (ft)	20	2
95th Queue (ft)	48	14
Link Distance (ft)	756	449
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	56	129	72	191	47	40	53	44
Average Queue (ft)	17	22	12	27	14	18	14	22
95th Queue (ft)	48	82	45	108	41	45	43	50
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)		0	0	0				
Queuing Penalty (veh)		0	0	0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	105	77	72	21
Average Queue (ft)	54	44	41	1
95th Queue (ft)	86	66	62	12
Link Distance (ft)	784	469	354	421
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	27	21	13
Average Queue (ft)	2	1	0
95th Queue (ft)	15	10	4
Link Distance (ft)		292	112
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	51	40	40
Average Queue (ft)	29	13	2	4
95th Queue (ft)	56	42	17	22
Link Distance (ft)	756	161	394	73
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	40	104	84	128	55	98	39	106
Average Queue (ft)	17	15	29	19	20	36	15	41
95th Queue (ft)	46	61	61	79	51	71	43	86
Link Distance (ft)		338		1154		645		394
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		100	
Storage Blk Time (%)		0	0	0		0		1
Queuing Penalty (veh)		0	1	0		0		0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	138	79	22	43
Average Queue (ft)	59	28	1	2
95th Queue (ft)	105	62	16	18
Link Distance (ft)	769		1975	815
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	146	249	103	44	373	152	238
Average Queue (ft)	53	118	26	9	161	67	111
95th Queue (ft)	101	203	73	34	291	125	205
Link Distance (ft)		1355			451	676	1975
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)	0	3			8		
Queuing Penalty (veh)	0	5			1		

Zone Summary

Zone wide Queuing Penalty: 11

Intersection: 10: Leroy Ave & N Access/W Heintz St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	63	40	13	7
Average Queue (ft)	27	13	0	0
95th Queue (ft)	58	40	7	5
Link Distance (ft)	126	163	134	112
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Leroy Ave & C Access/Skye Ln

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	34	34
Average Queue (ft)	11	3
95th Queue (ft)	37	18
Link Distance (ft)	109	405
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Leroy Ave & S Access

Movement	EB	SB
Directions Served	LR	TR
Maximum Queue (ft)	34	7
Average Queue (ft)	3	0
95th Queue (ft)	18	5
Link Distance (ft)	160	405
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	116	74	246	488
Average Queue (ft)	42	35	85	118
95th Queue (ft)	85	70	206	319
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	313	449	222	271	124	49	232	112	294	405
Average Queue (ft)	71	208	110	135	62	13	109	44	158	196
95th Queue (ft)	179	353	194	237	105	36	194	95	277	360
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		5		1			0		5	7
Queuing Penalty (veh)		6		4			0		20	17

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	2
95th Queue (ft)	17
Link Distance (ft)	571
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	39	20
Average Queue (ft)	23	1
95th Queue (ft)	50	11
Link Distance (ft)	756	449
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	61	172	75	159	79	34	68	63
Average Queue (ft)	29	21	15	22	19	9	14	21
95th Queue (ft)	57	95	50	91	61	33	47	51
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)		0		0				
Queuing Penalty (veh)		0		0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	120	108	68
Average Queue (ft)	57	48	37
95th Queue (ft)	94	81	62
Link Distance (ft)	784	469	353
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	34	35	14	6
Average Queue (ft)	1	5	0	0
95th Queue (ft)	13	25	7	5
Link Distance (ft)		292	112	353
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	45	35	18	38
Average Queue (ft)	21	14	2	2
95th Queue (ft)	50	41	14	17
Link Distance (ft)	756	161	394	73
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	69	92	91	99	71	99	74	107
Average Queue (ft)	25	8	40	8	27	44	26	41
95th Queue (ft)	58	44	73	51	65	77	63	83
Link Distance (ft)		338		1154		645		394
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		100	
Storage Blk Time (%)	0	0	0	0	0	0	0	1
Queuing Penalty (veh)	0	0	1	0	0	0	0	0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	150	72	4
Average Queue (ft)	60	27	0
95th Queue (ft)	108	61	3
Link Distance (ft)	769		815
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	225	365	200	139	455	244	289
Average Queue (ft)	67	155	47	23	227	106	141
95th Queue (ft)	139	283	128	77	387	194	244
Link Distance (ft)		1355			451	676	1980
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)	0	7	0		18		
Queuing Penalty (veh)	1	15	0		3		

Zone Summary

Zone wide Queuing Penalty: 69

Intersection: 10: Leroy Ave & N Access/W Heintz St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	35	25	27
Average Queue (ft)	10	10	1	1
95th Queue (ft)	37	36	12	12
Link Distance (ft)	126	163	134	112
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Leroy Ave & C Access/Skye Ln

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	57	46	12
Average Queue (ft)	22	4	1
95th Queue (ft)	54	24	10
Link Distance (ft)	109	405	167
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Leroy Ave & S Access

Movement	EB	SB
Directions Served	LR	TR
Maximum Queue (ft)	35	7
Average Queue (ft)	2	0
95th Queue (ft)	15	5
Link Distance (ft)	160	405
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	91	141	89
Average Queue (ft)	15	38	33	26
95th Queue (ft)	45	74	94	68
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	99	247	146	284	223	34	205	87	138	207
Average Queue (ft)	34	91	51	107	68	8	82	22	52	72
95th Queue (ft)	72	175	100	192	133	29	158	56	96	145
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		0		0			0			0
Queuing Penalty (veh)		0		1			0			0

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	35
Average Queue (ft)	0	4
95th Queue (ft)	4	22
Link Distance (ft)	784	571
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	40	14
Average Queue (ft)	17	0
95th Queue (ft)	46	6
Link Distance (ft)	756	449
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	45	84	35	121	56	40	65	65
Average Queue (ft)	7	6	4	14	20	13	23	30
95th Queue (ft)	30	37	23	64	51	40	53	55
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	111	129	63	21
Average Queue (ft)	47	51	36	1
95th Queue (ft)	78	84	55	12
Link Distance (ft)	784	469	353	421
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	35	45	20
Average Queue (ft)	2	3	4	0
95th Queue (ft)	13	20	23	7
Link Distance (ft)		292	112	353
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	13	46	7	66
Average Queue (ft)	0	11	0	8
95th Queue (ft)	5	37	4	36
Link Distance (ft)	756	161	394	73
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	71	112	55	112	56	59	77	100
Average Queue (ft)	23	7	11	7	18	24	28	40
95th Queue (ft)	57	46	39	45	48	53	61	72
Link Distance (ft)		338		1154		645		394
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		100	
Storage Blk Time (%)	0	0	0	0			0	0
Queuing Penalty (veh)	0	0	0	0			0	0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	194	56
Average Queue (ft)	60	17
95th Queue (ft)	113	49
Link Distance (ft)	769	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	105	172	48	92	355	148	141
Average Queue (ft)	41	75	15	13	138	65	56
95th Queue (ft)	82	135	43	51	253	116	105
Link Distance (ft)		1355			451	676	1993
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)		0			5		
Queuing Penalty (veh)		0			0		

Zone Summary

Zone wide Queuing Penalty: 3

Intersection: 4: Hezzie Ln & Valley Dr/Future West Access

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	58	39	46
Average Queue (ft)	29	18	28
95th Queue (ft)	53	46	51
Link Distance (ft)	411	300	449
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Future North Access & Lynn Lane

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 11: Leroy Ave & Future East Access/Private

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	286	96	52
Average Queue (ft)	62	17	3
95th Queue (ft)	151	56	22
Link Distance (ft)	482	167	134
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	84	131	161
Average Queue (ft)	26	34	39	42
95th Queue (ft)	56	72	100	106
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	125	275	153	252	116	39	177	92	224	246
Average Queue (ft)	43	124	75	114	57	6	77	26	120	110
95th Queue (ft)	91	220	126	204	96	25	144	65	202	208
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		0		1					0	1
Queuing Penalty (veh)		0		2					1	2

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	7	21
Average Queue (ft)	0	1
95th Queue (ft)	5	11
Link Distance (ft)	784	571
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	71	35
Average Queue (ft)	30	2
95th Queue (ft)	57	14
Link Distance (ft)	756	449
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	50	172	78	166	54	43	53	79
Average Queue (ft)	16	28	13	27	13	17	17	31
95th Queue (ft)	47	108	47	99	42	44	46	63
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)		0	0	0				
Queuing Penalty (veh)		0	0	0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	104	95	68	21
Average Queue (ft)	55	48	40	1
95th Queue (ft)	88	75	59	12
Link Distance (ft)	784	469	354	421
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	35	14	12	7
Average Queue (ft)	22	2	0	0
95th Queue (ft)	49	14	6	5
Link Distance (ft)	437	292	112	354
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	50	35	50
Average Queue (ft)	22	15	5
95th Queue (ft)	51	42	28
Link Distance (ft)	756	161	73
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	45	126	77	146	59	78	55	86
Average Queue (ft)	16	19	30	15	18	39	13	29
95th Queue (ft)	45	75	64	72	49	68	41	65
Link Distance (ft)		338		1154		645		394
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		100	
Storage Blk Time (%)		0	0	0		0		0
Queuing Penalty (veh)		0	0	0		0		0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	140	70	12	41
Average Queue (ft)	58	27	1	2
95th Queue (ft)	110	62	10	17
Link Distance (ft)	769		1975	815
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	165	266	61	47	351	126	257
Average Queue (ft)	52	118	26	11	167	64	114
95th Queue (ft)	110	214	57	36	290	111	200
Link Distance (ft)		1355			451	676	1975
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)		3			8		
Queuing Penalty (veh)		5			1		

Zone Summary

Zone wide Queuing Penalty: 12

Intersection: 4: Hezzie Ln & Valley Dr/Future West Access

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	52	41	40
Average Queue (ft)	29	20	31
95th Queue (ft)	53	48	48
Link Distance (ft)	411	300	449
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Future North Access & Lynn Lane

Movement	NB
Directions Served	R
Maximum Queue (ft)	44
Average Queue (ft)	22
95th Queue (ft)	50
Link Distance (ft)	149
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Leroy Ave & Future East Access/Private

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	112	72	27
Average Queue (ft)	44	16	2
95th Queue (ft)	77	52	15
Link Distance (ft)	482	167	134
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: OR 213 & Toliver Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	99	92	241	396
Average Queue (ft)	45	38	87	131
95th Queue (ft)	77	79	193	338
Link Distance (ft)	829	748	1892	836
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: OR 213 & OR 211/OR 211 (W Main)

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	225	375	236	272	175	50	210	169	291	375
Average Queue (ft)	65	207	105	138	64	12	113	51	141	178
95th Queue (ft)	156	343	186	236	123	36	197	115	236	303
Link Distance (ft)		942		1956			896			1892
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	260		340		225	275		260	205	
Storage Blk Time (%)		5		1			0		2	5
Queuing Penalty (veh)		7		6			0		8	14

Intersection: 3: N Hezzie Lane & Toliver Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	7	35
Average Queue (ft)	0	3
95th Queue (ft)	5	19
Link Distance (ft)	784	571
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hezzie Ln & West Ln

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	35	6	35
Average Queue (ft)	19	0	3
95th Queue (ft)	47	4	18
Link Distance (ft)	756	416	449
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: N Hezzie Ln/Hezzie Ln & OR 211 (W Main)

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	84	130	45	116	49	39	53	81
Average Queue (ft)	32	20	12	14	14	9	16	23
95th Queue (ft)	65	84	40	62	41	33	45	59
Link Distance (ft)		1355		381		627		416
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	170		150		250		200	
Storage Blk Time (%)		0		0				
Queuing Penalty (veh)		0		0				

Intersection: 7: Leroy Ave & Toliver Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	126	112	67
Average Queue (ft)	61	48	37
95th Queue (ft)	100	81	61
Link Distance (ft)	784	469	353
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Leroy Ave & Lynn Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	35	40	21	13
Average Queue (ft)	12	6	1	0
95th Queue (ft)	39	28	9	7
Link Distance (ft)	437	292	112	353
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Leroy Ave & West Ln/West Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	50	44	38
Average Queue (ft)	19	15	4
95th Queue (ft)	49	43	24
Link Distance (ft)	756	161	73
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Cascade Plaza/Leroy Ave & OR 211 (W Main)

Movement	EB	EB	B31	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T	L	TR	L	TR	L	TR
Maximum Queue (ft)	94	179	76	107	139	97	196	73	101
Average Queue (ft)	28	15	3	41	16	33	59	23	42
95th Queue (ft)	74	95	55	85	78	84	139	61	79
Link Distance (ft)		338	381		1154		645		394
Upstream Blk Time (%)		0	0						
Queuing Penalty (veh)		3	0						
Storage Bay Dist (ft)	100			100		100		100	
Storage Blk Time (%)	0	1		1	0	3	6	1	1
Queuing Penalty (veh)	4	0		7	0	3	2	1	0

Intersection: 16: Molalla Ave & Toliver Rd

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	161	78	26	10
Average Queue (ft)	65	28	1	0
95th Queue (ft)	136	66	19	5
Link Distance (ft)	769		1980	815
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 17: Molalla Ave & OR 211 (W Main)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	137	329	222	96	442	234	255
Average Queue (ft)	61	157	48	20	221	99	143
95th Queue (ft)	113	264	135	63	381	179	230
Link Distance (ft)		1355			451	676	1980
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)	150		155	150			
Storage Blk Time (%)	0	7			17		
Queuing Penalty (veh)	0	15			3		

Zone Summary

Zone wide Queuing Penalty: 73

Intersection: 4: Hezzie Ln & Valley Dr/Future West Access

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	55	35	57
Average Queue (ft)	28	7	36
95th Queue (ft)	54	30	48
Link Distance (ft)	411	300	449
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Future North Access & Lynn Lane

Movement	NB
Directions Served	R
Maximum Queue (ft)	34
Average Queue (ft)	11
95th Queue (ft)	36
Link Distance (ft)	164
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Leroy Ave & Future East Access/Private

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	88	96	7
Average Queue (ft)	37	16	0
95th Queue (ft)	70	58	5
Link Distance (ft)	482	167	134
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

STANDRIDGE
PLANNING | ENGINEERING | SURVEYING

MEMORANDUM

TO:
City of Molalla
Community Development Department
117 N Molalla Avenue
Molalla, OR 97038

SI PROJECT #:
OPS003

CITY PROJECT #:
TBD

DATE:
May 21, 2025

FROM:
Jennifer Reynolds, PE

PROJECT NAME:
MRSD Middle School Replacement

DISTRIBUTION:
Land-Use Submission Package

SUBJECT:
Sewer Capacity Analysis

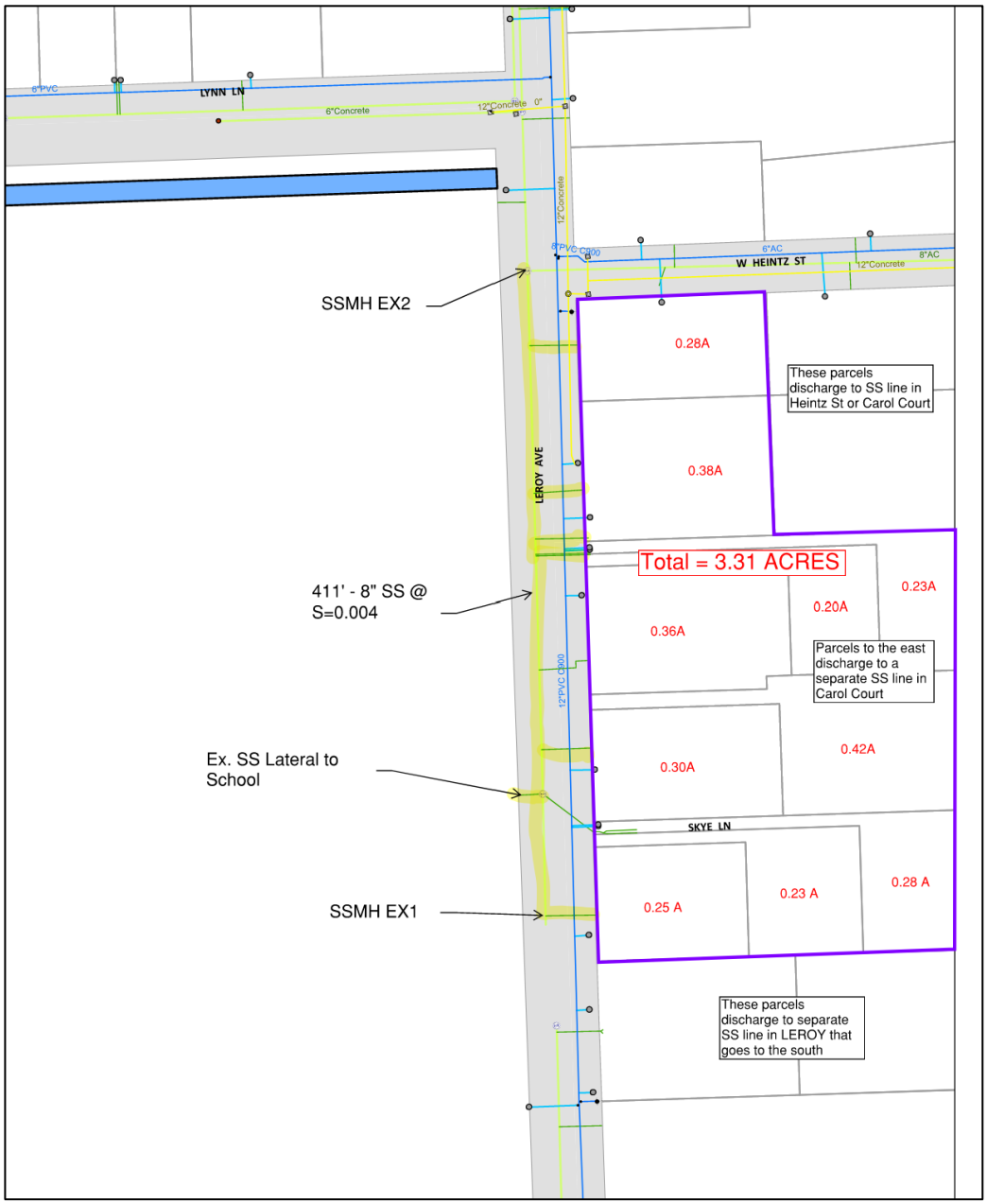
Purpose

The Molalla River School District is proposing replacement of the existing middle school at 318 Leroy Street. The purpose of this memorandum is to provide a sewer capacity analysis for the existing 8" concrete sewer main in Leroy Avenue.

Methodology

1. Determine Contributing Basin to SS line

The 8” concrete sewer main currently serves the middle school site, that is along the west side of Leroy Avenue between Lynn and West Lanes, and 10 other parcels on the east side of Leroy Avenue. SSMH EX 1 is the start of this sewer main that continues north to Toliver Road. Parcels to the south are serve by a separate 8” PVC line that continues south to Main Street. Parcels to the east are served by 12” sewer lines in Heintz Street and Carol Court.



2. Determine Zoning & Maximum Dwelling Units served by SS line

The 10 parcels to the east are zoned Low Density Residential (R-1). The max dwelling unit per net buildable acre is 8. The parcels encompass 3.31 acres. Resulting in 27 dwelling units.

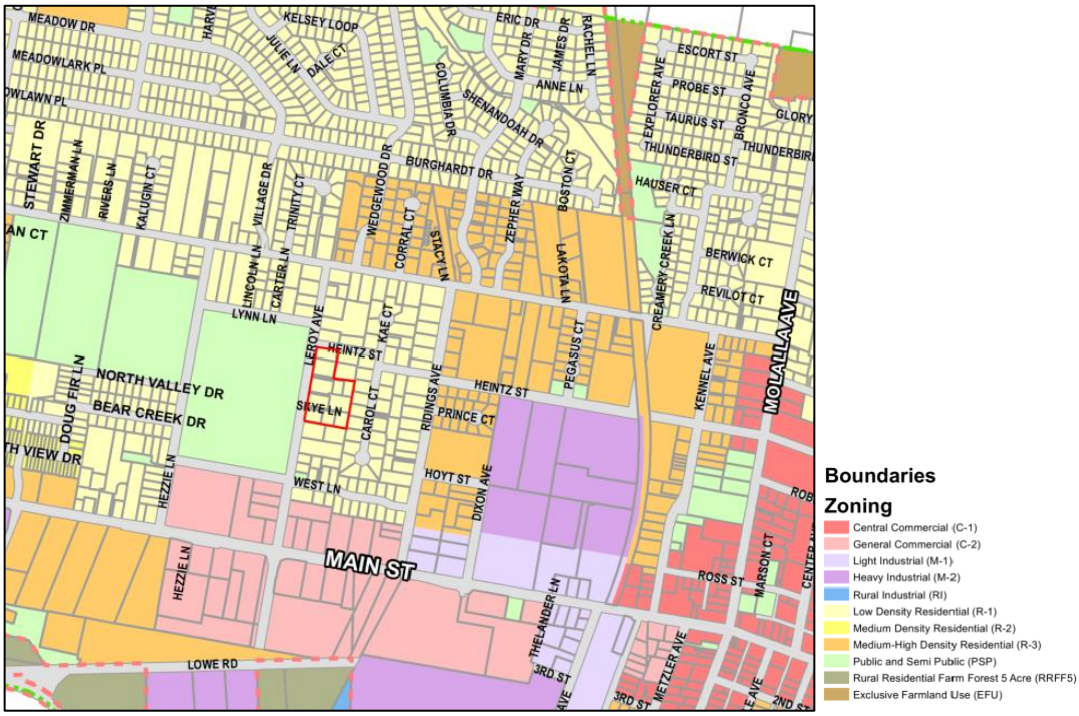


Table 17-2.2.040.D Lot and Development Standards for Residential Zones

(Except as provided under Section **17-4.3.050**, Chapter **17-4.7** Adjustments and Variances, or as approved under Chapter **17-4.8** Master Planned Developments.)

Standard	R-1 Zone	R-2 Zone	R-3 Zone	R-5 Zone
***Residential Density**, per Section **17-2.2.060** (Dwelling Units per net acre) – Minimum and Maximum* **Density standards are waived only where those standards would allow a detached SFR, but not a Duplex on a residential lot.*	*Min 4 DU and a Max 8 DU per net buildable acre*	*Min 6 DU and a Max 12 DU per net buildable acre*	*Min 8 DU and a Max 24 DU per net buildable acre*	*Min 6 DU and a Max 24 DU per net buildable acre*
Minimum Lot Area (square feet)				
Single-Family, not attached	5,000 sf	3,600 sf	3,000 sf	3,000 sf
Single-Family, common-wall dwellings	2,500 sf	2,200 sf	2,200 sf	2,200 sf
Duplex (per duplex)	5,000 sf	3,600 sf	3,000 sf	3,000 sf
Multifamily (per unit)	NA	3,000 sf	2,000 sf	1,500 sf
Non-Residential Uses	2,500 sf	2,500 sf	2,500 sf	2,500 sf
Minimum Lot Width				
Single-Family, Not Attached:				
Corner Lot	60 ft	50 ft	48 ft	48 ft
Interior Lot	50 ft	46 ft	44 ft	44 ft
Single-Family, Attached or Common Wall:				
Corner Lot	25 ft	25 ft	25 ft	25 ft
Interior Lot	25 ft	22 ft	22 ft	22 ft
Duplex (per duplex)				
Corner Lot	60 ft	50 ft	48 ft	48 ft
Interior Lot	50 ft	46 ft	44 ft	44 ft
Multifamily (3 or more dwelling units on a lot, where allowed)	NA	80 ft	80 ft	80 ft
Non-Residential Uses	60 ft	60 ft	50 ft	50 ft
Minimum Lot Depth				
Single-Family, Not Attached, Duplex, and Non-Residential Uses	80 ft	80 ft	80 ft	80 ft
Single-Family Attached or Common Wall, Corner or Interior Lot	NA	60 ft	60 ft	60 ft
Multifamily	NA	NA	NA	NA
Street frontage width may be less than minimum lot width where Flag Lots are allowed, per Section **17-4.3.050**.				
Building or Structure Height. See also Sections **17-2.2.050** Setback Yard Exceptions, 17-2.2.080 Height Measurement, Exceptions, and Transitions, 17-3.3.030.G Vision Clearance, and 17-3.4.040 Fences and Walls.	30 ft	40 ft	45 ft	35 ft
Fences and Non-Building Walls				
Max. Height. – Front Yard	4 ft	4 ft	4 ft	4 ft
Max. Height. – Interior Side	6 ft	6 ft	6 ft	6 ft
Max. Height – Rear Yard	6 ft	6 ft	6 ft	6 ft
Max. Height – Street-Side; or Reverse Frontage Lot (rear)	6 ft	6 ft	6 ft	6 ft
(See also Section **17-3.4.040**.)				

Close

3. Determine GPD flow for Contributing Basin

Single Family Dwelling Units produce 450 GPD which equates to 12,150 GPD for the 27 dwelling units. Schools with gyms, cafeterias and showers generate 25 GPD per person. The new school will have a capacity of 700 students which equates to 17,500 GPD

TABLE 2
OAR 340-071-0220
QUANTITIES OF SEWAGE FLOWS

Type of Establishment		Column 1 Gallons Per Day	Column 2 Minimum Gallons Per Establishment Per Day
Airports		5 (per passenger)	150
Bathhouses and swimming pools		10 (per person)	300
Camps: (4 Persons per Campsite, where Applicable)	Campground with central comfort stations	35 (per person)	700
	With flush toilets, no showers	25 (per person)	500
	Construction camps — semi-permanent	50 (per person)	1000
	Day camps — no meals served	15 (per person)	300
	Resort camps (night and day) with limited plumbing	50 (per person)	1000
	Luxury camps	100 (per person)	2000
Churches		5 (per seat)	150
Country clubs		100 (per resident member)	2000
Country clubs		25 (per non-resident member present)	—
Dwellings:	Boarding houses	150 (per bedroom)	600
	Boarding houses – additional for non-residential boarders	10 (per person)	—
	Rooming houses	80 (per person)	500
	Condominiums, Multiple family dwellings — including apartments	300 (per unit)	900
	Single family dwellings	300 (not exceeding 2 bedrooms)	450*
	Single family dwellings — with more than 2 bedrooms	75 (for third & each succeeding bedroom)	450
Schools:	Boarding	100 (per person)	3000
	Day — without gyms, cafeterias, or showers	15 (per person)	450
	Day — with gyms, cafeterias and showers	25 (per person)	750
	Day — with cafeteria, but without gyms or showers	20 (per person)	600

From TIS (Transportation Impact Study) prepared by Landcaster Mobley 04/28/2025

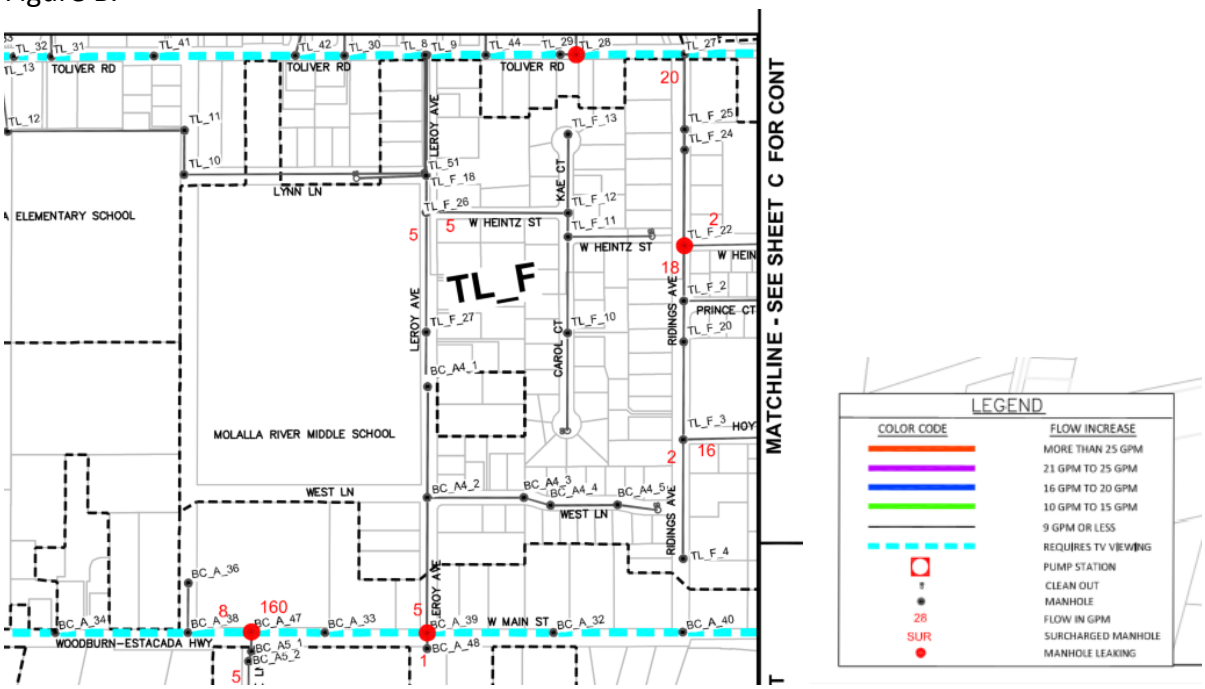
Introduction

The proposed Molalla River Middle School (MRMS) Replacement Project is located along Leroy Avenue in Molalla, Oregon. The proposed project will replace the existing middle school with a new school on the same tax lot as the existing school with construction completed in time for the 2027-28 school year. The existing school has a capacity of 800 students while the new school will have a capacity of 700 students. Current enrollment is approximately 530 students.

4. Determine I/I (Infiltration & Inflow) Impact

Infiltration and Inflow (I/I) impact to the City of Molala's Sewer System was recently analyzed. Per the City of Molalla I/I Flow Mapping prepared by The Dyer Partnership dated October 2018, the existing flow into EXMH 2 was 5 GPM, which equates to 18,000 GPD. For a conservative approach, it was assume this flow is all infiltration and inflow.

Figure B.



Thus, the total flow from the contributing basin is 52,150 GPD.

5. Determine capacity of pipe

The gravity sewer analyses used Manning Equation for its calculations. The value of Manning's value used is 0.013 for the concrete pipe. See attached calculations.

STANDRIDGE
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M 113 W 7th Street, Suite 200, Vancouver, WA 98660 P 360.597.9240 www.Standridgeinc.com

Project:	**Molalla Middle School**									
Description:	**SANITARY CONVEYANCE CALCULATIONS**									
Date:	**May 21, 2025**									
Manning's "n"	0.013									
		Q	Q	PIPE	SLOPE	Qf	Q/Qf	Depth	Depth/	V
		(MGD)	(CFS)	Dia.				(in)	Dia.	(fps)
LINE				(IN)	(FT/FT)	(CFS)	(%)			
SSMH EX1 to SSMH EX2		**0.05**	**0.08**	**8**	0.0040	0.77	0.11	**1.8**	0.22	1.42
	GPD									
Current										
10 Homes @ 450 GPD										
per home	**4500**									
Max Built (3.31A)										
8 DU per acre										
27 Homes @ 450 GPD										
per home	**12150**									
700 Middle Schools										
@25 GPD pp	**17500**									
I&I Input										
Measured Flow										
@ SSMH EX 2 = 5 GPM	**18000**									
	52150									
convert to MGD	0.05215									

Conclusion

The basin served by the existing 8" sewer main results in a sewage flow of 52,150 GPD. The existing 8" sewer line is calculated to flow at a maximum depth of 0.22 d/D under proposed peak flow with a velocity of 1.42 feet per second. The existing 8" sewer main in Leroy Avenue has sufficient capacity to serve the school and full build out of the adjacent area served by this sewer main.

Please let me know if you need additional information.
Thank you,

Jennifer Reynolds, PE,
Senior Project Manager

MRSD MIDDLE SCHOOL REPLACEMENT

Public Facilities and Services Impact Study

May 21, 2025

SDI Project #: OPS003

STANDRIDGE
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I. DEVELOPMENT SUMMARY INFORMATION

Applicant & Owner:	Molalla River School District 412 S Swiegle Avenue Molalla, Oregon 97038 Phone: 503.829.2359 Contact: Tony Manin
Owner's Representative:	Otak, Inc. 808 SW Third Avenue, Suite 800 Portland, Oregon 97204 Phone: 503.287.6825 Contact: Miki Bragg
Applicant's Representative:	Standridge Design, Inc. 703 Broadway Street, Suite 610 Vancouver, Washington 98660 (360) 597-9240 Contact: Jennifer Reynolds P.E. , Senior Project Manager Phone: 360.989.8780 Email: Jennifer@standridgeinc.com
Request:	Site Design Review
Location:	318 Leroy Avenue Molalla, OR 97038
Tax Lot: Tax Map:	3000 5 2E 08B
Zoning Designation:	Public and Semi Public (PSP)

II. PROPOSED DEVELOPMENT AND EXISTING CONDITIONS

The Molalla River School District is requesting the City of Molalla's (City) approval for a site plan which includes the replacement of a middle school building and associated site improvements on a +/-17.90-acre site. The site has an existing middle school, parking lots, sports fields. Demolition of the existing school will take place after construction of the new school. All existing utilities must remain operational to serve the existing school. Public Improvements will be made to all street fronting the site.

III. CONFORMANCE WITH SITE DESIGN SUBMITTAL CRITERIA

Under the provisions of the City of Molalla Development Code, 17-4.2.040.A, a Public Facilities and Services Impact Study is required. The impact study shall quantify and assess the effect of the development on public facilities and services. The City shall advise as to the scope of the study. The study shall address, at a minimum, the transportation system, including required improvements for vehicles and pedestrians; the drainage system; the parks system; water system; and sewer system. For each system and type of impact, the study shall propose improvements necessary to meet City requirements. The City may require a Traffic Impact Analysis pursuant to Section 17-3.6.020.A(5). The subsequent narrative addresses this proposals' compliance with the standards.

TITLE 17, DEVELOPMENT CODE

[…]

17-3.6 PUBLIC FACILITES

17-3.6.010 Purpose and Applicability.

A. *Purpose. The standards of Chapter 17-3.6 implement the public facility policies of the City of Molalla Comprehensive Plan and adopted City plans.*

Response: The public facility policies of the City of Molalla Comprehensive Plan and adopted City plans are met.

B. *Applicability. Chapter 17-3.6 applies to all new development, including projects subject to Land Division (Subdivision or Partition) approval and developments subject to Site Design Review where public facility improvements are required. All public facility improvements within the city shall occur in accordance with the standards and procedures of this chapter. When a question arises as to the intent or application of any standard, the City Engineer shall interpret the Code pursuant to Chapter 17-1.5.*

Response: Chapter 17-3.6 applies to this project.

C. *Public Works Design Standards. All public facility improvements, including, but not limited to, sanitary sewer, water, transportation, surface water and storm drainage and parks projects, whether required as a condition of development or provided voluntarily, shall conform to the City of Molalla*

Public Works Design Standards. Where a conflict occurs between this Code and the Public Works Design Standards, the provisions of the Public Works Design Standards shall govern.

Response: All public facility improvements conform to the City of Molalla Publick Works Design Standards.

D. Public Improvement Requirement. No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of this Code and the Public Works Design Standards. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on public facilities. Findings in the development approval shall indicate how the required improvements directly relate to and are roughly proportional to the impact of development.

Response: The existing school along with the entrances to Leroy Avenue and West Lane at the southeast end of the project will need to remain operational while the new school building is built. Construction of the new school will need to take place before or in some cases concurrently with the public improvements. All public facilities improvements will be bonded.

E. Limitations on Public Improvement Requirement. If the applicant asserts that it cannot legally be required, as a condition of building permit or site plan approval, to provide easements, dedications, or improvements at the level otherwise required by this section, then:

1. The building permit, site plan review, or appeal application shall include a rough proportionality report, prepared by a qualified civil or traffic engineer, as appropriate, showing:

a. The estimated extent, on a quantitative basis, to which the improvements will be used by persons served by the building or development, whether the use is for safety or for convenience;

b. The estimated level, on a quantitative basis, of improvements needed to meet the estimated extent of use by persons served by the building or development;

c. The estimated impact, on a quantitative basis, of the building or development on the public infrastructure system of which the improvements will be a part;

d. The estimated level, on a quantitative basis, of improvements needed to mitigate the estimated impact on the public infrastructure system; and

2. *The applicant shall, instead, be required to provide easements, dedications, and improvements that are roughly proportional to what is needed for the safety or convenience of persons served by the building or development, plus those additional easements, dedications, and improvements that are roughly proportional to what is needed to mitigate the impact of the building or development on the public infrastructure system of which the improvements will be a part, if the impacts are not fully mitigated by the easements,*

dedications, and improvements needed for the safety or convenience of persons served by the building or development.

Response: There are no limitations regarding the easements, dedications and improvement required and the ability for the project to provide them.

17-3.6.020 Transportation Standards.

A. General Requirements.

1. Except as provided by subsection A.5, existing substandard streets and planned streets within or abutting a proposed development shall be improved in accordance with the standards of Chapter 17-3.6 as a condition of development approval.

Response: This project is abutted by Leroy Avenue, Lynn Lane, West Lane and N Hezzie Lane and includes improvements to all four roadways.

2. All street improvements, including the extension or widening of existing streets and public access ways, shall conform to Section 17-3.6.020, and shall be constructed consistent with the City of Molalla Public Works Design Standards.

Response: Street improvements will conform to Section 17-3.6.020 and will be consistent with the City of Molalla Public Works Design Standards.

3. All new streets shall be contained within a public right-of-way. Public access ways (e.g., pedestrian ways) may be contained within a right-of-way or a public access easement, subject to review and approval of the City Engineer.

Response: There are no new streets as part of this proposal. The school is fronted by existing public right-of-way whose widths meet the current standards.

4. The purpose of this subsection is to coordinate the review of land use applications with roadway authorities and to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule, which requires the City to adopt a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. The following provisions also establish when a proposal must be reviewed for potential traffic impacts; when a Transit Analysis Letter (TAL) or Traffic Impact Analysis (TIA) must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; the required contents of a TAL/TIA; and who is qualified to prepare the analysis.

a. Determining the Required Level of Transportation Analysis and Documentation. A Transportation Impact Analysis (TIA) is required for developments that are expected to have an impact on the transportation system. The analysis shall be based upon the latest edition of the ITE Trip Generation Manual or an agreed-

upon alternative methodology where credible data is available to support the alternative methodology. When specific criteria generally associated with small developments are met, a Transportation Analysis Letter (TAL) may be substituted for the required TIA. At the discretion of the City Engineer, a TAL may satisfy the City's transportation analysis requirements, in lieu of a TIA when a development meets all the following criteria:

1) *The development generates fewer than 25 peak hour trips during either the AM or PM peak hour. (Two examples of common developments generating fewer trips than these threshold levels are: a subdivision containing 25 or fewer single-family residences or a general office building less than 15,000 square feet.)*
2) *The development is not expected to impact intersections that currently fail to meet the City's level of service standards or intersections that are operating near the limits of the acceptable level of service thresholds during a peak operating hour.*
3) *The development is not expected to significantly impact adjacent roadways and intersections that are high accident locations, areas that contain an identified safety concern, or high concentration of pedestrians or bicyclists such as school zones.*
4) *The development generates an increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by less than 10 vehicles per day.*

Response: A Traffic Impact Analysis meeting the above criteria is submitted with this land use application.

b. *Transportation Analysis Letter Contents. If the City determines, based on information provided by the applicant and in accordance with the criteria specified in Section 3.1, that a TAL is the appropriate document to submit. the following requirements shall apply.*
   1) *The TAL shall be prepared by or prepared under the direct supervision of a registered professional engineer who shall sign and stamp the TAL.*
   2) *The TAL shall include the following:*
      i. *The expected trip generation of the proposed development including the AM peak hour, the PM peak hour, daily traffic, and other germane periods as may be appropriate, together with appropriate documentation and references.*
      ii. *Site plan showing the location of all access driveways or private streets where they intersect with public streets plus driveways of abutting properties and driveways on the opposite side of the street from the proposed development.*
      iii. *Documentation that all site access driveways meet City of Molalla Private Access Driveway Width Standards.*

iv. *Documentation that all site access driveways meet City of Molalla's Minimum City Street Intersection Spacing Standards.*
v. *Documentation that all new site accesses and/or public street intersections meet AASHTO intersection sight distance guidelines.*
vi. *Documentation that there are no inherent safety issues associated with the design and location of the site access driveways.*
vii. *Documentation that the applicant has reviewed the City's TSP and that proposed streets and frontage improvements do or will comply with any applicable standards regarding the functional classification, typical sections, access management, traffic calming and other attributes as appropriate.*

Response: The above requirements will be met if the city determines that a Transportation Analysis Letter is the appropriate document to submit.

c. *Transportation Impact Analysis Contents. The following information shall be included in each TIA submitted to the City. Additional information specified by the City in the scoping summary or through the pre-application meeting or other project meetings shall also be included.*
1) *Completed TIA checklist signed by the professional engineer responsible for the preparation of the TIA.*
2) *Table of Contents—Listings of all sections, figures, and tables included in the report.*
3) *Executive Summary—A summary of key points, findings, conclusions, and recommendation including a mitigation plan.*
4) *Introduction, including:*
i. *Proposed land use action including site location, zoning, building size, and project scope.*
ii. *Map showing the proposed site, building footprint, access driveways, and parking facilities.*
iii. *Map of the study area that shows site location and surrounding roadway facilities.*
5) *Existing Conditions.*
i. *Existing site conditions and adjacent land uses.*
ii. *Roadway characteristics of important transportation facilities and modal opportunities located within the study area, including roadway functional classifications, street cross-section, posted speeds, bicycle and pedestrian facilities, on-street parking, and transit facilities.*
iii. *Existing lane configurations and traffic control devices at the study area intersections.*
iv. *Existing traffic volumes and operational analysis of the study area roadways and intersections.*
v. *Roadway and intersection crash history analysis.*

vi. *Intersection and stopping sight distance related to new and impacted driveways and intersections.*

6) *Background Conditions (Without the Proposed Land Use Action).*
   i. *Approved in-process developments and funded transportation improvements in the study area.*
   ii. *Traffic growth assumptions.*
   iii. *Addition of traffic from other planned developments.*
   iv. *Background traffic volumes and operational analysis.*
7) *Full Buildout Traffic Conditions (With the Proposed Land Use Action).*
   i. *Description of the proposed development plans.*
   ii. *Trip generation characteristics of proposed project (including trip reduction documentation).*
   iii. *Trip distribution assumptions.*
   iv. *Full buildout traffic volumes and intersection operational analysis.*
   v. *Site circulation and parking.*
   vi. *Intersection and site-access driveway queuing analysis.*
   vii. *Recommended roadway and intersection mitigation measures (if necessary).*
8) *Conclusions and recommendations.*
9) *Appendix—With Dividers or Tabs.*
   i. *Traffic count summary sheets.*
   ii. *Crash analysis summary sheets.*
   iii. *Existing, background, and full buildout traffic operational analysis worksheets with detail to review capacity calculations.*
   iv. *Signal, left-turn, and right-turn lane warrant evaluation calculations.*
   v. *Signal timing sheets depicting the timing and phasing used in analysis.*
   vi. *Other analysis summary sheets such as queuing.*
10) *To present the information required to analyze the transportation impacts of development, the following figures shall be included in the TIS:*
   i. *Vicinity Map.*
   ii. *Existing Lane Configurations and Traffic Control Devices.*
   iii. *Existing Traffic Volumes and Levels of Service for each required time period.*
   iv. *Future Year Background Traffic Volumes and Levels of Service for each required time period.*
   v. *Proposed Site Plan, including access points for abutting parcels and for those across the street from the proposed development.*
   vi. *Future Year Assumed Lane Configurations and Traffic Control Devices.*
   vii. *Estimated Trip Distribution/Assignment Pattern.*
   viii. *Trip reductions (pass-by trips at site access(es)).*
   ix. *Site-Generated Traffic Volumes for each required time period.*

x. Full Buildout Traffic Volumes and Levels of Service for each required time period.

Response: The above information, as required, is included in the TIA submitted with the land-use application.

5. *The City Engineer may waive or allow deferral of standard street improvements, including side-walk, roadway, bicycle lane, undergrounding of utilities, and landscaping, as applicable, where one or more of the following conditions in subdivisions (a) through (d) is met. Where the City Engineer agrees to defer a street improvement, it shall do so only where the property owner agrees not to remonstrate against the formation of a local improvement district in the future.*
    a. *The standard improvement conflicts with an adopted capital improvement plan.*
    b. *The standard improvement would create a safety hazard.*
    c. *It is unlikely due to the developed condition of adjacent property that the subject improvement would be extended in the foreseeable future, and the improvement under consideration does not by itself significantly improve transportation operations or safety.*
    d. *The improvement under consideration is part of an approved partition and the proposed partition does not create any new street.*

Response: It is noted that the City Engineer may waive or allow deferral of standard street improvements as listed above.

B. *Street Location, Alignment, Extension, and Grades.*
    1. *All new streets, to the extent practicable, shall connect to the existing street network and allow for the continuation of an interconnected street network, consistent with adopted public facility plans and pursuant to subsection D Transportation Connectivity and Future Street Plans.*

Response: There are no new streets as part of this proposal. The school is fronted by existing public right-of-way on all sides of the development.

2. *Specific street locations and alignments shall be determined in relation to existing and planned streets, topographic conditions, public convenience and safety, and in appropriate relation to the proposed use of the land to be served by such streets.*

Response: Street alignments were determined in relation to existing street alignments and right-of-way locations.

3. *Grades of streets shall conform as closely as practicable to the original (pre-development) topography to minimize grading.*

Response: Grades of streets match as closely as practicable to the original topography. The streets are relatively flat with grades between 0.3% and 1.0%

4. *New streets and street extensions exceeding a grade of 10 percent over a distance more than 200 feet, to the extent practicable, shall be avoided. Where such grades are unavoidable, the City Engineer may approve an exception to the 200-foot standard and require mitigation, such as a secondary access for the subdivision, installation of fire protection sprinkler systems in dwellings, or other mitigation to protect public health and safety.*

Response: No streets are above a 10% grade.

5. *Where the locations of planned streets are shown on a local street network plan, the development shall implement the street(s) shown on the plan.*

Response: No street extensions are proposed as agreed upon with the city. Sidewalk will be extended within the unimproved right-of-way along Lynn Lane in conjunction with ¾ street improvement that will be constructed by the Leza Estates Subdivision.

6. *Where required local street connections are not shown on an adopted City street plan, or the adopted street plan does not designate future streets with sufficient specificity, the development shall provide for the reasonable continuation and connection of existing streets to adjacent developable properties, conforming to the standards of this Code.*

Response: This condition does not apply. All road are existing or shown on an adopted City street plan.

7. *Existing street-ends that abut a proposed development site shall be extended with the development, unless prevented by environmental or topographical constraints, existing development patterns, or compliance with other standards in this Code. In such situations, the applicant must provide evidence that the environmental or topographic constraint precludes reasonable street connection.*

Response: No street extensions are proposed as agreed upon with the city. Sidewalk will be extended with in the unimproved right-of-way along Lynn in conjunction with ¾ street improvement that will be constructed by the Leza Estates Subdivision.

8. *Proposed streets and any street extensions required pursuant to this section shall be located, designed, and constructed to allow continuity in street alignments and to facilitate future development of vacant or redevelopable lands.*

Response: This condition will be met as applicable.

C. Rights-of-Way and Street Section Widths.

1. *Street rights-of-way and section widths shall comply with the current version of the Public Works Design Standards and Transportation System Plan. The standards are intended: to provide for streets of suitable location, width, and design to accommodate expected vehicle, pedestrian, and bicycle traffic; to afford satisfactory access to law enforcement, fire protection, sanitation, and road maintenance equipment; and to provide a convenient and accessible network of streets, avoiding undue hardships to adjoining properties.*

Response: Street rights-of-way and section widths comply with the current version of the Public Works Design Standards and Transportation System Plan.

2. *All streets shall be improved in accordance with the construction standards and specifications of the applicable roadway authority, including requirements for pavement, curbs, drainage, striping, and traffic control devices. Where a planter strip is provided it shall consist of a minimum five-foot-wide strip between the sidewalk and the curb or roadway. Where a swale is provided, it shall either be placed between the roadway and sidewalk or behind the sidewalk on private property, subject to City Engineer approval and recording of required public drainage way and drainage way maintenance easements. Streets with parking on one side only should be avoided. When used, they must be posted NO PARKING.*

Response: Planter strips are not currently proposed. 5.0’ wide planter strips along the north side of West Lane and east side N Hezzie Lane maybe proposed as part of a stormwater management alternative proposal. All streets will be improved in accordance with construction standards and the specifications of the applicable roadway authority.

3. *Where a range of street width or improvement options is indicated, the City Engineer shall determine requirements based on the advice of a qualified professional and all of the following factors:*
    a. *Street classification and requirements of the roadway authority, if different than the City's street classifications and requirements;*
    b. *Existing and projected street operations relative to applicable standards;*
    c. *Safety of motorists, pedestrians, bicyclists, and South Clackamas Transit District (SCTD) users, including consideration of accident history;*
    d. *Convenience and comfort for pedestrians, bicyclists, and SCTD users;*
    e. *Provision of on-street parking;*
    f. *Placement of utilities;*
    g. *Street lighting;*
    h. *Slope stability, erosion control, and minimizing cuts and fills;*
    i. *Surface water management and storm drainage requirements;*
    j. *Emergency vehicles or apparatus and emergency access, including evacuation needs;*
    k. *Transitions between varying street widths (i.e., existing streets and new streets); and*
    l. *Other factors related to public health, safety, and welfare.*

Response: The applicant is aware that the City Engineer will determine requirements where there is a range of street width or improvement options.

D. *Transportation Connectivity and Future Street Plans. The following standards apply to the creation of new streets:*

1. *Intersections. Streets shall be located and designed to intersect as nearly as possible to a right angle. Street intersections shall meet the current requirements of the Public Works Design Standards and Transportation System Plan.*

Response: All street Intersection for this project have been previously established. Spacing between the new driveway and intersection meets the current requirements of the Public Works Design Standards.

2. *Access Ways. The Planning Commission, in approving a land use application with conditions shall require a developer to provide an access way where the creation of a cul-de-sac or dead-end street is unavoidable and the access way connects or may in the future connect, the end of the street to another street, a park, or a public access way, except where the City Engineer and City Planner determine the access way is not feasible. Where an access way is required, it shall be not less than 10 feet wide and shall contain a minimum eight-foot-wide concrete surface or other all-weather surface approved by the City Engineer. Access ways shall be contained within a public right-of-way or public access easement, as required by the City.*

Response: No accessway are currently proposed.

3. *Connectivity to Abutting Lands. The street system of a proposed subdivision shall be designed to connect to existing, proposed, and planned streets adjacent to the subdivision. Wherever a proposed development abuts unplatted land or a future development phase of an existing development, street stubs shall be provided to allow access to future abutting subdivisions and to logically extend the street system into the surrounding area. Street ends shall be designed to facilitate future extension in terms of grading, width, and temporary barricades.*

Response: This condition is not applicable. The project is not a subdivision.

4. *Street Connectivity and Formation of Blocks. In order to promote efficient vehicular and pedestrian circulation throughout the City, subdivisions and site developments shall be served by an interconnected street network, pursuant to the current version of the Public Works Design Standards and Transportation System Plan. Where a street connection cannot be made due to physical site constraints, approach spacing requirements, access management requirements, or similar restrictions; a pedestrian access way connection*

shall be provided pursuant to Chapter 17-3.3. Streets and accessways need not be required where one or more of the following conditions exist:

a. Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include, but are not limited to, freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided:

b. Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or

c. Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.

Response: Street connectivity will follow the above requirements, where required.

5. *Cul-de-Sac Streets. A cul-de-sac street shall only be used where the City Engineer determines that environmental or topographical constraints, existing development patterns, or compliance with other applicable City requirements preclude a street extension. Where the City determines that a cul-de-sac is allowed, cul-de-sac length, turn-around type, and pedestrian access to adjoining properties shall meet the requirements of the current version of the Public Works Design Standards and Transportation System Plan and subsection D.2.*

Response: This condition is not applicable. No cul-de-sacs are proposed.

6. *Future Street Plan. Where a subdivision is proposed adjacent to other developable land, a future street plan shall be filed by the applicant in conjunction with an application for a subdivision in order to facilitate orderly development of the street system. The plan shall show the pattern of existing and proposed future streets from the boundaries of the proposed land division and shall include other divisible parcels within 600 feet surrounding and adjacent to the proposed subdivision. The street plan is binding when part of a multi-phased master planned development. The plan must demonstrate, pursuant to City standards, that the proposed development does not preclude future street connections to adjacent development land.*

Response: This condition is not applicable. This project is not a subdivision.

7. *Private Streets and Gated Drives. Private streets and gated drives serving more than two dwellings (i.e., where a gate limits access to a development from a public street), are prohibited.*

Response: This condition is not applicable. This project is not a subdivision.

E. *Engineering Design Standards. Street design shall conform to the standards of the applicable roadway authority; for City streets that is the current version of the Public Works Design Standards*

and Transportation System Plan. Where a conflict occurs between this Code and the Public Works Design Standards, the provisions of the Design Standards shall govern.

Response: Street design will conform to the standards of the applicable roadway authority. The provisions of the Design Standards will govern.

F. *Fire Code Standards. Where Fire Code standards conflict with City standards, the City shall consult with the Fire Marshal in determining appropriate requirements. The City shall have the final determination regarding applicable standards.*

Response: This condition is noted.

G. *Substandard Existing Right-of-Way. Where an existing right-of-way adjacent to a proposed development is less than the standard width, the City Engineer may require the dedication of additional rights-of-way at the time of Subdivision, Partition, or Site Plan Review, pursuant to the standards in the Public Works Design Standards and Transportation System Plan.*

Response: All existing rights-of-way are 60 feet in width and meet or exceed the required widths for their corresponding road classifications.

H. *Traffic Calming. The City may require the installation of traffic calming features such as traffic circles, curb extensions, reduced street width (parking on one side), medians with pedestrian crossing refuges, speed tables, speed humps, or special paving to slow traffic in neighborhoods or commercial areas with high pedestrian traffic.*

Response: Traffic calming features will be proposed as required by the City.

I. *Sidewalks, Planter Strips, and Bicycle Lanes. Except where the City Engineer grants a deferral of public improvements, pursuant to Chapter 17-4.2 or Chapter 17-4.3, sidewalks, planter strips, and bicycle lanes shall be installed concurrent with development or widening of new streets, pursuant to the requirements of this chapter. Maintenance of sidewalks and planter strips in the right-of-way is the continuing obligation of the adjacent property owner.*

Response: Sidewalks will be installed on all frontages. Bike lanes will be installed on Leroy Avenue, but are not required on Lynn, West or N Hezzie Lanes. Planter strips are not required on any of the frontages. A 5.5’ clear space is provided behind the sidewalk on Lynn, West & N Hezzie Lanes and a 0.5’ clear space is provided on Leroy Avenue.

J. *Streets Adjacent to Railroad Right-of-Way. When a transportation improvement is proposed within 300 feet of a railroad crossing, or a modification is proposed to an existing railroad crossing, the Oregon Department of Transportation and the rail service provider shall be notified and given an opportunity to comment, in conformance with the provisions of Division IV. Private crossing improvements are subject to review and licensing by the rail service provider.*

Response: This condition is not applicable. There are no railroad crossings within 300 feet of proposed transportation improvements.

K. *Street Names. No new street name shall be used which will duplicate or be confused with the names of existing streets in the City of Molalla or vicinity. Street names shall be submitted to the City for review and approval in consultation with Clackamas County and emergency services.*

Response: The condition is not applicable. No new streets are proposed with this project.

L. *Survey Monuments. Upon completion of a street improvement and prior to acceptance by the City, it shall be the responsibility of the developer's registered professional land surveyor to provide certification to the City that all boundary and interior monuments have been reestablished and protected.*

Response: The applicant's registered professional land surveyor will provide certification to the City that all boundary and interior monuments have be reestablished and protected.

M. *Street Signs. The city, county, or state with jurisdiction shall install all signs for traffic control and street names. The cost of signs required for new development shall be the responsibility of the developer. Street name signs shall be installed at all street intersections. Stop signs and other signs may be required.*

Response: The applicant has noted than the city, county, or state with jurisdiction will install all signs for traffic control and street names. The cost of the signs required for new development will be the responsibility of the applicant.

N. *Streetlight Standards. Streetlights shall be relocated or new lights installed, as applicable, with street improvement projects. Streetlights shall conform to City standards, be directed downward, and full cutoff and full shielding to preserve views of the night sky and to minimize excessive light spillover onto adjacent properties.*

Response: New cobra head style street lights will be installed with street improvement projects. Streetlights will meet City standards and requirements.

O. *Mail Boxes. Mailboxes shall conform to the requirements of the United States Postal Service and the State of Oregon Structural Specialty Code.*

Response: Mailboxes that will be replaced as part of this project will conform to the requirements of the United States Postal Service and the State of Oregon Structural Specialty Code.

P. *Street Cross-Sections. The final lift of pavement shall be placed on all new constructed public roadways prior to final City acceptance of the roadway*.

Response: The final lift of pavement will be placed on all new constructed public roadways prior to final City acceptance of the roadway.

17-3.6.030 Public Use Areas.

A. Dedication of Public Use Areas.

1. Where a proposed park, playground, or other public use shown in a plan adopted by the City is located in whole or in part in a subdivision, the City may require the dedication or reservation of this area on the final plat for the subdivision, provided that the impact of the development on the City park system is roughly proportionate to the dedication or reservation being made.

Response: This condition is not applicable. The project site is not a subdivision.

2. The City may purchase or accept voluntary dedication or reservation of areas within the subdivision that are suitable for the development of parks and other public uses; however, the City is under no obligation to accept such areas offered for dedication or sale.

Response: The project site is not a subdivision. This condition is not applicable.

B. System Development Charge Credit. Dedication of land to the City for public use areas, voluntary or otherwise, may be eligible as a credit toward any required system development charge for parks.

Response: The applicant understands the ability for SDC credits.

17-3.6.040 Sanitary Sewer and Water Service Improvements.

A. Sewers and Water Mains Required. All new development is required to connect to City water and sanitary sewer systems. Sanitary sewer and water system improvements shall be installed to serve each new development and to connect developments to existing mains in accordance with the adopted facility master plans and applicable Public Works Design Standards. Where streets are required to be stubbed to the edge of the subdivision, sewer and water system improvements and other utilities shall also be stubbed with the streets, except as may be waived by the City Engineer where alternate alignment(s) are provided.

Response: Water and sewer will connect to existing mains in Leroy Avenue. There are no proposed sanitary sewer or water main stubs within the public streets.

B. Sewer and Water Plan Approval. Development permits for sewer and water improvements shall not be issued until the City Engineer has approved all sanitary sewer and water plans in conformance with City standards.

Response: This condition will be met.

C. Over-Sizing. The City may require as a condition of development approval that sewer and water lines serving new development be sized to accommodate future development within the area as

projected by the applicable facility master plans, and the City may authorize other cost-recovery or cost-sharing methods as provided under state law.

Response: There are no proposed over-sized sanitary sewer or water mains.

D. *Inadequate Facilities. Development permits may be restricted or rationed by the Planning Commission where a deficiency exists in the existing water or sewer system that cannot be rectified by the development and which, if not rectified, will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water and sewerage treatment systems. The City Engineer may require water booster pumps, sanitary sewer lift stations, and other critical facilities be installed with backup power.*

Response: There are no known inadequate facilities for the existing site.

17-3.6.050 Storm Drainage and Surface Water Management Facilities.

A. *General Provisions. The City shall issue a development permit only where adequate provisions for stormwater runoff have been made in conformance with the requirements of the current version of the Public Works Design Standards and Stormwater Master Plan.*

Response: The stormwater runoff was designed in conformance with the current version of the Public Works Design Standards and Stormwater Master Plan. A Preliminary Drainage Report has been submitted with the land use application

B. *Accommodation of Upstream Drainage. Culverts and other drainage facilities shall be large enough to accommodate existing and potential future runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the City Engineer.*

Response: The stormwater system was designed to accommodate existing and potential future runoff. A Preliminary Drainage Report has been submitted with the land use application.

C. *Effect on Downstream Drainage. Where it is anticipated by the City Engineer that the additional runoff resulting from the development will overload an existing drainage facility, the City shall withhold approval of the development until provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with City standards.*

Response: There are no anticipated runoff flows that would overload the existing drainage facility. A Preliminary Drainage Report has been submitted with the land use application.

D. *Over-Sizing. The City may require as a condition of development approval that sewer, water, or storm drainage systems serving new development be sized to accommodate future development within the area as projected by the applicable facility master plan, provided that the City may grant*

the developer credit toward any required system development charge for the same pursuant to the System Development Charge.

Response: This condition will be met if required by the City.

E. Existing Watercourse. Where a proposed development is traversed by a watercourse, drainage way, channel, or stream, the City may require a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance to protect the public health and safety.

Response: The existing drainage channel within the Lynn Lane right-of-way will be filled in and replaced with pipe stormwater conveyance system. A Preliminary Drainage Report has been submitted with the Land Use application

17-3.6.060 Utilities.
The following standards apply to new development where extension of electric power, gas, or communication lines is required:

A. General Provision. The developer of a property is responsible for coordinating the development plan with the applicable utility providers and paying for the extension and installation of utilities not otherwise available to the subject property.

Response: The applicant is aware of the responsibility to coordinate with the applicable utility providers and paying for the extension and installation of utilities not otherwise available to the site.

B. Underground Utilities.

1. General Requirement. The requirements of the utility service provider shall be met. All utility lines in new subdivisions, including, but not limited to, those required for electric, communication, and lighting, and related facilities, shall be placed underground, except where the City Engineer determines that placing utilities underground would adversely impact adjacent land uses. The Planning Official may require screening and buffering of above ground facilities to protect the public health, safety, or welfare.

Response: The requirements of the utility service provider will be met.

2. Subdivisions. In order to facilitate underground placement of utilities, the following additional standards apply to all new subdivisions:

a. The developer shall make all necessary arrangements with the serving utility to provide the underground services. Care shall be taken to ensure that no aboveground equipment obstructs vision clearance areas for vehicular traffic, per Chapter 17-3.3 Access and Circulation.

b. The City Engineer reserves the right to approve the location of all surface-mounted facilities.

c. All underground utilities installed in streets must be constructed and approved by the applicable utility provider prior to the surfacing of the streets.

d. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.

Response: This condition is not applicable. The project site is not a subdivision.

C. Exception to Undergrounding Requirement. The City Engineer may grant exceptions to the undergrounding standard where existing physical constraints, such as geologic conditions, streams, or existing development conditions make underground placement impractical.

Response: An exception to undergrounding is not anticipated but noted as an option if existing physical constraints are found.

17-3.6.070 Easements.

A. Provision. The developer shall make arrangements with the City and applicable utility providers for each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development.

Response: Utility franchises will be accommodated in appropriate easements. A PUE will be provided on each frontage.

B. Standard. Utility easements shall conform to the requirements of the utility service provider. All other easements shall conform to the City of Molalla Public Works Design Standards.

Response: Utility easements will meet the requirements of the utility service provider. All other easements will meet the City of Molalla Public Works Design Standards.

C. Recordation. All easements for sewers, storm drainage and water quality facilities, water mains, electric lines, or other utilities shall be recorded and referenced on a survey or final plat, as applicable. See Chapter 17-4.2 Site Design Review, and Chapter 17-4.3 Land Divisions and Property Line Adjustments.

Response: All required utility easements will be recorded.

17-3.6.080 Construction Plan Approval.

No development, including sanitary sewers, water, streets, parking areas, buildings, or other development, shall commence without plans having been approved by the City of Molalla Public Works Department and permits issued. Permit fees are required to defray the cost and expenses incurred by the City for construction and other services in connection with the improvement. Permit fees are as set by City Council resolution.

Response: No development will begin until plans have been approved by the City of Molalla Public Works Department and permits issued.

17-3.6.090 Facility Installation.

A. *Conformance Required. Improvements installed by the developer, either as a requirement of these regulations or at the developer's option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the City.*

Response: Improvements installed by the applicant will conform to the requirements of this chapter, approved construction plans, and to improvements standards and specifications adopted by the City.

B. *Adopted Installation Standards. The City of Molalla has adopted Public Works Design Standards for public improvements and private utility installation within the public right-of-way.*

Response: The applicant is aware of the adopted Public Works Design Standards for public improvements and private utility installation within the public right-of-way.

C. *Commencement. Work in a public right-of-way shall not begin until all applicable agency permits have been approved and issued.*

Response: Work in a public right-of-way will not begin until all applicable agency permits have been approved and issued.

D. *Resumption. If work is discontinued for more than six months, it shall not be resumed until the Public Works Director is notified in writing and grants approval of an extension.*

Response: The applicant is aware that if work is discontinued for more than size months, it will not be resumed until the Public Works Director is notified in writing and grants approval of an extension.

E. *City Inspection. Improvements shall be constructed under the inspection of the City Engineer. The City Engineer may approve minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest, except that substantive changes to the approved design shall be subject to review under Chapter 17-4.5 Modifications to Approved Plans and Conditions of Approval. Any survey monuments that are disturbed before all improvements are completed by the developer or subdivider shall be replaced at the developer or subdivider's expense prior to final acceptance of the improvements.*

Response: Improvements will be constructed under the inspection of the City Engineer.

F. *Engineer's Certification and As-Built Plans. In accordance with the current version of the Public Works Design Standards, a registered civil engineer shall provide written certification in a form required by the City that all improvements, workmanship, and materials meet current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to City's acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide two sets of "as-built"*

plans, one paper set and one electronic set for permanent filing with the City. If required by the City, the developer or subdivider shall provide a warranty bond pursuant to Section 17-3.6.100.

Response: An Engineer's Certification and As-Builts Plans will be provided to the City at completion of the project.

17-3.6.100 Performance Guarantee and Warranty.

A. *Performance Guarantee Required. The City at its discretion may approve a final plat or building permit when it determines that all of the public improvements required for the site development or land division, or phase thereof, are complete and the applicant has an acceptable assurance for the balance of said improvements. The applicant shall provide a performance and payment bond in accordance with the current version of the Public Works Design Standards.*

Response: The applicant will provide a performance and payment bond in accordance with the current version of the Public Works Design Standards.

B. *Determination of Sum. The assurance of performance shall be for a sum determined by the City Engineer as required to cover the cost of the improvements and repairs, including related engineering and incidental expenses, plus reasonable inflationary costs. The assurance shall not be less than 125 percent of the estimated improvement costs.*

Response: The applicant is aware of the determination of sum.

C. *Itemized Improvement Estimate. The applicant shall furnish to the City an itemized improvement estimate, certified by a registered civil engineer, to assist the City in calculating the amount of the performance assurance.*

Response: An itemized improvement estimate, certified by a registered civil engineer, will be submitted to the City.

D. *Agreement. A written agreement between the City and applicant shall be signed recorded. The agreement may include a provision for the construction of the improvements in stages and for the extension of time under specific conditions. The agreement shall contain all of the following:*
    1. *The period within which all required improvements and repairs shall be completed;*
    2. *A provision that if work is not completed within the period specified, the City may complete the work and recover the full cost and expenses from the applicant;*
    3. *The required improvement fees and deposits.*

Response: A written agreement between the City and applicant will be signed and recorded.

E. *When Applicant Fails to Perform. In the event the applicant fails to carry out all provisions of the agreement and the City has un-reimbursed costs or expenses resulting from such failure, the City shall call on the bond, cash deposit, or letter of credit for reimbursement.*

Response: The applicant is aware of this condition.

F. Termination of Performance Guarantee. The applicant shall not cause termination, nor allow expiration, of the guarantee without first securing written authorization from the City.

Response: The applicant will not cause termination, nor allow expiration, of the guarantee without first securing written authorization from the City.

G. Warranty Bond. A warranty bond good for two years is required on all public improvements and landscaping when installed in the public right-of-way. The warranty bond shall equal 120 percent of the total cost of improvements and begin upon acceptance of said improvements by the City.

Response: The applicant is aware of this condition.

V. CONCLUSION

The Applicant has quantified and assess the effect of the development on public facilities as it relates to Molalla River Middle School replacement project.

PRELIMINARY DRAINAGE REPORT
FOR THE
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT

DATE: MAY 2025

PREPARED FOR:
MOLALLA RIVER SCHOOL DISTRICT
318 LEROY AVENUE
MOLLALLA, OREGON 97038

PREPARED BY:
STANDRIDGE INC.
703 BROADWAY STREET, SUITE 610
VANCOUVER, WASHINGTON 98660
SI PROJECT OPS003

EXPIRES 12–31–26

STANDRIDGE
PLANNING | ENGINEERING | SURVEYIN

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Appendix G: Geotechnical Report
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Section 1 – Project Overview

1.0 Vicinity Map

The site is located northeast of the intersection of Highway 213 and W Main Street at 318 Leroy Avenue in Molalla, Oregon, 97038. The property is zones Public and Semi Public (PSP) and is further identified as Tax Lot 3000 within Tax Map 5 2E 08B, in the North West Section 08, Township 05 South, Range 02 East of the Willamette Meridian.

Figure 1.1 Vicinity Map

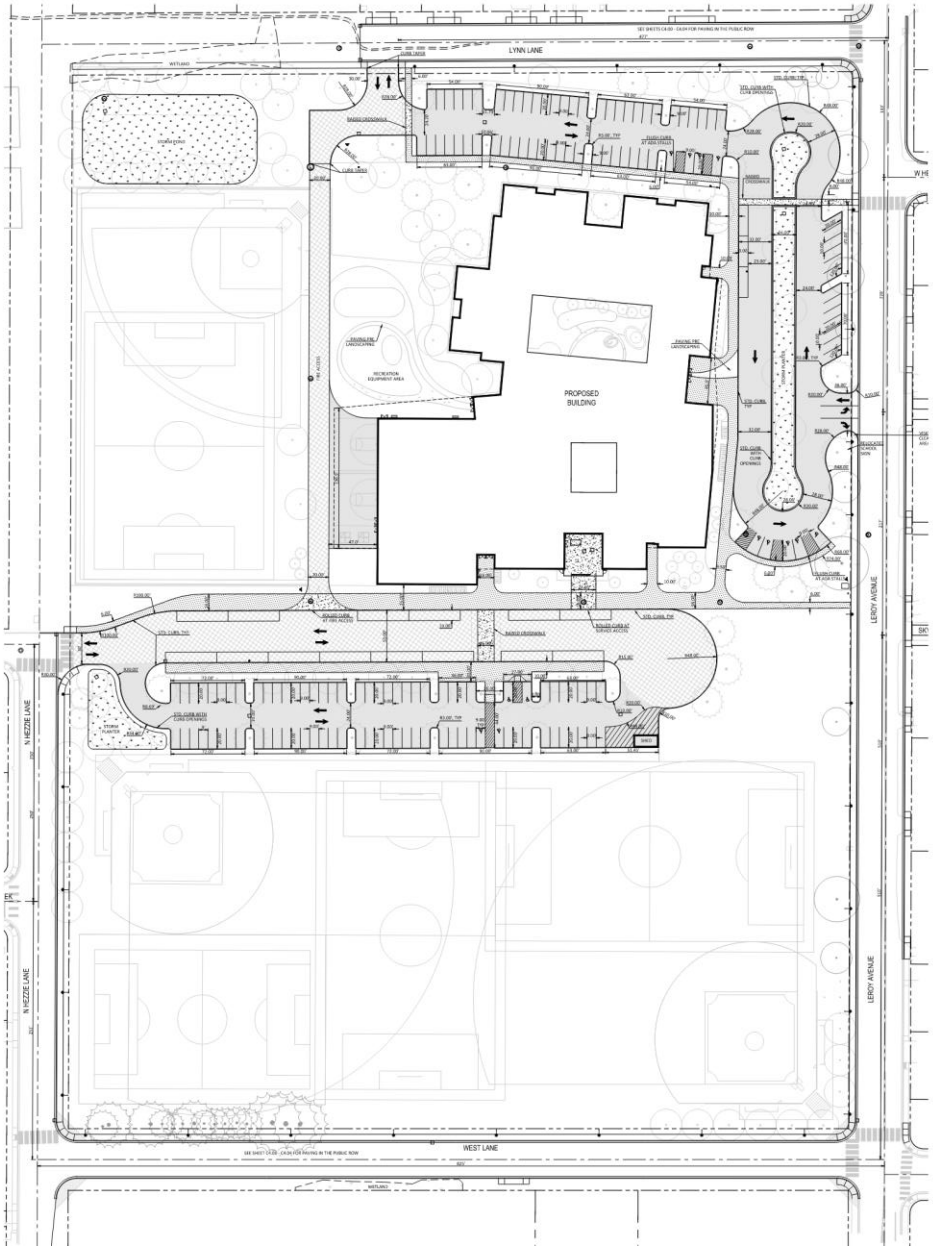
1.1 Project Description

MRSD Molalla School District plans to replace the existing middle school located on a 17.9-acre parcel. Demolition of the existing school will take place after construction of the new school. The development consists of a middle school building, parking lots, recreation equipment area, sports fields and street improvements. The total disturbed area is approximately 21.5 acres which includes 9.0 acres of impervious surface.

Permits for this project include:

- Excavation & Grading Permit
- Site Development Permit
- Public Works Construction Permit
- 1200-C Permit
- Joint Army Corp/DLS Permit

Figure 1.2 Site Plan



1.2 Existing Conditions

The site is bound by street frontage/right-of-way on all 4 sides of the property. The northern half of Hezzie between N Valley Drive & Lynn is unimproved, as is the western half of Lynn Lane. N Hezzie Lane will remain unimproved while the western half of Lynn Lane will be improved by another development (Leza Estates Subdivision). In addition, this project will complete street improvements to all other frontages to meet current standards.

The site is currently occupied by an existing school on the southern end of the site. This existing school will be replaced by a new school on the northern end of the site; the demolition of the old school will take place once the new school is in place. The majority of the site slopes gently to the west and northwest corner of the site and is divided into 3 drainage basins. See Pre-Developed Basin Map in Appendix B.

Basin 1 - Lynn Lane, North Leroy Avenue, Northern Portion of School Campus

There is an existing stormwater drainage channel running along Lynn Lane. Runoff from Lynn Lane, the northern half of Leroy Avenue and northern half of the school campus are conveyed to this drainage channel. The drainage channel continues west toward the elementary school site. The drainage channel will be replaced with a public storm pipe to accommodate the street improvements on Lynn Lane.

Basin 2 - South Leroy Avenue, South N Hezzie Lane, West Lane, Southern Portion of School Campus

There is an existing 12-inch DI storm main in West Lane along with a 12-inch PVC storm main at the southern end of Leroy Avenue. These pipes convey runoff from the eastern half of West Lane, the southern half of Leroy Avenue, a portion of the school campus, and a detention pond on the northeast corner of West Lane & Leroy Avenue intersections to a wetland located on the south side of West Lane. Runoff from the western half of West Lane drains to an existing roadside ditch along the north side of the roadway. Additionally, runoff from the school ball fields and unimproved portion of N Hezzie Lane, south of Bear Creek Drive, drains south toward the roadside ditch on West Lane. Runoff from the roadside ditch is then pipe south under West Lane to the wetland. Overflow from this wetland is discharged through a 24" culvert under N Hezzie Lane to the wetland on the east side of the road. The existing public storm piping and roadside ditch will be replaced/rerouted to accommodate for the street improvement on Leroy Avenue and West Lane.

Basin 3 - North N Hezzie Lane, Western Portion of School Campus

There is an existing catch basin at the north end of the public street improvements on N Hezzie Lane at North Valley Drive. Runoff from N Hezzie Lane, north of Bear Creek Drive, and a portion of the school's ball fields sheet flow towards this catch basin and is piped west in a 12-inch PVC storm main in North Valley Drive.

To the extent possible, existing drainage basins and discharge points will be maintained.

Figure 1.3 Site Imagery July 2022

Upstream Basin

There are no upstream basins that flow onto the site. However, off-site flow from the east is collected in the right-of-way along Leroy Avenue and conveyed along/under Lynn Lane and West Lane to the west. Street improvements will be made to the roads and all off-site runoff will be accommodated with the stormwater analysis.

Downstream Basin

There are 3 discharge locations from the site; (1) At the northwest corner of the site to a drainage channel (2) at the intersection on N Hezzie and N Valley Drive to the public storm drain system in the Bear Creek Subdivision and (3) at the intersection of Hezzie and West Lane to a wetland. All basins are tributary to Bear Creek and their discharge points converge approximately ¼ mile from the west property line.

Wetlands

There are two existing wetlands adjacent to the site improvements. A *"Wetland and Water Delineation Report"* has been prepared by delineation prepared by AKS Engineering & Forestry, LLC dated May 2025. See Appendix H.

Wetland A is at the northwest corner of the site and is fed by a drainage channel that runs along Lynn Lane. The majority of the wetland lies within the right-of-way. Full buildout of the Lynn Lane right-of-way will impact both the drainage channel and wetland. This project will complete ¾ street improvements to east half of Lynn Lane that will replace the drainage channel with a pipe. The Leza Estates Subdivision

project, located on the north side of the west portion of Lynn Lane, will complete ¾ street improvement to the west half of the roadway that will pipe the existing drainage channel as well as impact the wetland boundary.

Wetland B is located on Tax Lot 4300 which is on the south side of the west portion of West Lane. The majority of the wetland lies within that parcel with a small portion located in the right-of-way. This project will complete ¾ street improvements to West Lane but will not encroach into the wetland.

1.3 Developed Conditions

The proposed development includes a new middle school building, parking lots, sports fields, recreation equipment area, and street improvements. The site consists of three stormwater drainage basins which treat and detain stormwater runoff to pre-developed rates, see the Post-Developed Basin Map in Appendix B.

Basin 1 - New school building, the recreational equipment area, fire lane, the parking lots, Lynn Lane, north half of Leroy Avenue, and the northwest sports fields.
Basin 2 - South sports fields, south half of Leroy Avenue, West Lane and south half of N Hezzie Lane.
Basin 3 – North half of N Hezzie Lane, a portion of the south sport fields, and a portion of the south parking lot.

Design Criteria

HydroCAD 10.0 was used to evaluate the hydrology of the development. HydroCAD applies the Santa Barbra Unit Hydrograph (SBUH) method to calculate the predevelopment and post development peak release rates.

This project is required to provide stormwater management and disposal in accordance with the 2020 Molalla Standard Specifications for Public Works construction. This includes provisions for both treatment (quality control) and detention (quantity control) of stormwater runoff from all constructed site impervious areas.

Water quantity facility 2-, 10-, and 25-year post-development runoff rates were designed to not exceed their respective 2-,10, and 25-year post development runoff rates and safely pass the 100-year storm. Stormwater quality facilities were designed to capture and treat 80% of the average runoff volume, to the maximum extent possible, with the goal of 70% total suspended solids (TSS) removal. Water quality facilities were designed for a dry weather storm event totaling 0.36 inches over 4 hours, with an average storm return period of 96 hours.

Basin Areas

Impervious areas and pervious areas were calculated for each basin. See Table 1.1.

Table 1.1 Pre-Developed & Post-Developed Basin Areas

Basin	Pre Dev. Total Area (ac)	Pre Dev. Imper. Area (ac)*	Pre Dev. Perv. Area (ac)	Percent Imperv. (%)	Post Dev. Total Area (ac)	Post Dev. Imperv. Area (ac)	Post Dev. Perv. Area (ac)	Percent Imperv. (%)
1	14.39	0	14.39	0%	14.62	7.45	7.17	51%
2	5.29	2.41	2.88	46%	5.25	1.07	4.18	20%
3	1.83	0	1.83	0%	1.64	0.45	1.19	27%
Total	21.51	N/A	N/A	N/A	21.51	8.97	12.54	42%

* Runoff from Basin 2 drains to an existing wetland. The pre-developed condition assumed the current land cover to maintain hydrologic function and volume to the wetland. See Section 4.0 Wetland, for more information. Runoff from Basin 1 & 2 assumed a predeveloped condition based on historic vegetation.

Rainfall Rates

The total depth of rainfall for storms of 24-hour duration is shown in Table 1.2. The rainfall distribution to be used in the City of Molalla is the design storm of 24-hour duration based on the standard National Resource Conservation Service (NRCS), formerly known as the Soil Conservation Services (SCS), type 1A rainfall distribution as provide in Tabel 3.2 of the Molalla Design Standards.

Table 1.2 Rainfall Rates

Design Storm (24-Hour)	Rainfall (inches)
Water Quality	0.36
2-Year	2.50
10-Year	3.45
25-Year	3.90
100-Year	4.50

Section 2 – Soils

2.0 Summary

The underlying soil type on the project and surrounding areas is classified by the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey (see Appendix C). This is similar to the classification provided in Table 14, Soil Survey of Clackamas County, Oregon (SCS, November 1985). The site is classified as primarily Dayton Silt Loam with a Hydrologic Soil Group (HSG) D. These soils generally exhibit low infiltration rates and relatively high runoff rates. Per the geotechnical study that was done on the site, no infiltration (0 in/hr) was found to a depth of 5 feet below ground surface on the site. See Appendix G for the *"Geotechnical Engineering Report"* prepared by PBS dated January 14, 2025.

Curve Numbers

Runoff Curve Numbers were determined based on the existing and proposed land-use description and hydrologic soil group classification. Additionally, the historic vegetation for the existing site was identified as Tufted Hair Grass (See Appendix B). A CN of 80 (pasture/grassland/range, good, HSG D) was used for the pre-developed condition for all surfaces, except for Basin 2, a CN of 98 (Impervious surfaces, pavement, roofs, etc.) was used for the existing hard surfaces. For the post-developed condition, a CN of 80 was used for landscape areas (>75% Grass cover, good, HSG D) and a CN of 98 (Impervious surfaces, pavement, roofs, water surfaces, etc) was used for all hard surfaces and stormwater surface facility surface areas.

Time of Concentration

Time of Concentrations are based on SCRS TR-55 methodologies using Manning's n sheet flow factors and shallow concentrated flow k velocity factors. Based on the existing ground cover, a Manning's n value of 0.24 (Grass: Dense) was used for the initial 300-foot sheet flow segment in Basin 1 & 3 and 0.15 (Grass: Short) for Basin 2. After 300 feet, sheet flow is assumed to become shallow concentrated flow. A k velocity factor of 7 (Short Grass Pasture) was used for the shallow concentrated flow segment.

Pre-developed time of concentration, taking into account the slopes and flow length for each basin equates to 61.5 minutes for pre-developed Basin 1, 36.6 minutes (pervious) & 5.0 minutes (impervious) for pre-developed Basin 2, and 45.5 minutes for predeveloped Basin 3. The post-developed time of concentration has been assumed to be 5 minutes, the minimum allowable, as this time of concentration will provide a conservative design approach for post developed conditions.

Section 3 – Water Quality Analysis

3.0 Summary

Water quality will be achieved by using two flow-through planters, a wet pond and seven Contech StormFilter® catch basins. Each vegetated system will have a pre-treatment structure such as a sumped catch basin or water quality manhole prior to discharge to the treatment facility. The parking lot on the east side of the site that is part of Basin 1 will drain to a flow through planter and a portion of the south parking lot and sports fields in Basin 2 will also drain to a flow through planter. All other on-site stormwater will be discharged to the wet pond. The StormFilter® catch basins will be used to treat water from the public streets. Table 3.1 summarizes the impervious and pervious areas for each basin and sub basin and identifies the treatment and downstream flow control/detention facility.

Table 3.1 Basin Area & Facility Summary

	Total Area (acres)	Imper. Area (acres)	Perv. Area (acres)	Treatment Facility	Flow Control Facility
Basin 1	14.62	7.45	7.17		
School		2.37		Wet Pond	Wet Pond
S Parking		1.68		Wet Pond	Wet Pond
E Parking		1.07	0.41	Planter 1	Planter 1
N Parking		0.59		Wet Pond	Wet Pond
Fire Lane		0.21		Wet Pond	Wet Pond
Rec. Area		0.26		Wet Pond	Wet Pond
NE Leroy		0.03		Filter CB 17	N/A(1)
NW Leroy		0.24		Filter CB 18	N/A(1)
E Leroy		0.13		Filter CB 20	N/A(1)
Lynn		0.54		Wet Pond	Wet Pond
Pond		0.33		N/A	N/A
Basin 2	5.25	1.07	4.18		
NE West		0.24		Filter CB 19(2)	Wetland(3)
NW West		0.22		Filter CB 15(2)	Wetland(3)
SW West		0.17		Filter CB 15(2)	Wetland(3)
SE West		0.19		Filter CB 19(2)	Wetland(3)
SW Leroy		0.09		Filter CB 16	Wetland(3)
SE Leroy		0.04		Ex. Public System (4)	Ex. Public System (4)
S Hezzie		0.12		Filter CB 15(2)	Wetland
Basin 3	1.64	0.45	1.19		
SW Parking		0.27	1.19	Planter 2	Planter 2
N Hezzie		0.18		Filter CB 14	Ex. Public System(5)
Total	21.51	8.97	12.54		

(1) After treatment, runoff from Leroy Avenue will be piped to the new public storm main in Lynn which will also be the discharge point for the wet pond. The wet pond has been sized to include this runoff to meet flow control standards at this discharge location; however, this runoff will not be routed to the Wet Pond.

(2) In lieu of the StormFilter® Catch Basins for West and N Hezzie Lanes, the option of flow-through planters within the public roadway clear space may be considered at final engineering design.

(3) The existing wetland on the south side of West Lane is the historic discharge point for runoff for these basins in addition to a majority of the existing school campus.

(4) Runoff from this basin is captured by a catch basin on West Lane which discharges to an existing pond on the northeast corner of the intersection of Leroy Avenue and West Lane. There is no effective way to separate this area from the rest of the overall drainage basin and the increase in

flow (0.01 cfs/WQ storm, 0.03 cfs/25yr storm) from the new impervious surface is negligible to the existing facility.

(5) After treatment, runoff from N Hezzie Lane will be piped to the public storm main in N Valley Drive which will also be the discharge point for Planter 2. Planter 2 has been sized to include this runoff to meet flow control standards at this discharge location; however, the runoff will not be routed to the planter.

Flow-Through Planters

Two planters are being used to treat portions of the parking lots. The planters are design with a flat bottom, with a 3:1 slope, ponding depth of 6" and a minimum freeboard of 6". The entire water quality storm will filter through the 18" of growing medium prior to being collected by an underdrain. The planter will also be used for detention of larger storm events (See Section 4) and is equipped with an overflow riser. Table 3.2 provides the design parameters for the planters. After treatment and detention, runoff will be piped to the public stormwater system. (See calculations in Appendix E)

Table 3.2 Planter Design – Water Quality Summary

Planter	Imperv. Area (AC)	Facility Size Bottom Area (SF)	WQ Flow (cfs)	Peak WQ Elev. (above bottom)
1	1.07	6,255	0.16	0.11'
2	0.27	2,250	0.03	0.08'

Wet Pond

The wet pond located in the northwest corner of the site will receive runoff from Basin 1. The pond is 136-feet x 45 feet with interior side slopes of 4:1. The pond will be divided with a berm into 2 cells and will have a 0.66-foot permanent pool and a total depth of pond of 5 feet. A 1-foot sediment storage will be provided in the first cell. Table 3.3 summarizes the water quality volumes and permanent pool elevations. The pond also detains larger storms (see Section 4) and will safely convey the 100-year storm event without overtopping. (See calculations in Appendix E)

Table 3.3 Pond Design/Performance – Water Quality Summary

Water Quality Volume	0.181 af
Water Quality Volume Required (WQV X 0.55)	0.099 af
Permanent Pool Volume Provided	0.100 af
Permanent Pool Bottom Elevation	340.00'
Permanent Pool Top Elevation	340.66'
Surface Area Provided	7100 sf

Water Quality Pre-Treatment Manhole

There is one sumped 72" water quality manhole on site located upstream of the wet pond. The sump depth was calculated at 3.6 feet to be 20 cubic feet per 1.0 cfs of flow into the water quality manhole for the 25-year flow. (See calculations in Appendix E)

Proprietary Treatment Catch Basins

Contech StormFilter® Catch Basins will be used to treat water from the public streets. See Table 3.4 for sizing of these facilities. Cartridge sizes were selected based on the available hydraulic drop available between the rim and outlet pipe. 27" cartridges allow for 3.05' while 18" cartridges allow for 2.3'. Due to the shallow stormwater system, 18" were used more extensively. ZPG Media will be used in all catch basins. ZPG is a combination of Zeolite, Perlite and GAC that removes sediments, oil and greases, soluble metals, organics and nutrients to meet water quality standards.

Table 3.4 Contech Storm Filter Catch Basin Sizing

CB No.	Basin	Area (ac)	WQ Flow Rate (cfs)	Cartridge Height	Cartridge Flow Rate (cfs)	Cartridge Qty.
14	N Hezzie	0.18	0.03	18"	0.033	1
15	S Hezzie & NW/SW West	0.51	0.09	18"	0.033	3
16	SW Leroy	0.09	0.02	18"	0.033	1
17	NE Leroy(1)	0.03	0.01	18"	0.033	1
18	NW Leroy	0.24	0.04	27"	0.050	1
19	NE/SE West	0.43	0.08	18"	0.033	3
20	E Leroy	0.13	0.02	18"	0.033	1

(1) To maximize treatment capacity, Filter CB 17 may be eliminated, and an equivalent area will be treated in another subbasin at final engineering design.

Section 4 – Water Quantity Analysis

4.0 Summary

Water quantity will be achieved also be achieved by using flow-through planters and a wet pond as described in Section 3.

Flow-Through Planters

Two planters are being used to treat portions of the parking lots. The planters are also design to provided enough stormwater volume to detain the 25 -year storm. Table 4.1 and 4.2 summaries pre-development and post-development discharge rates from the planter basins. The bottom elevation of Planter 1 is 346.50' and Planter 2 is 344.00'. Runoff in excess of the 25-year flow will be detained the parking lot before draining to the public street. (See calculations in Appendix D & E)

Table 4.1 Planter 1 Performance - Water Quantity Summary

Storm Event	Pre-Developed (cfs)	Post-Developed (cfs)	Planter Elevation (Feet)
WQ	N/A	N/A	346.61
2-Year	0.14	0.13	347.21
10-Year	0.29	0.28	347.34
25-Year	0.38	0.38	347.41

Table 4.2 Planter 2 Performance - Water Quantity Summary

Storm Event	Pre-Developed (cfs)	Post-Developed (cfs)	Planter Elevation (Feet)
WQ	N/A	N/A	344.08
2-Year	0.17	0.12	344.69
10-Year	0.37	0.32	344.83
25-Year	0.48	0.48	344.92

Wet Pond

Table 4.3 summarizes the pre-development and post-development discharge rates from the pond basin. Complete calculations and routings can be found in Appendix D & E. In order to accommodate the permanent pool, the pond bottom elevation for the 2-, 10-, & 25- year storm event was set at 340.66' (WQ Elevation).

Table 4.3 Pond Performance - Water Quantity Summary

Storm Event	Pre-Developed (cfs)	Post-Developed (cfs)	Pond Elevation (Feet)
WQ	N/A	N/A	340.66
2-Year	1.09	1.08	342.87
10-Year	2.31	2.30	343.61
25-Year	2.97	2.97	343.95
100-Year	N/A	N/A	344.28

Table 4.4 provides the design parameters for the pond and flow control structure. The live storage depth is 3.29 feet. The total depth of the pond is 5 feet, including a 1-foot freeboard above the 25- year storm event.

Table 4.4 Pond Design – Water Quantity Summary

Live Storage Top Elev.	345.00
Live Storage Bottom Elev.	340.66’
Live Storage Volume Provided	0.845 af
Orifice 1 Elev.	340.66’
Orifice 1 Size	5.4” dia.
Orifice 2 Elev.	342.88’
Orifice 2 Size	7.9” dia.
Orifice 3 Elev.	343.62’
Orifice 3 Size	4.9” dia

A ditch inlet, with a rim elevation 344.00 has been provided as an overflow from detention pond for the 25-year, 24-hour storm. Additionally, in the event of a very large storm event or failure of some portion of the pond’s primary release structure, an emergency overflow spillway has been provided at the west end of the pond.

Wetland

Basin 2 discharges to existing wetland on the south side of West Lane. The wetland is fed by both groundwater and surface water flow. The school site has been contributing water to this wetland for over 70 years. In order to maintain the hydrologic function of the wetland, the existing land cover at the time of this application was used to determine the pre-developed rates. Additionally, with the demolition of the existing school building, most of the impervious surface will be converted to pervious surface resulting in no additional detention facility needed to maintain the wetland volumes. Table 4.5 summarizes the pre-development and post-development discharge rates from the pond basin. All impervious surfaces will be treated prior to discharge to the wetland. Complete calculations and routings can be found in Appendix D & E.

Table 4.5 Wetland Performance - Water Quantity Summary

Storm Event	Pre-Developed (cfs)	Post-Developed (cfs)
2-Year	1.64	1.35
10-Year	2.53	2.36
25-Year	2.97	2.88
100-Year	3.56	3.60

Section 5 – Conveyance Calculations

5.0 Summary

Pipe layouts are shown in utility plans and are located per the City's design criteria. The conveyance network has been sized using the 25-year, 24-hour storm event with the condition that the hydraulic grade line remains at least 1 foot below the rim elevations at manholes and catch basins.

The conveyance calculations for the new public pipes in Lynn Lane and West Lane are located in Appendix F and show that there is sufficient capacity using the minimum 18-inch (West Lane) and 24-inch (Lynn Lane) pipe diameter.

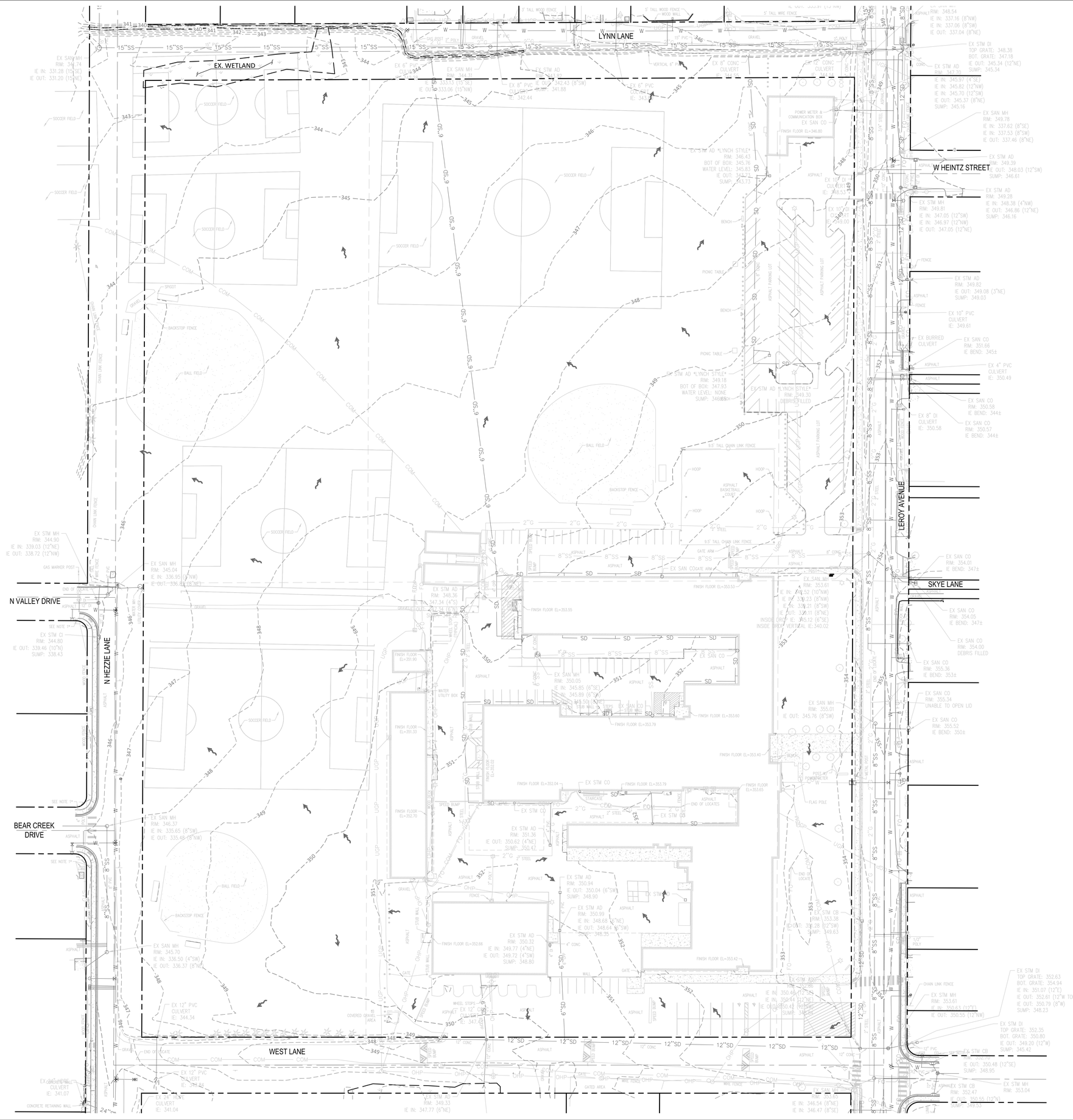
Conveyance calculations for the on-site pipes will be provided at Final Engineering

References

- City of Molalla "City of Molalla Standard Specifications for Public Works Construction", 2020
- SCS Technical Release 55: Urban Hydrology for Small Watersheds
- Soil Survey of Clackamas County, Oregon (SCS, November 1985)

Appendix A: Existing Conditions Plan, Grading Plans, Utility Plans, Stormwater Facility Details

plotted: **May 21, 2025 - 2:56pm**
sheet size: 30" x 42"


LYNN LANE
EX. WETLAND
W HEINTZ STREET
LEROY AVENUE
SKYE LANE
WEST LANE
N VALLEY DRIVE
N HEZZIE LANE
BEAR CREEK DRIVE
SOCCER FIELD
BALL FIELD
BACKSTOP FENCE
ASPHALT PARKING LOT
ASPHALT BASKETBALL COURT
EX STM AD *LYNCH STYLE*
RIM: 346.43
BOT OF BOX: 345.76
WATER LEVEL: 345.63
IE OUT: 343.73
SUMP: 343.73
EX STM AD *LYNCH STYLE*
RIM: 349.18
BOT OF BOX: 347.93
WATER LEVEL: NONE
SUMP: 346.93
EX STM AD *LYNCH STYLE*
RIM: 349.30
DEBRIS FILLED
EX STM AD
RIM: 348.54
IE IN: 337.16 (8"NW)
IE IN: 337.06 (8"SE)
IE OUT: 337.04 (8"NE)
EX STM DI
TOP GRATE: 348.38
BOT. GRATE: 347.18
IE OUT: 345.34 (12"NE)
EX STM AD
RIM: 347.70
SUMP: 345.34
IE IN: 345.97 (4"SE)
IE IN: 345.82 (12"NW)
IE IN: 345.70 (12"SW)
IE OUT: 345.37 (6"NE)
SUMP: 345.16
EX SAN MH
RIM: 349.76
IE IN: 337.62 (8"SE)
IE IN: 337.53 (8"SW)
IE OUT: 337.46 (8"NE)
EX STM AD
RIM: 349.39
IE OUT: 348.63 (12"SW)
SUMP: 346.61
EX STM MH
RIM: 349.81
IE IN: 347.05 (12"SW)
IE IN: 346.97 (12"NW)
IE OUT: 347.05 (12"NE)
EX STM AD
RIM: 349.28
IE IN: 348.38 (4"NW)
IE OUT: 346.86 (12"NE)
SUMP: 346.16
EX STM AD
RIM: 349.82
IE OUT: 349.08 (3"NE)
SUMP: 349.03
EX 10" PVC CULVERT
IE: 349.61
EX BURRIED CULVERT
EX SAN CO
RIM: 351.66
IE BEND: 345±
EX 4" PVC CULVERT
IE: 350.49
EX SAN CO
RIM: 350.58
IE BEND: 344±
EX 8" DI CULVERT
IE: 350.58
EX SAN CO
RIM: 350.57
IE BEND: 344±
EX SAN CO
RIM: 354.01
IE BEND: 347±
EX SAN CO
RIM: 354.05
IE BEND: 347±
EX SAN CO
RIM: 354.00
DEBRIS FILLED
EX SAN CO
RIM: 355.36
IE BEND: 353±
EX SAN CO
RIM: 355.34
UNABLE TO OPEN LID
EX SAN CO
RIM: 355.52
IE BEND: 350±
EX SAN MH
RIM: 353.61
IE IN: 341.52 (10"NW)
IE IN: 339.23 (6"NW)
IE IN: 339.21 (8"SW)
IE OUT: 339.11 (8"NE)
INSIDE DROP VERTICAL IE: 340.12 (6"SE)
INSIDE DROP VERTICAL IE: 340.02
EX SAN MH
RIM: 355.01
IE OUT: 345.76 (8"SW)
EX STM DI
TOP GRATE: 352.63
BOT. GRATE: 354.94
IE IN: 351.07 (12"E)
IE OUT: 352.61 (12"W TOP FLOW)
IE OUT: 350.79 (8"W)
SUMP: 348.23
EX STM MH
RIM: 353.61
IE IN: 350.63 (12")
IE OUT: 350.55 (12"W)
EX STM DI
TOP GRATE: 352.35
BOT. GRATE: 350.80
IE OUT: 349.20 (12"W)
SUMP: 345.42
EX STM CB
IE OUT: 350.48 (12"SE)
SUMP: 348.95
EX STM CB
RIM: 352.47
EX STM MH
RIM: 353.04
EX SAN MH
RIM: 344.74
IE IN: 331.28 (15"SE)
IE OUT: 331.20 (15"NE)
EX SAN MH
RIM: 344.90
IE IN: 339.03 (12"NE)
IE OUT: 338.72 (12"NW)
EX STM CI
RIM: 344.80
IE OUT: 339.46 (10"N)
SUMP: 338.43
EX SAN MH
RIM: 345.04
IE IN: 336.95 (12"NW)
IE OUT: 336.85 (12"NE)
EX SAN MH
RIM: 346.37
IE IN: 335.65 (8"SW)
IE OUT: 335.48 (8"NW)
EX SAN MH
RIM: 345.70
IE IN: 336.50 (4"SW)
IE OUT: 336.37 (8"NE)
EX 12" PVC CULVERT
IE: 344.34
EX 12" PVC CULVERT
IE: 341.54
EX CONCRETE CULVERT
IE: 341.07
EX 24" HDPE CULVERT
IE: 341.04
EX STM AD
RIM: 349.33
IE IN: 347.77 (6"NE)
EX STM AD
RIM: 348.36
347.34 (4"S)
EX SAN MH
RIM: 344.31
IE OUT: 333.06 (15"NW)
EX 8" PVC CULVERT
IE: 342.44
EX STM AD
RIM: 343.92
IE OUT: 342.43 (8"SW)
EX 8" PVC CULVERT
IE: 341.88
EX 8" CONC CULVERT
IE: 344.14
EX 6" PVC CULVERT
IE: 344
EX 15" PVC CULVERT
IE: 346
VERTICAL 6" PVC
IE: 345
EX STM MH
RIM: 350.05
IE IN: 345.85 (6"SE)
IE IN: 345.69 (6"SW)
IE OUT: 345.53 (12"NE)
EX SAN MH
RIM: 350.85
IE IN: 346.54 (6"NE)
IE IN: 346.47 (8"SE)
EX STM AD
RIM: 350.94
IE OUT: 350.04 (6"SW)
SUMP: 348.90
EX STM AD
RIM: 350.90
IE IN: 348.68 (6"NE)
IE OUT: 348.64 (6"SW)
SUMP: 348.35
EX STM AD
RIM: 350.32
IE IN: 349.77 (4"NE)
IE OUT: 349.72 (4"SW)
SUMP: 348.80
EX STM CO
EX STM CB
RIM: 353.38
IE OUT: 351.28 (12"SW)
SUMP: 349.63
EX STM AD
RIM: 351.36
IE OUT: 350.62 (4"NE)
SUMP: 350.42
EX STM CO
EX STM CB
EX STM MH
RIM: 350.40
IE IN: 350.44 (12"NE)
IE OUT: 350.43 (12"SW)
SUMP: 348.95
EX STM CB
IE OUT: 350.48 (12"SE)
SUMP: 348.95
EX STM CB
RIM: 352.47
EX STM MH
RIM: 353.04
EX STM MH
RIM: 353.65
IE IN: 346.54 (6"NE)
IE IN: 346.47 (8"SE)
EX SAN MH
RIM: 350.85

plotted: May 21, 2025 - 2:56pm
sheet size: 30" x 42"

GRADING LEGEND

290 / 289	EXISTING CONTOUR
290 / 289	PROPOSED CONTOUR
	DRAINAGE ARROW
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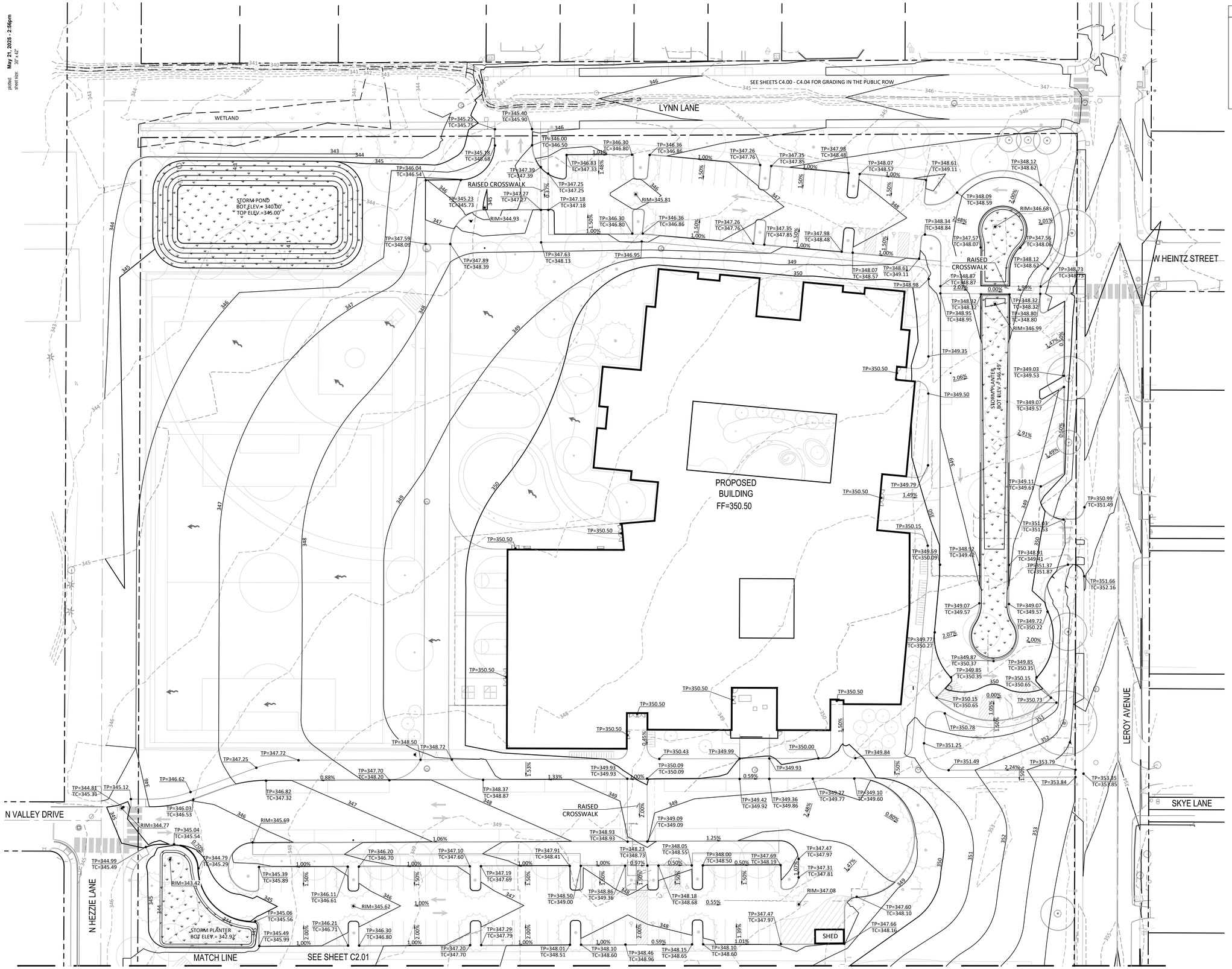
TP=XXX.XX	TOP OF PAVEMENT
FG=XXX.XX	FINISHED GROUND
RIM=XXX.XX	TOP OF MANHOLE



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0 30 60

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Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

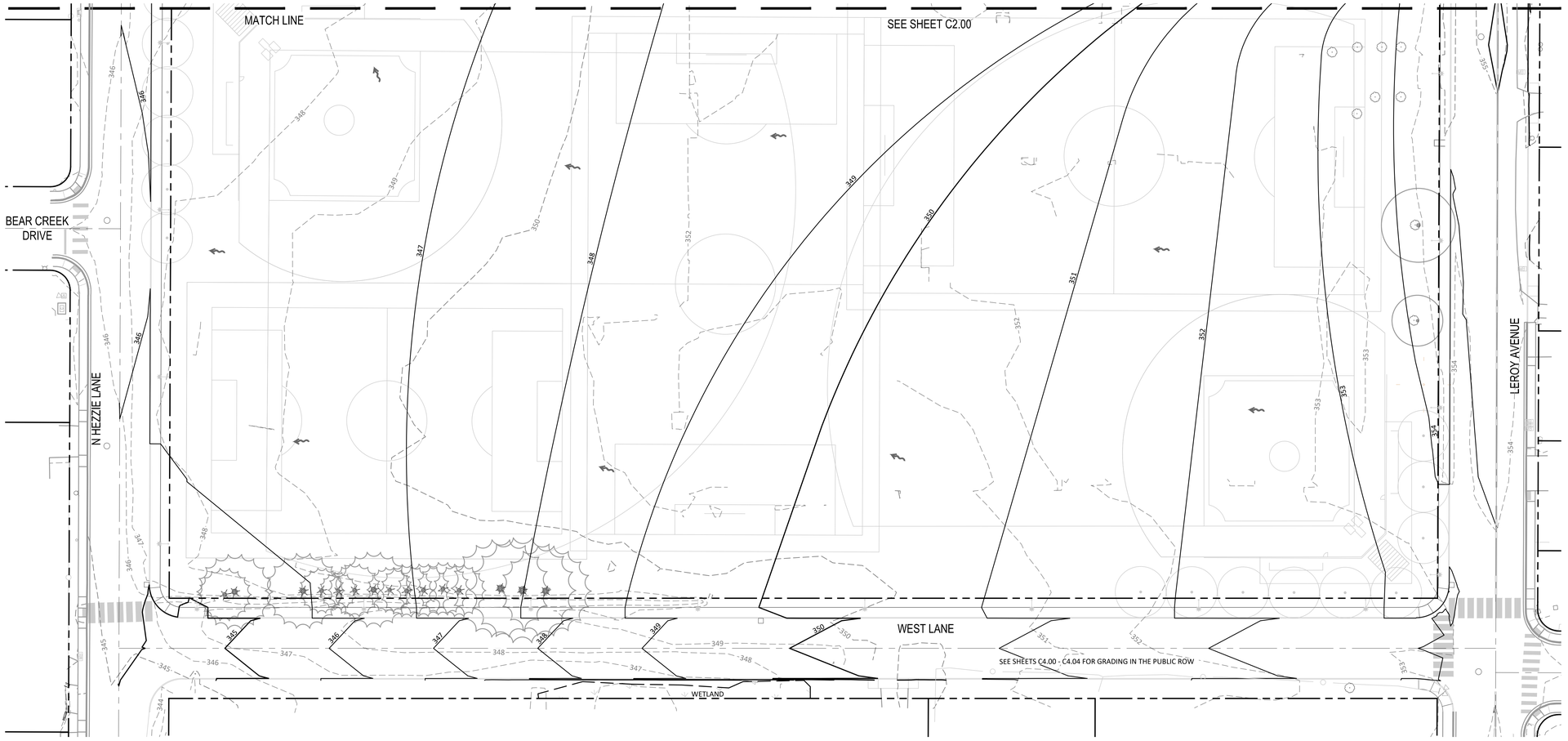
Date: **05/21/2025**

Sheet Title
GRADING PLAN - NORTH

Sheet No.
C2.00

Job No.
4924-01

plotted: May 21, 2025 - 2:56pm
sheet size: 30" x 42"



GRADING LEGEND

290 / 289	EXISTING CONTOUR
290 / 289	PROPOSED CONTOUR
	DRAINAGE ARROW
TC=XXX.XX	TOP OF CURB
TP=XXX.XX	TOP OF PAVEMENT
FG=XXX.XX	FINISHED GROUND

N

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60

611

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Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

Date: **05/21/2025**

Sheet Title
GRADING PLAN - SOUTH

Sheet No.
C2.01

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

PROPOSED LEZA ESTATES SUBDIVISION
LOCATION OF OUTFALLS TO BE COORDINATED WITH ADJACENT SUBDIVISION

OUTFALL TO NEW STORM DRAIN LINE
IE=339.50

OUTFALL TO NEW STORM DRAIN LINE

SAN AND STORM CROSSING
SAN IE (15"): 332.92
STORM IE (18"): 339.61

SD CB 2
RIM=345.28
8" OUT (S)=343.09

SAN AND STORM CROSSING
SAN IE (15"): 332.68
STORM IE (8"): 343.03

SD MH 3

SEE SHEETS C4.00 - C4.04 FOR UTILITIES IN THE PUBLIC ROW

24" PVC SD

SD MH 1

STORM AND STORM CROSSING
STORM IE (8"): 343.00
STORM IE (24"): 340.22

33-LF 8" C900 SD
S=0.0050

24" RCP SD

LYNN LANE

24" PVC SD

SD FILTER CB 17

SD FILTER CB 18

EX. WATER SERVICE
TO BE ABANDONED OR
USED FOR IRRIGATION
INSTALL BACKFLOW

EX. SS MH
RIM=349.78
8" IN (SE)=337.62
8" IN (SW)=337.53
8" OUT (NE)=337.46

W HEINTZ STREET

SD FILTER CB 20

EX. SD MH

EX. FIRE HYDRANT

SD FLOW CONTROL MH
RIM=345.75
18" IN (S)=340.00
18" OUT (N)=340.00

80-LF 18" PVC SD
S=0.0063

WETLAND

12-LF 18" PVC SD
S=0.0000

SD DI
RIM=344.00
18" OUT (N)=340.00

EMERGENCY
OVERFLOW
SPILLWAY

0.5'

WETPOND
BTM AREA = (6,090 SF)

BTM ELEV = 340.00

136.0'

TOP ELEV = 345.00

OUTFALL
IE=340.17'

BERM
ELEV=340.66

OUTFALL
IE=340.17'

S=0.0104
73-LF 18" PVC SD

S=0.0050
134-LF 12" PVC SD

SD CB 1
RIM=345.21
8" IN (N)=342.92
12" OUT (W)=340.84

SD WQ MH
RIM=347.63
12" IN (S)=341.03
12" IN (E)=341.03
18" OUT (W)=340.93

10.02'

FIRE
HYDRANT

SD CB 3
RIM=344.93
6" OUT (S)=341.59

SD CO 1
RIM=347.75
12" IN (E)=341.26
6" IN (N)=341.26
12" OUT (W)=341.26

SD CB 4
12" OUT=342.57

SD MH 8
RIM=347.79
12" IN (E)=342.08
6" IN (S)=344.55
12" IN (N)=342.08
12" OUT (W)=341.98

SD CO 2
RIM=348.73
12" IN (E)=342.66
6" IN (S)=342.66
12" OUT (W)=342.66

SD CO 3
RIM=349.46
12" IN (E)=343.08
6" IN (S)=343.08
12" OUT (W)=343.08

17-LF 12" PVC SD
S=0.0202

SD CO 4
RIM=349.05
6" IN (S)=343.20
12" OUT (W)=343.42

SD MH 2
RIM=347.34
8" IN (S)=341.27
24" IN (E)=341.27
24" OUT (W)=341.17

105-LF 8" PVC SD
S=0.0100

SD CB 9
RIM=346.68
8" IN (S)=342.32
8" OUT (N)=342.32

83-LF 8" PERF SD
S=0.0100

SD CB 8
RIM=346.99
4" IN (S)=342.95
8" OUT (N)=342.95

SS CO
RIM=348.62
4" IN (W)=346.78
4" OUT (S)=346.78

36-LF 4" PVC SS
S=0.0200

SAN AND STORM CROSSING
SAN IE (4"): 347.33
STORM IE (6"): 345.70

282-LF 4" PERF SD
S=0.0050

STORM PLANTER 1
BTM AREA = (6,255 SF)

256-LF 4" PVC SS
S=0.0200

403 LF 6" F

SD MH 7
RIM=350.92
8" IN (N)=345.53
8" OUT (W)=345.43

SD MH 4
RIM=349.23
12" IN (S)=342.16
12" IN (E)=342.16
12" OUT (E)=342.25
12" OUT (N)=342.06

SD CB 6
RIM=350.20
12" IN (E)=344.23
6" IN (N)=344.23
12" OUT (W)=344.23

SD MH 5
RIM=348.47
8" IN (SW)=343.34
12" IN (E)=343.34
12" OUT (N)=343.24

SD CO 11
RIM=346.46
8" IN (W)=344.17
8" IN (S)=344.17
8" OUT (NE)=344.17

SD CB 12
RIM=347.18
8" OUT (E)=344.99

82-LF 8" PVC SD
S=0.0100

53-LF 8" PVC SD
S=0.0100

SD CB 13
RIM=346.90
8" OUT (N)=344.71

SD CB 5
RIM=343.42
6" OUT (NW)=339.81

SD CB 14

178-LF 6" PVC SD
S=0.0100

N VALLEY DRIVE

N HEZZIE LANE

STORM
PLANTER 2
BTM AREA =
(2,250 SF)

MATCH LINE

SEE SHEET C3.01

PROPOSED
BUILDING
FF=350.50

BUILDING OVERHANG

SD CO 8
RIM=350.41
6" IN (W)=346.18
8" OUT (S)=346.18

SD CO 10

SD CO 9
6" STORM DRAIN
CONNECTION TO
BUILDING

SD CO 5
RIM=349.53
12" IN (S)=342.98
6" IN (E)=342.98
12" OUT (N)=342.98

01
C3.01

SS MH 2
RIM=349.98
4" IN (N)=341.67
4" IN (W)=341.67
6" OUT (E)=341.47

SS MH 1
RIM=353.06
6" IN (W)=339.08
EX. 8" IN (S)=338.88
EX. 8" OUT (N)=338.88

119-LF 6" PVC SS
S=0.0200

SAN AND STORM CROSSING
SAN IE (4"): 343.66
STORM IE (8"): 346.18

4" WATER
METER VAULT

277 LF 4" W (PRIVATE)

TELECOM

EX. GAS SERVICE
TO BE REUSED.
COORDINATE
WITH NNW.

FIRE
HYDRANT

EX. SS MH
RIM=353.61
10" IN (NW)=342.52
8" IN (NW)=339.23
8" IN (SW)=339.21
8" OUT (NE)=339.11
6" INSIDE DROP (SE)=345.12
INSIDE DROP VERTICAL=340.02

SKYE LANE

LEROY AVENUE

SD CO 6
RIM=350.20
12" IN (E)=344.23
6" IN (N)=344.23
12" OUT (W)=344.23

SD MH 6
RIM=349.82
8" IN (E)=344.77
6" IN (N)=344.77
8" IN (S)=344.77
12" OUT (W)=344.67

115-LF 8" PVC SD

SD CB 7
RIM=347.54
8" OUT (N)=345.35

POWER

146 LF 4" W (PRIVATE)

SHED

PGE SWITCH
VAULT (BY
OTHERS)

POWER

POWER

SD CB 10
RIM=348.62
4" IN (W)=346.78
4" OUT (S)=346.78

4" SANITARY CONNECTION
TO BUILDING
347.50' IE 4"

4" PERF FOUNDATION DRAIN, TYP.
CONNECT TO ROOF DRAIN WITH
BACKFLOW PREVENTOR

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 12"

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 6"

6" STORM DRAIN
CONNECTION TO
BUILDING
347.00' IE 6"

7-LF 6" PVC SD

129-LF 8" PVC SD
S=0.0050

186-LF 12" PVC SD

165-LF 12" PVC SD
S=0.0050

424 LF 6" F

206-LF 12" PVC SD
S=0.0050

393-LF 6" PVC SD

85-LF 6" PVC SD

51-LF 12" PVC SD
S=0.0050

20 LF 6" F

557 LF 6" F

S=0.0050
178-LF 12" PVC SD

S=0.0050
143-LF 12" PVC SD

S=0.0050
47-LF 12" PVC SD

180 LF 6" F

S=0.0050
117-LF 12" PVC SD

246 LF 6" F

S=0.0050
83-LF 12" PVC SD

81-LF 6" PVC SD

65 LF 6" F

16-LF 6" PVC SD

47-LF 6" PVC SD

19-LF 6" PVC SD

26-LF 6" PVC SD

38-LF 6" PVC SD

10-LF 6" PVC SD

10-LF 6" PVC SD
346.00' IE 6" DS

12-LF 6" PVC SD

65-LF 6" PVC SD

28-LF 6" PVC SD

16-LF 6" PVC SD

347.00' IE 6" DS

347.00' IE 6" DS
31-LF 6" PVC SD

347.00' IE 6" DS
16-LF 6" PVC SD

347.00' IE 6" DS
17-LF 6" PVC SD

347.00' IE 6" DS
345.56' IE 6" DS

346.00' IE 6" DS

347.00' IE 6" DS

347.00' IE 6" DS

347

plotted: May 21, 2025 - 3:59pm
sheet size: 30" x 42"

MATCH LINE

SEE SHEET C3.00

BEAR CREEK DRIVE

N HEZZIE LANE

LEROY AVENUE

EX. FIRE HYDRANT

EX. FIRE HYDRANT

EX. 3" WATER SERVICE
TO BE USED FOR IRRIGATION
INSTALL BACKFLOW

EX. FIRE HYDRANT

SD CB 10

SD CB 11

SD FILTER CB 16

EX. SD MH

EX. FIRE HYDRANT

SD MH 9

WEST LANE

SEE SHEET C4.00 - C4.04 FOR UTILITIES IN THE PUBLIC ROW

18" RCP SD

SD MH 10

SD FILTER CB 15

SD FILTER CB 19

18" RCP SD

WETLAND

EX. CULVERT

SD OUTFALL

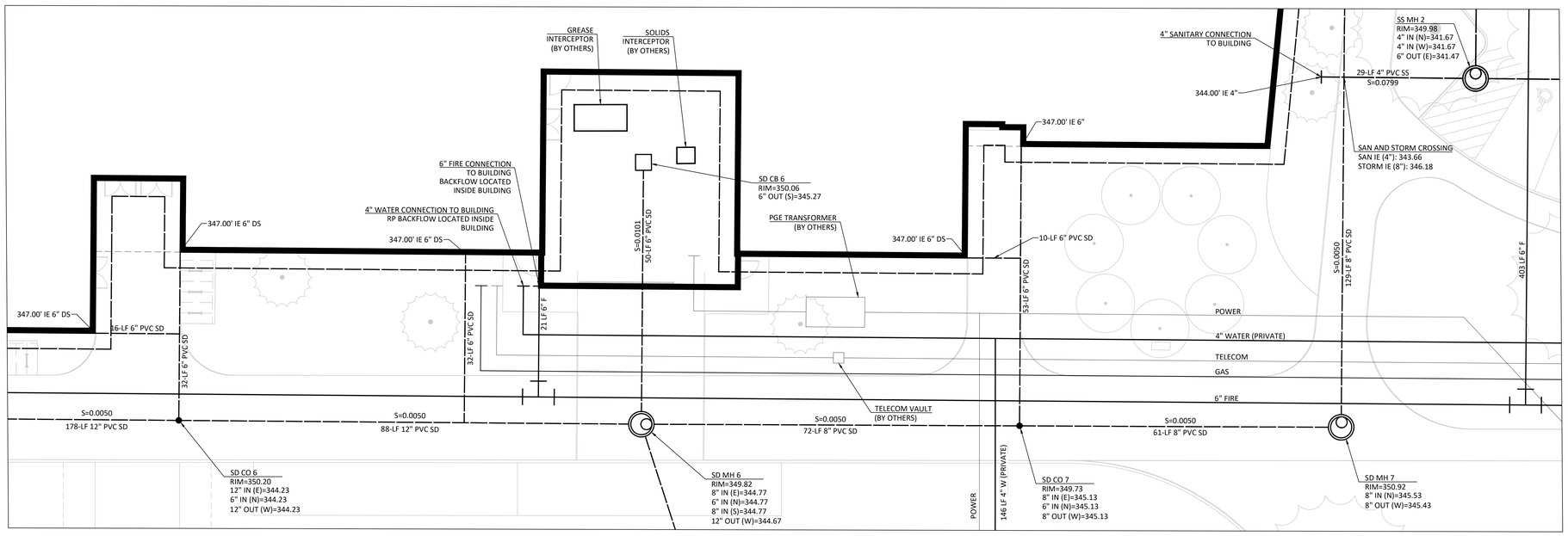
SD OUTFALL

24" SD

EX. CULVERT

N

SCALE: 1" = 30'
SHEET SIZE: 30X42
0 30 60



1 BUILDING UTILITY CONNECTIONS ENLARGED PLAN
SCALE:1"=10'

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Project Owner:
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Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

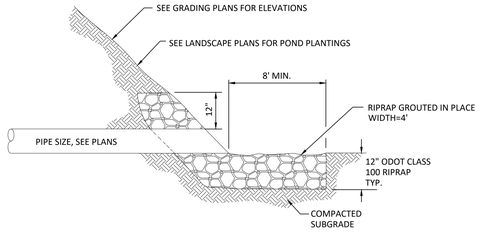
Date: **05/21/2025**

Sheet Title
UTILITY PLAN - SOUTH

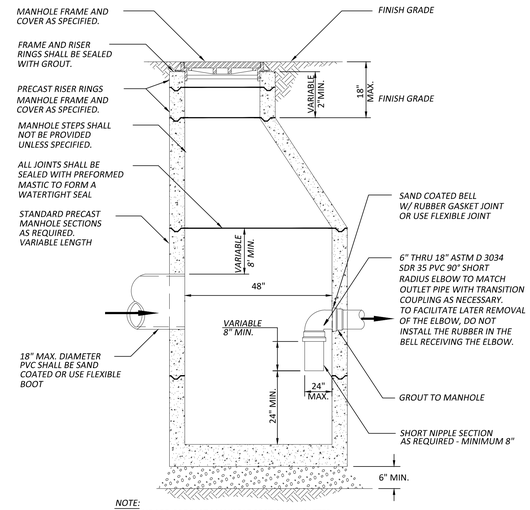
Sheet No.
C3.01

Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"

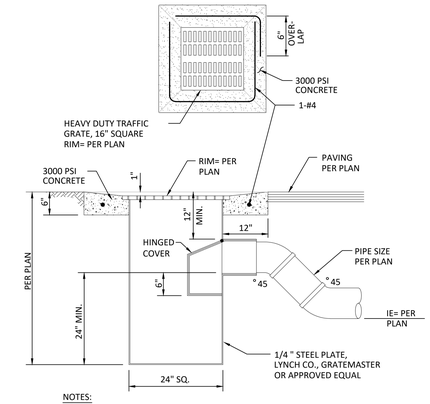


11 STORM OUTFALL
SCALE: NTS



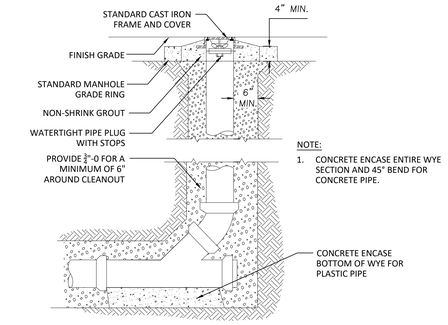
NOTE:
1. STANDARD PRECAST MANHOLE SECTION DIAMETER MAY BE 42" IF DIRECTED BY ENGINEER.
2. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C 478.
3. ALL CONNECTING PIPE SHALL HAVE A FLEXIBLE JOINT WITHIN 18" OF MANHOLE WALL.

10 WATER QAULITY MANHOLE
SCALE: NTS



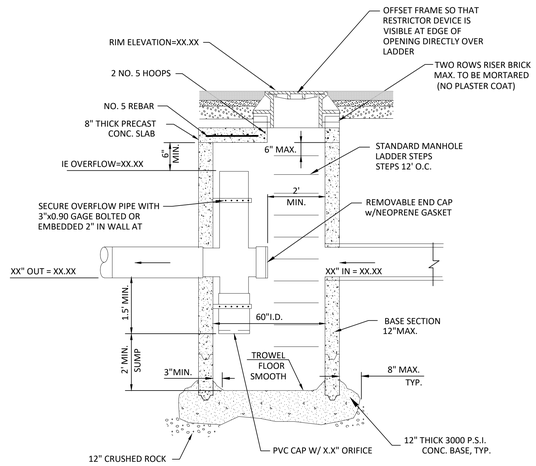
NOTES:
1. ALL STEEL WELDED CONSTRUCTION.
2. COATED INSIDE AND OUT WITH ASPHALTUM PAINT.
3. TRAP TO INCLUDE CLEANOUT.

8 TRAPPED CATCH BASIN
SCALE: NTS

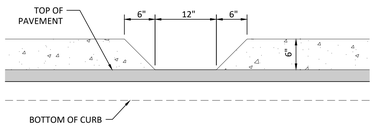


NOTE:
1. CONCRETE ENCASE ENTIRE WYE SECTION AND 45° BEND FOR CONCRETE PIPE.

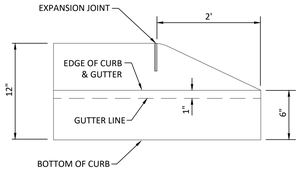
7 CLEAN OUT
SCALE: NTS



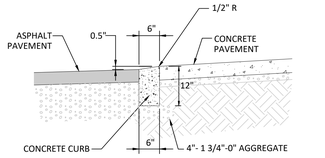
6 FLOW CONTROL MANHOLE
NTS



5 CURB OPENING
SCALE: NTS

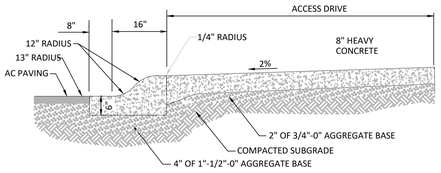


4 CURB TAPER
NTS

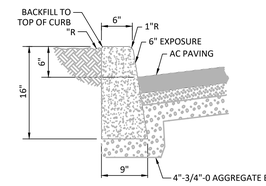


NOTES:
1. SET ADJACENT SURFACES FLUSH WITH CURB.
2. CONCRETE SHALL ATTAIN 3000 PSI COMPRESSION STRENGTH IN 28 DAYS.
3. CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL POINTS OF CURVATURE AND AT MAXIMUM INTERVALS OF 15 FEET.

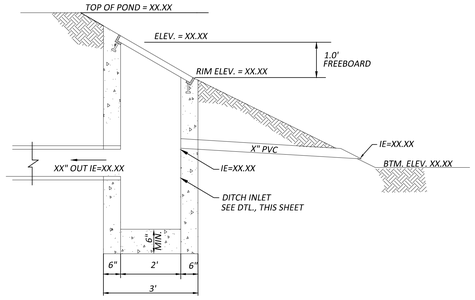
3 FLUSH CURB
NTS



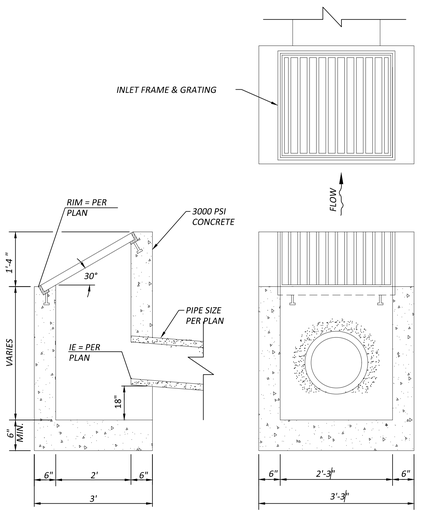
2 ROLLED CURB
SCALE: NTS



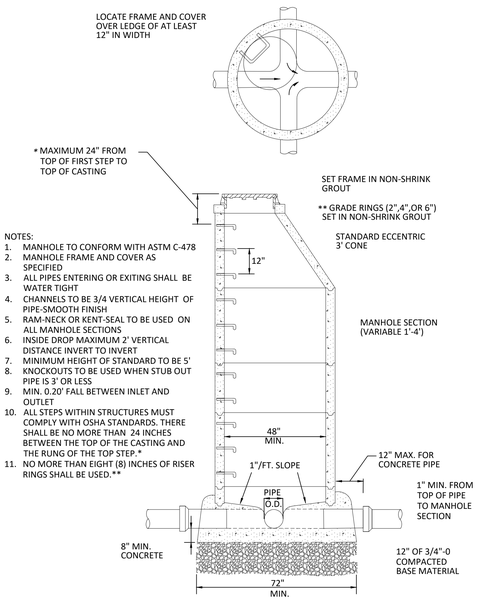
1 STANDARD CONCRETE CURB
SCALE: NTS



13 DITCH INLET - PIPE OUTFALL
SCALE: NTS



12 DITCH INLET
SCALE: NTS



NOTES:
1. MANHOLE TO CONFORM WITH ASTM C-478
2. MANHOLE FRAME AND COVER AS SPECIFIED
3. ALL PIPES ENTERING OR EXITING SHALL BE WATER TIGHT
4. CHANNELS TO BE 3/4 VERTICAL HEIGHT OF PIPE-SMOOTH FINISH
5. RAM-NECK OR KENT-SEAL TO BE USED ON ALL MANHOLE SECTIONS
6. INSIDE DROP MAXIMUM 2' VERTICAL DISTANCE INVERT TO INVERT
7. MINIMUM HEIGHT OF STANDARD TO BE 5'
8. KNOCKOUTS TO BE USED WHEN STUB OUT PIPE IS 3' OR LESS
9. MIN. 0.20' FALL BETWEEN INLET AND OUTLET
10. ALL STEPS WITHIN STRUCTURES MUST COMPLY WITH OSHA STANDARDS. THERE SHALL BE NO MORE THAN 24 INCHES BETWEEN THE TOP OF THE CASTING AND THE RUNG OF THE TOP STEP.*
11. NO MORE THAN EIGHT (8) INCHES OF RISER RINGS SHALL BE USED.**

9 STANDARD MANHOLE
SCALE: NTS

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

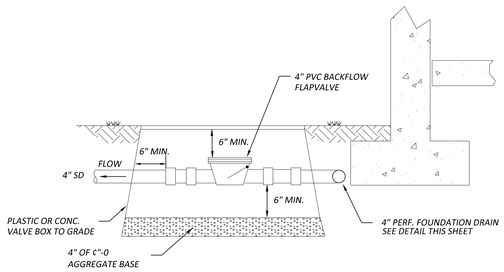
Date: **05/21/2025**

Sheet Title
PRIVATE SITE & UTILITY DETAILS

Sheet No.
C5.00

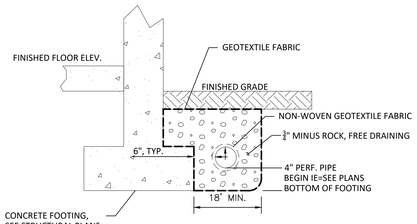
Job No.
4924-01

plotted: May 21, 2025 - 3:51pm
sheet size: 30" x 42"



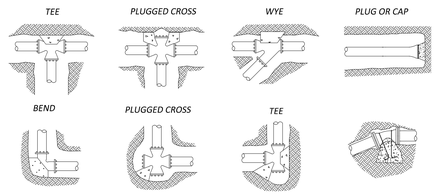
NOTE:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING OF UTILITY VAULTS TO ACCOMMODATE THE VALVE EQUIPMENT THE CONTRACTOR SELECTS. VAULT SIZE AS NOTED FOR REFERENCE ONLY AND IS NOT GUARANTEED TO MEET REQUIREMENTS.

5 BACKWATER VAULT
SCALE: NTS



NOTES:
1. FOUNDATION DRAINAGE MAY BE INSTALLED FLAT TO FOLLOW GRADE OF FOOTING.
2. CONNECT FOUNDATION DRAINAGE TO SOLID PIPE. INSTALL CLEAN CHECK BACKFLOW PREVENTOR PRIOR TO CONNECTION.

4 FOUNDATION DRAIN
SCALE: NTS



CONCRETE THRUST BLOCK SCHEDULE
(BEARING AREA OF THRUST BLOCKS IN SQUARE FEET)

FITTING SIZE (INCHES)	TEE, WYE, PLUG OR CAP	90° BEND OR PLUGGED CROSS	TEE PLUGGED ON RUN BEND A1	TEE PLUGGED ON RUN BEND A2	45° BEND	22 1/2° BEND	11 1/4° BEND
04	1.3	1.9	2.5	1.9	1.3	-	-
06	2.8	4.0	5.7	4.0	2.1	1.3	-
08	5.1	7.1	10.1	7.1	3.9	2.0	1.3
10	7.9	11.2	15.7	11.2	6.1	3.2	1.6
12	11.3	16.0	22.7	16.0	8.8	4.5	2.3
14	15.3	21.7	30.7	21.7	11.9	6.1	3.1
16	20.0	28.4	40.0	28.4	15.5	8.0	4.0
18	25.3	36.0	50.7	36.0	19.5	10.1	5.1
20	31.3	44.4	62.7	44.4	24.1	12.5	6.3
24	45.3	64.0	90.7	64.0	34.9	18.1	9.1

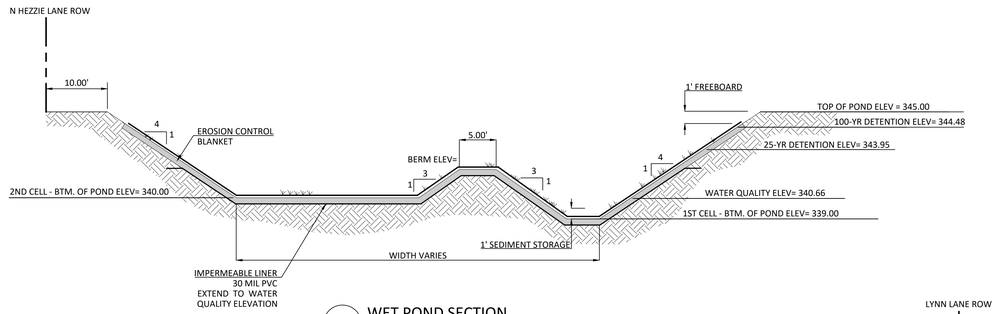
VERTICAL VOLUME OF THRUST BLOCK IN CUBIC YARDS			
FITTING SIZE	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1.1	0.4	0.2
6"	2.7	1.0	0.4
8"	4.0	1.5	0.6
12"	8.5	3.2	1.3
16"	14.8	5.6	2.3

VERTICAL BEND		
FITTING SIZE	ROD SIZE	EMBEDMENT BEND
4"-12"	#6	30
14"-16"	#8	36

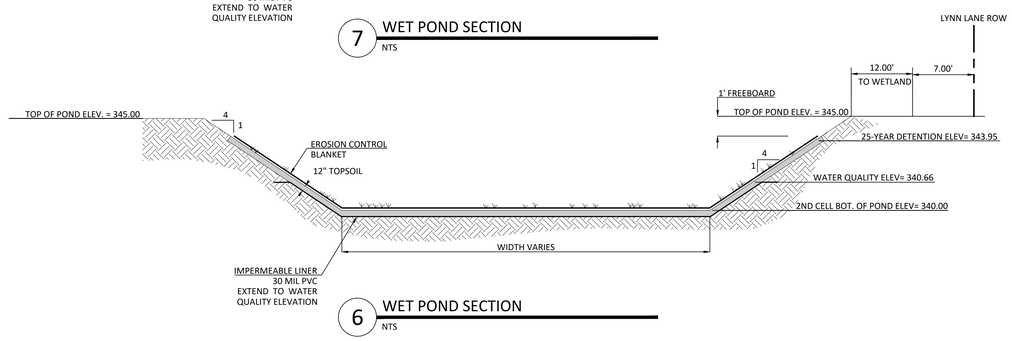
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRENGTH OF 1500 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
BEARING AREA = (TEST PRESSURE/150) x (1500/SOIL BEARING STRESS) x (TABLE VALUE)

NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLANS: E.G. 15 INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL. BEARING AREA OF THRUST BLOCKS IS IN SQUARE FEET.
6. VERTICAL CHANGES IN DIRECTION REQUIRE SPECIFIC DESIGNS FOR THRUST BLOCKS.

3 THRUST BLOCK
SCALE: NTS



7 WET POND SECTION
NTS



6 WET POND SECTION
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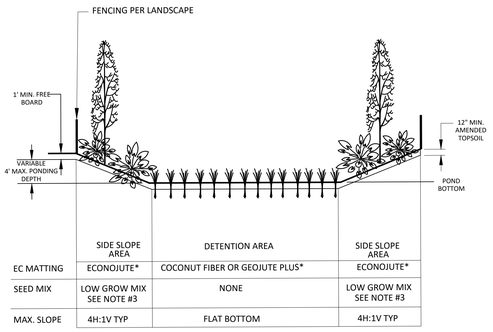
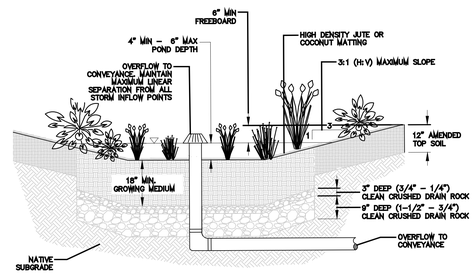


	SIDE SLOPE AREA	DETENTION AREA	SIDE SLOPE AREA
EC MATTING	ECONOJUTE*	COCONUT FIBER OR GEOJUTE PLUS*	ECONOJUTE*
SEED MIX	LOW GROW MIX SEE NOTE #3	NONE	LOW GROW MIX SEE NOTE #3
MAX. SLOPE	4H:1V TYP	FLAT BOTTOM	4H:1V TYP

* OR AS APPROVED

NOTES:
1. JUTE MATTING- GEOJUTE PLUS IN DETENTION AREA, ECONOJUTE FOR ALL OTHER AREAS, OR SIMILIAR FABRICS. COCONUT FIBER IS ALSO ACCEPTABLE.
2. 12 INCHES OF AMENDED TOPSOIL SHALL BE PLACED THROUGHOUT THE WATER QUANTITY FACILITY.
3. SIDE SLOPE AREA SEED MIX, DWARF TALL FESCUE 40%, DWARF PERENNIAL RYE 30%, CREEPING RED FESCUE 25%, COLONIAL BENT GRASS 5%. APPLY AT A RATE OF 120# / ACRE.

1 WET POND
SCALE: NTS



NOTES:
1. PROVIDE OVERFLOW CONVEYANCE SYSTEM, OVERFLOW CONVEYANCE HEIGHT TO ALLOW 4" MINIMUM – 6" MAXIMUM PONDING, PIPING TO A MINIMUM OF THE PLUMBING CODE OR CONVEY THE 25 YEAR STORM.
2. IF USING THE NATIVE SOIL INFILTRATION FOR SIZING, THE RATE SHALL BE DETERMINED BY ASTM STANDARD TESTING METHODS.
3. FLOW DISSIPATERS SHOULD BE USED IF ENTRY SLOPE TO THE BASIN IS GREATER THAN 3:1. FLOW DISSIPATERS SHALL BE CONSTRUCTED OUT OF ROCK OR GRAVEL PER DESIGN FLOW VELOCITY AT ENTRY OF THE FACILITY.
4. TREATMENT AREA SHALL HAVE HIGH DENSITY JUTE OR COCONUT MATTING OVER 18" MINIMUM OF GROWING MEDIUM OR BASE STABILIZATION METHOD AS APPROVED BY THE CITY.

2 STORM PLANTER
SCALE: NTS

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

Date: **05/21/2025**

Sheet Title
PRIVATE UTILITY DETAILS

Sheet No.
C5.01

Job No.
4924-01

plotted: **May 21, 2025 - 3:51pm**
sheet size: 30" x 42"

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Revisions to Sheet

No.	Revision	Date

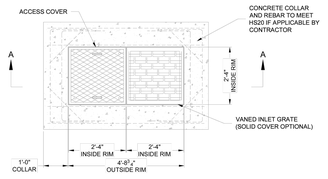
Status: **LAND-USE**

Date: **05/21/2025**

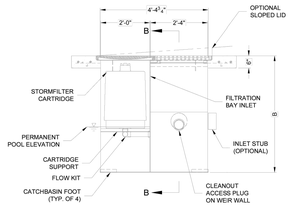
Sheet Title
PUBLIC STORM DETAILS

Sheet No.
C5.03

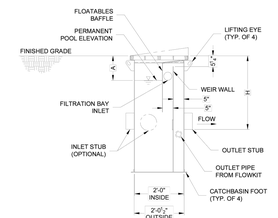
Job No.
4924-01



PLAN VIEW



SECTION A-A



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 1 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF ONE CARTRIDGE. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY		1.0			1.0			2.25	
INLET PERMANENT POOL LEVEL (A)		1'-0"			1'-0"			2'-0"	
OVERALL STRUCTURE HEIGHT (B)		4'-9"			3'-9"			4'-9"	

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB™ (PSORB) MEDIA ONLY

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

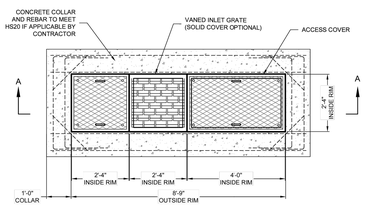
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

1-CARTRIDGE CATCHBASIN STORMFILTER DATA

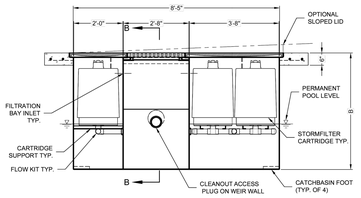
STRUCTURE ID		XXX
WATER QUALITY FLOW RATE (cfs)		X.XX
PEAK FLOW RATE (<1 cfs)		X.XX
RETURN PERIOD OF PEAK FLOW (yrs)		XXX
CARTRIDGE HEIGHT (27", 18", 18" DEEP)		XX
CARTRIDGE FLOW RATE (gpm)		XX
MEDIA TYPE (PERLITE, ZPG, PSORB)		XXXXX
RIM ELEVATION		XXX.XX
PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"
CONFIGURATION	OUTLET / INLET	OUTLET / INLET
SLOPED LID		YES/NO
SOLID COVER		YES/NO
NOTES/SPECIAL REQUIREMENTS:		

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-526-3999 513-645-7000 513-645-7993 FAX

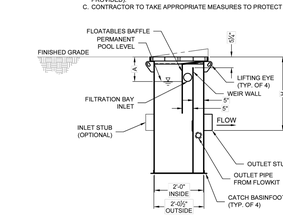
1 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL



PLAN VIEW



SECTION A-A



SECTION B-B

STORMFILTER STEEL CATCHBASIN DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 3 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF THREE CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY		1.0			1.0			2.25	
INLET PERMANENT POOL LEVEL (A)		1'-0"			1'-0"			2'-0"	
OVERALL STRUCTURE HEIGHT (B)		4'-9"			3'-9"			4'-9"	

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB™ (PSORB) MEDIA ONLY

GENERAL NOTES
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2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ANGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
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9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
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C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

3-CARTRIDGE CATCHBASIN STORMFILTER DATA

STRUCTURE ID		XXX
WATER QUALITY FLOW RATE (cfs)		X.XX
PEAK FLOW RATE (<1 cfs)		X.XX
RETURN PERIOD OF PEAK FLOW (yrs)		XXX
CARTRIDGE FLOW RATE (gpm)		XX
MEDIA TYPE (PERLITE, ZPG, PSORB)		XXXXX
RIM ELEVATION		XXX.XX
PIPE DATA:	I.E.	DIAMETER
INLET STUB	XXX.XX'	XX"
OUTLET STUB	XXX.XX'	XX"
CONFIGURATION	OUTLET / INLET	OUTLET / INLET
SLOPED LID		YES/NO
SOLID COVER		YES/NO
NOTES/SPECIAL REQUIREMENTS:		

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-526-3999 513-645-7000 513-645-7993 FAX

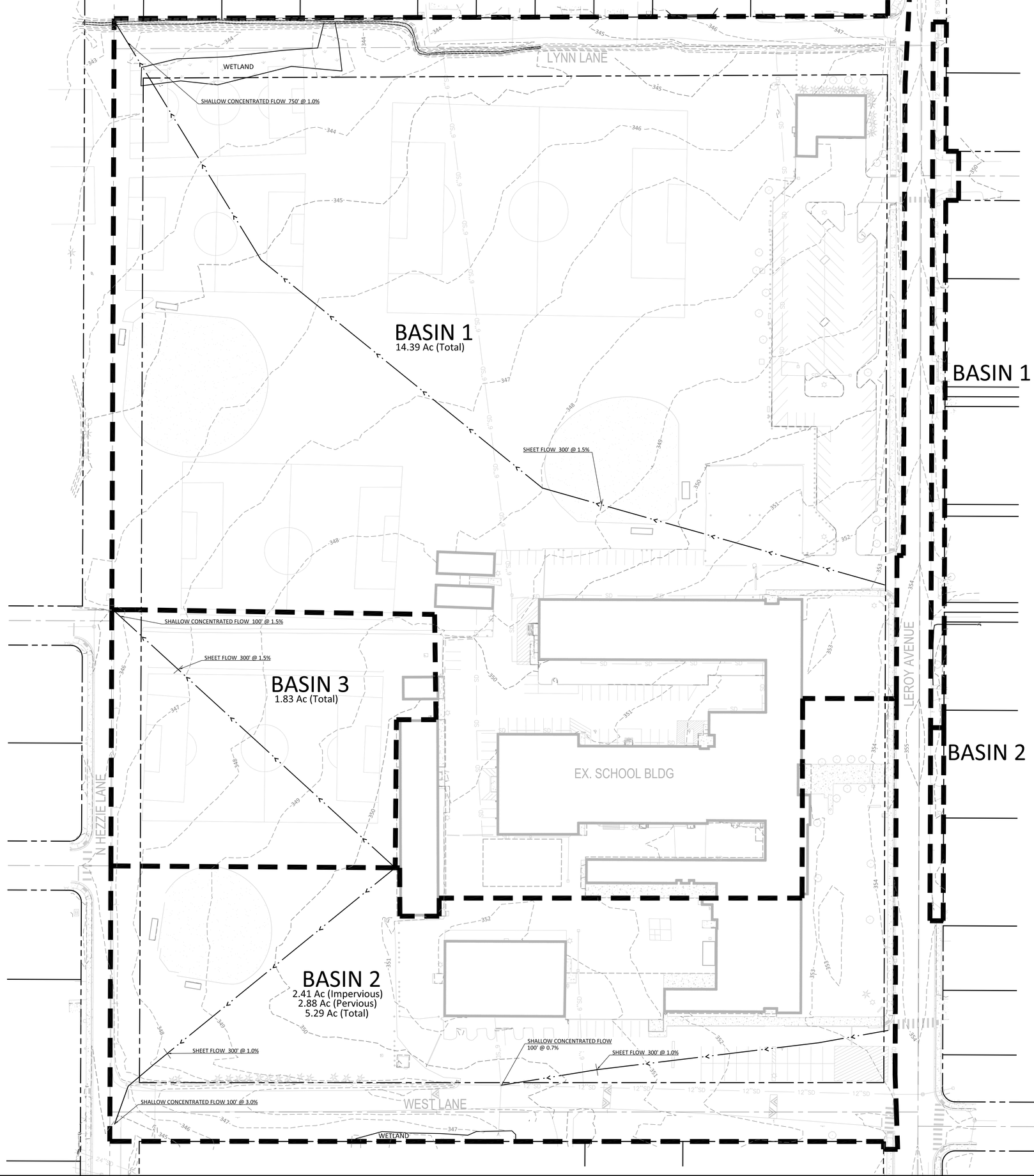
3 CARTRIDGE CATCHBASIN STORMFILTER STANDARD DETAIL

CONTECH STORMFILTER CATCH BASIN

CB. NO.	LOCATION	PROVIDED WQ FLOW (CFS)	REQUIRED WQ FLOW (CFS)	CARTRIDGE SIZE
14	HEZZIE/N VALLEY	0.03	0.03	(1) 18"
15	HEZZIE/WEST	0.10	0.09	(3) 18"
16	LEROY/WEST	0.03	0.02	(1) 18"
17	LEROY(E)/LYNN	0.03	0.01	(1) 18"
18	LEROY(W)/LYNN	0.05	0.04	(1) 27"
19	WEST	0.10	0.08	(3) 18"
20	LEROY/HEINTZ	0.03	0.02	(1) 18"

Appendix B: Basin Maps

plotted: May 21, 2025 - 10:14am
sheet size: 30" x 42"



opsis

Opsis Architecture LLP
975 SE Main St., Portland, OR 97214
503.525.9511 | info@opsisarch.com
opsisarch.com

NOT FOR CONSTRUCTION

Project Owner:
MOLALLA RIVER SCHOOL DISTRICT

Project Name:
MRSD MIDDLE SCHOOL REPLACEMENT

Project Adress:
318 LEROY AVE, MOLALLA, OR. 97038

Key Plan

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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

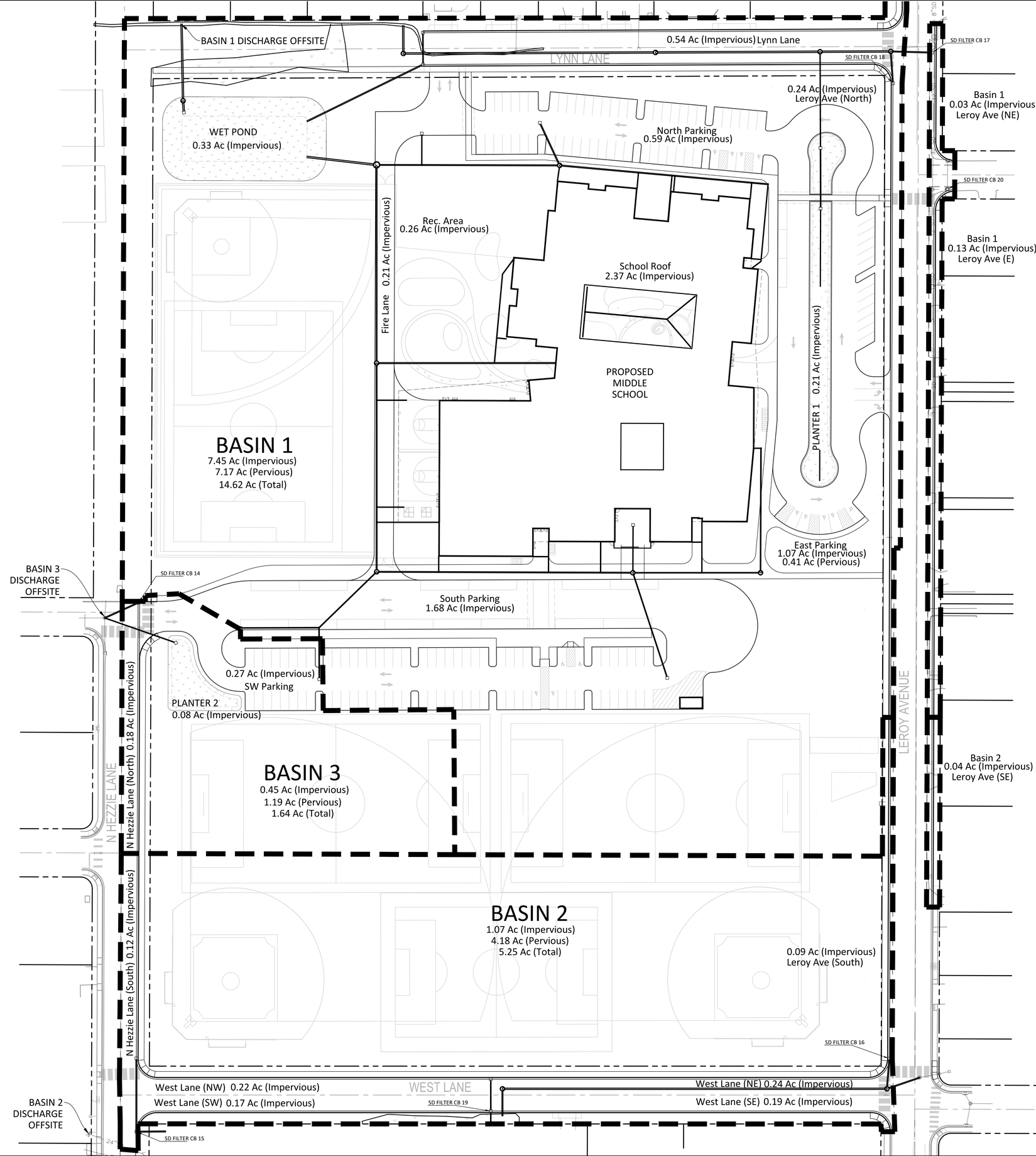
Date: **05/21/2025**

Sheet Title
PRE-DEV BASIN MAP

Sheet No.
1 OF 2

Job No.
4924-01

plotted: May 21, 2025 - 8:38am
sheet size: 30" x 42"



N

SCALE: 1" = 40'
SHEET SIZE: 30X42
0 40 80

619

opsis

Opsis Architecture LLP
975 SE Main St., Portland, OR 97214
503.525.9511 | info@opsisarch.com
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Revisions to Sheet

No.	Revision	Date

Status: **LAND-USE**

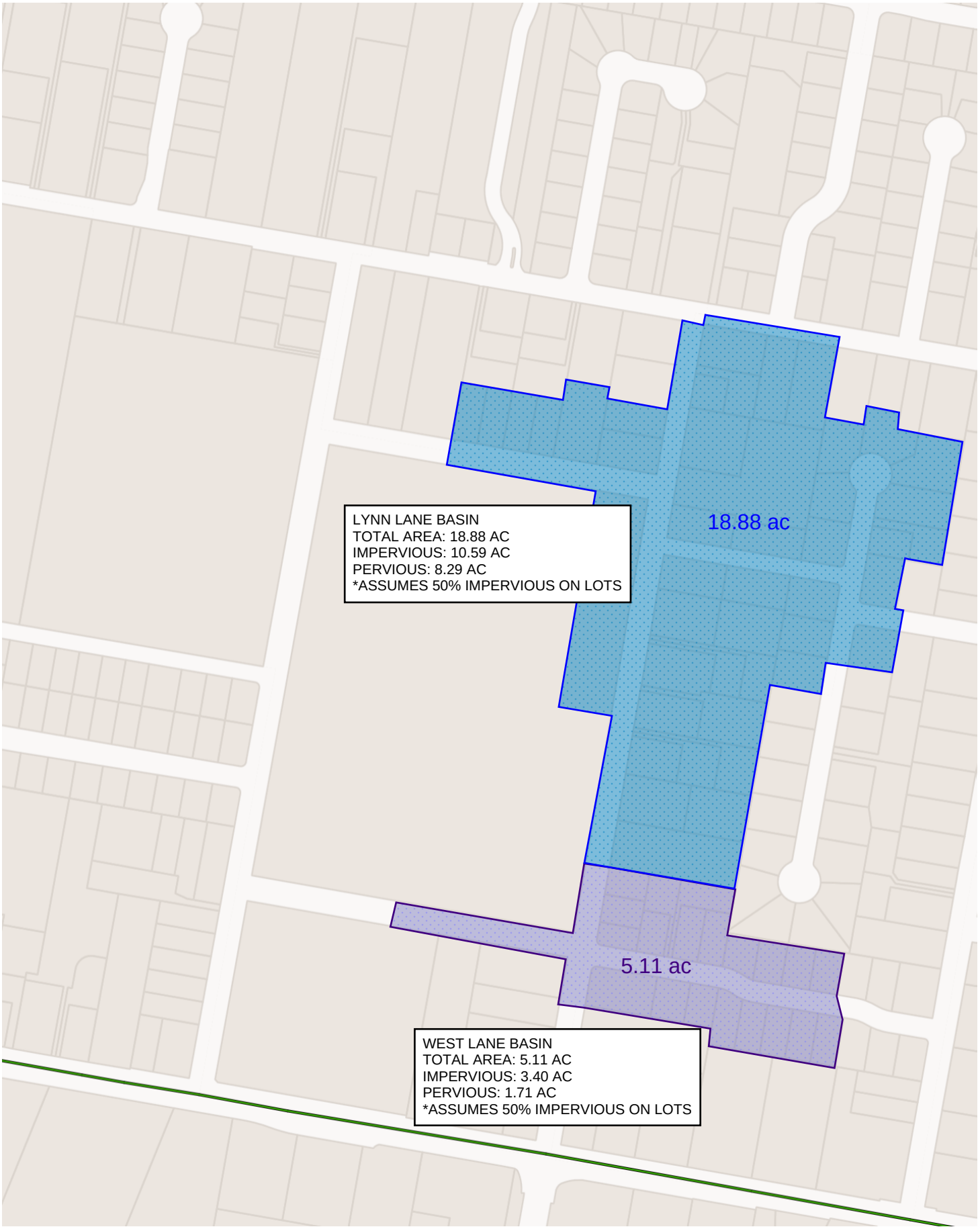
Date: **05/21/2025**

Sheet Title
POST-DEV BASIN MAP

Sheet No.
2 OF 2

Job No.
4924-01

PUBLIC STORM BASIN MAP



Imagery from Clackamas County GIS
Basins determined from Utility Map sent from City of Molalla

Appendix C: Soils Maps

Hydrologic Soil Group—Clackamas County Area, Oregon
(Molalla Middle School)

Map Scale: 1:2,350 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 21, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 26, 2022—Oct 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
29	Dayton silt loam	D	21.3	100.0%
Totals for Area of Interest			**21.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Historic Vegetation

Authoritative

OR FRAMEWORK
State of Oregon

Summary

This map was created to allow the comparison between the distribution of historical and current vegetation/land cover types in oregon.

View Full Details

Download

Details

Dataset
Feature Layer

September 26, 2024
Info Updated

June 27, 2023
Data Updated

June 1, 2023
Published Date

Records: 43,628
View data table

Public
Anyone can see this content

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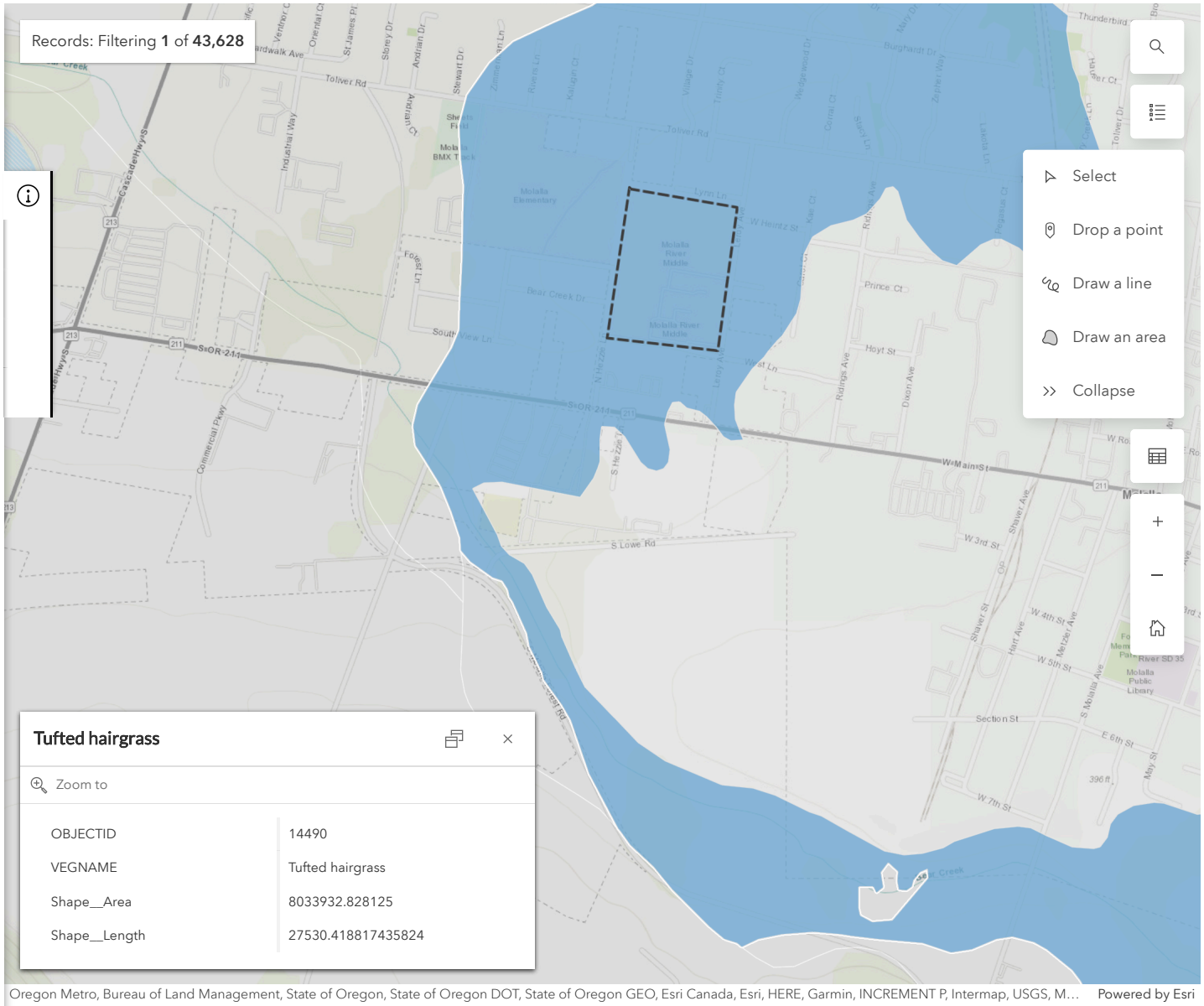
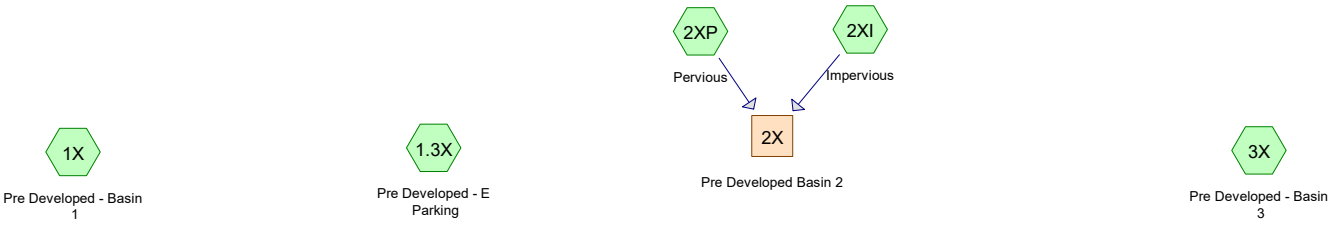


I want to use this

Appendix D: Pre-Development Calculations

PRE DEVELOPEMENT CALCUALTIONS



Subcat Reach Pond Link

Routing Diagram for 2025-05-16_Prelim Stormwater Facitlity Sizing
Prepared by Standridge Inc., Printed 5/21/2025
HydroCAD® 10.00-26 s/n 08941 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1.3X: Pre Developed - E Parking

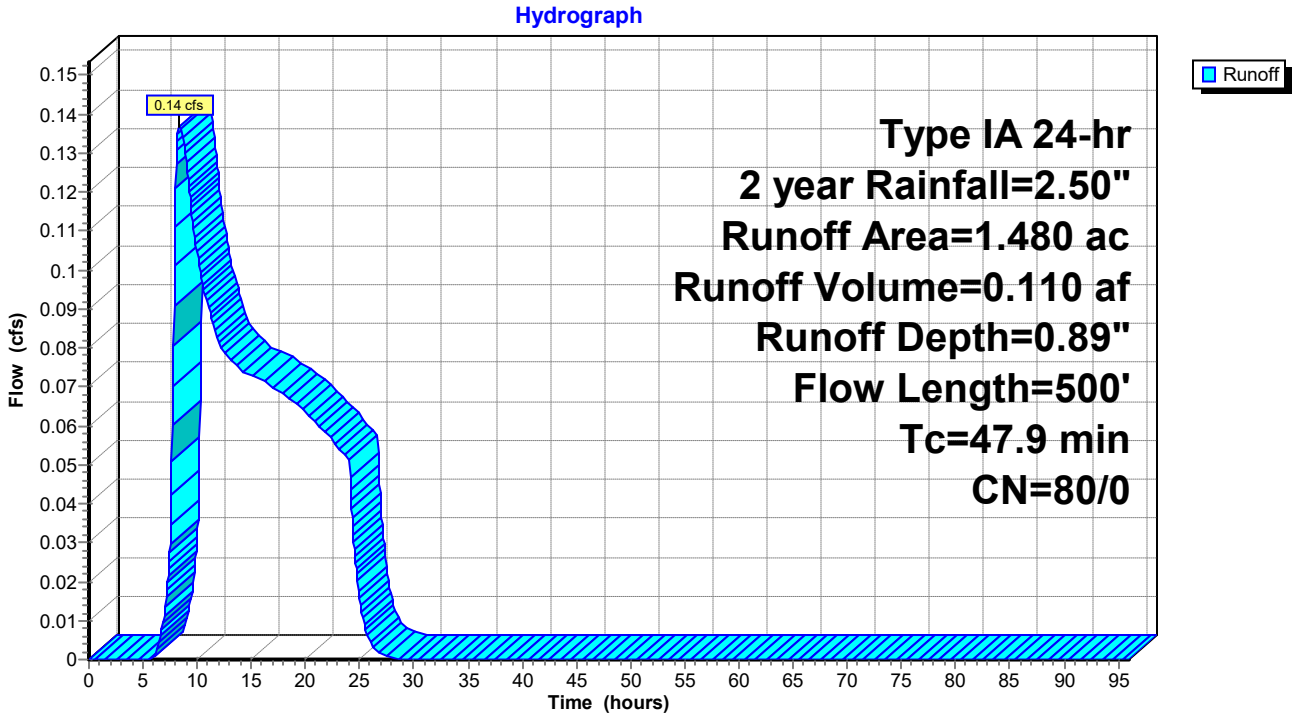
Runoff = 0.14 cfs @ 8.33 hrs, Volume= 0.110 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
1.480	80	Pasture/grassland/range, Good, HSG D
1.480	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
4.3	200	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
47.9	500	Total			

Subcatchment 1.3X: Pre Developed - E Parking



Summary for Subcatchment 1X: Pre Developed - Basin 1

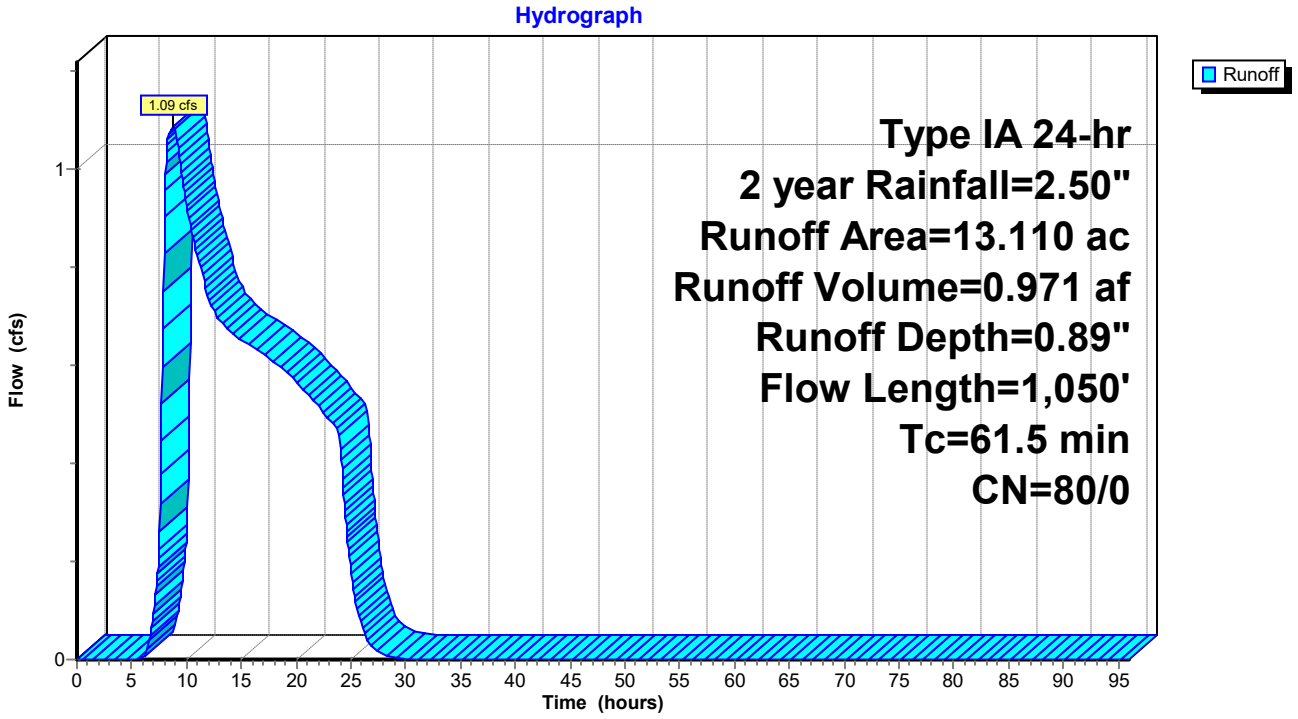
Runoff = 1.09 cfs @ 8.76 hrs, Volume= 0.971 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
13.110	80	Pasture/grassland/range, Good, HSG D
13.110	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
17.9	750	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
61.5	1,050	Total			

Subcatchment 1X: Pre Developed - Basin 1



Summary for Subcatchment 2XI: Impervious

[49] Hint: Tc<2dt may require smaller dt

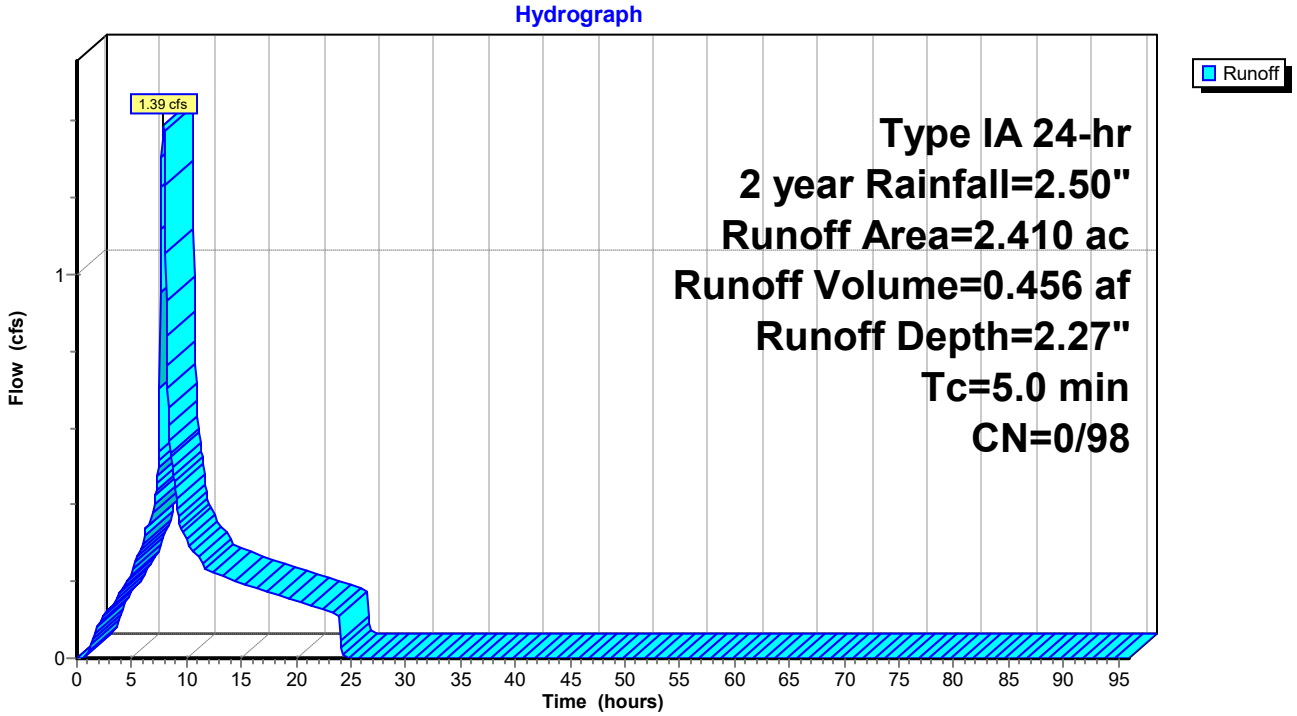
Runoff = 1.39 cfs @ 7.90 hrs, Volume= 0.456 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
2.410	98	Paved parking, HSG D
2.410	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2XI: Impervious



Summary for Subcatchment 2XP: Pervious

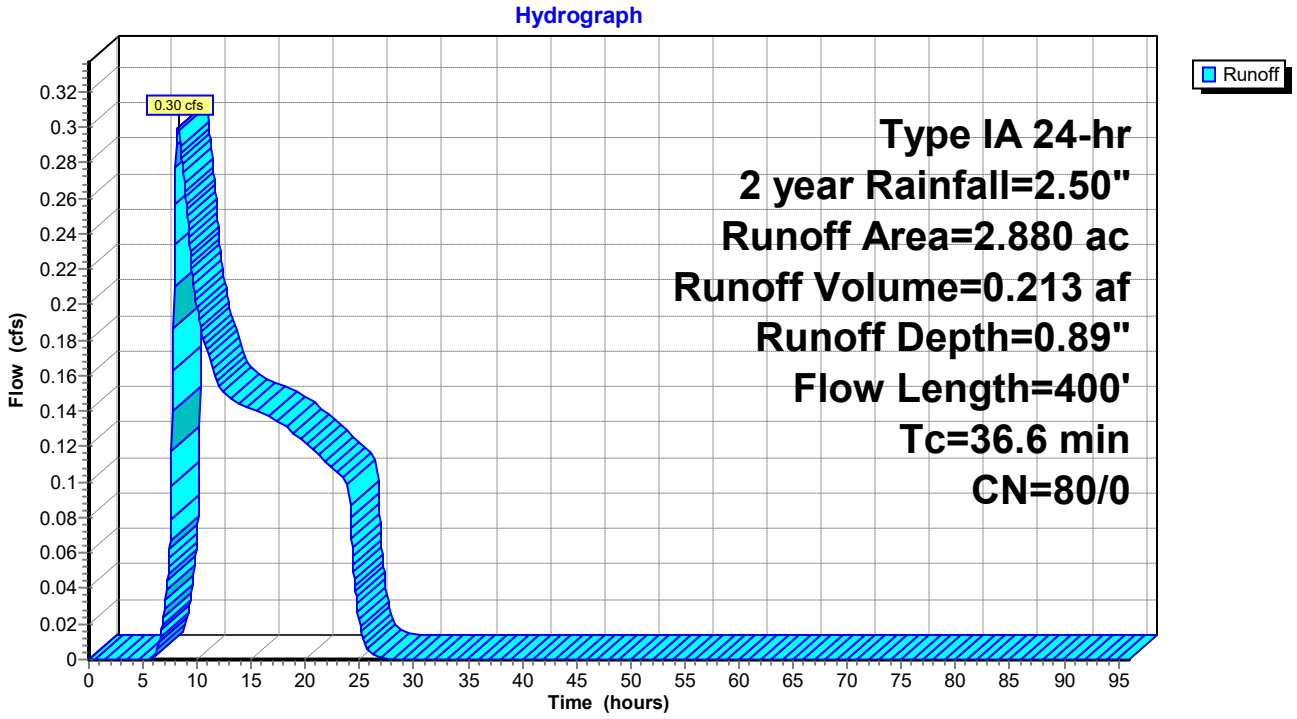
Runoff = 0.30 cfs @ 8.22 hrs, Volume= 0.213 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
2.880	80	Pasture/grassland/range, Good, HSG D
2.880	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	300	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
36.6	400	Total			

Subcatchment 2XP: Pervious



Summary for Subcatchment 3X: Pre Developed - Basin 3

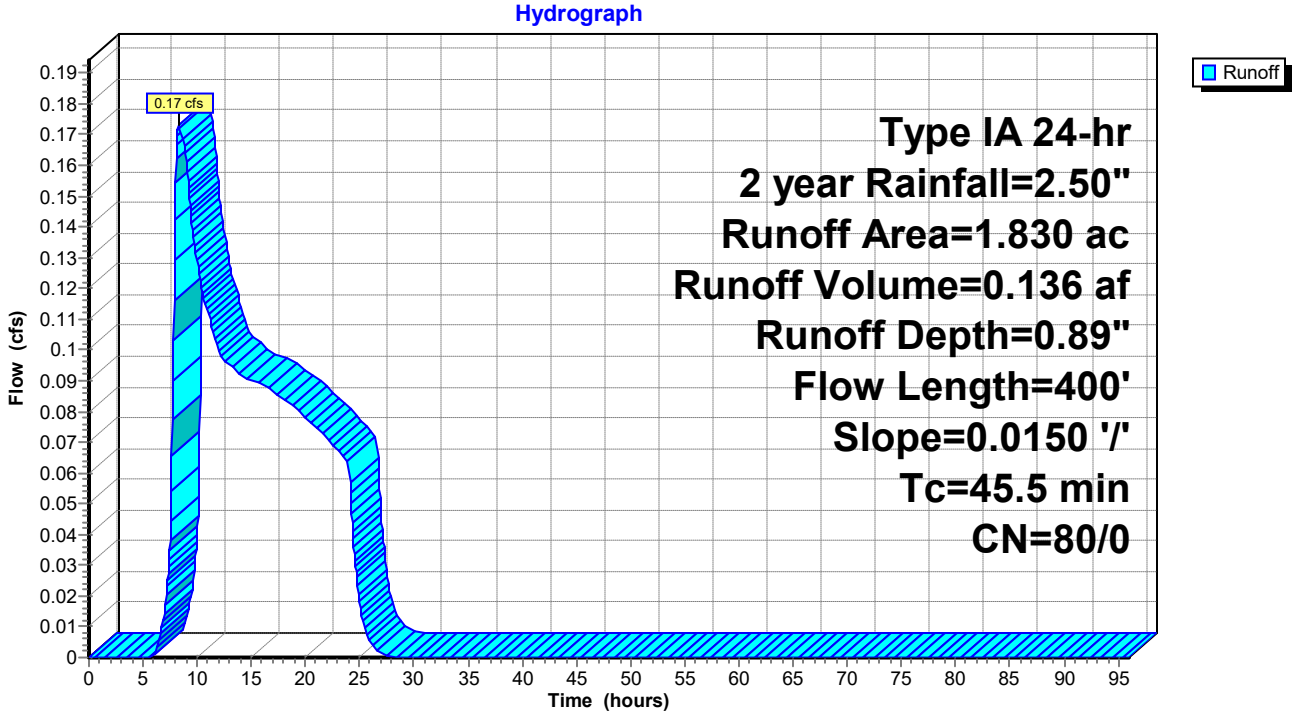
Runoff = 0.17 cfs @ 8.31 hrs, Volume= 0.136 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
1.830	80	Pasture/grassland/range, Good, HSG D
1.830	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
45.5	400	Total			

Subcatchment 3X: Pre Developed - Basin 3



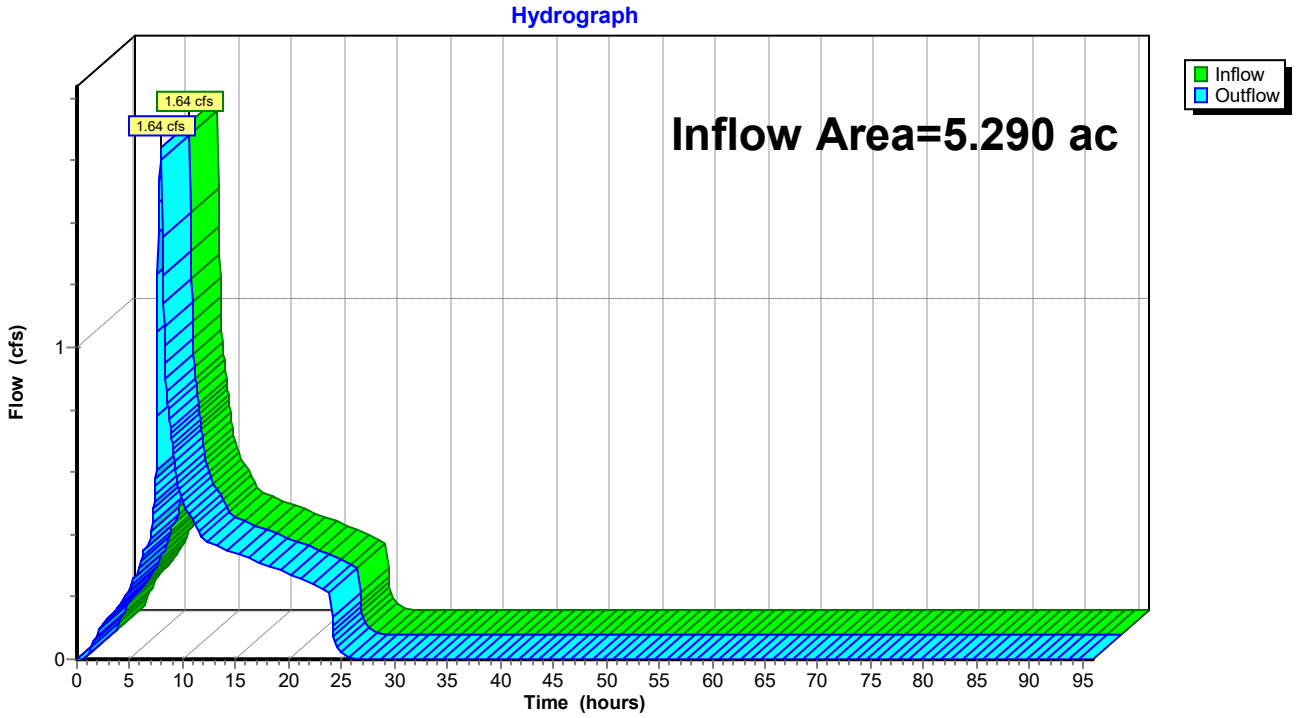
Summary for Reach 2X: Pre Developed Basin 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.290 ac, 45.56% Impervious, Inflow Depth = 1.52" for 2 year event
Inflow = 1.64 cfs @ 7.96 hrs, Volume= 0.669 af
Outflow = 1.64 cfs @ 7.96 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 2X: Pre Developed Basin 2



Summary for Subcatchment 1.3X: Pre Developed - E Parking

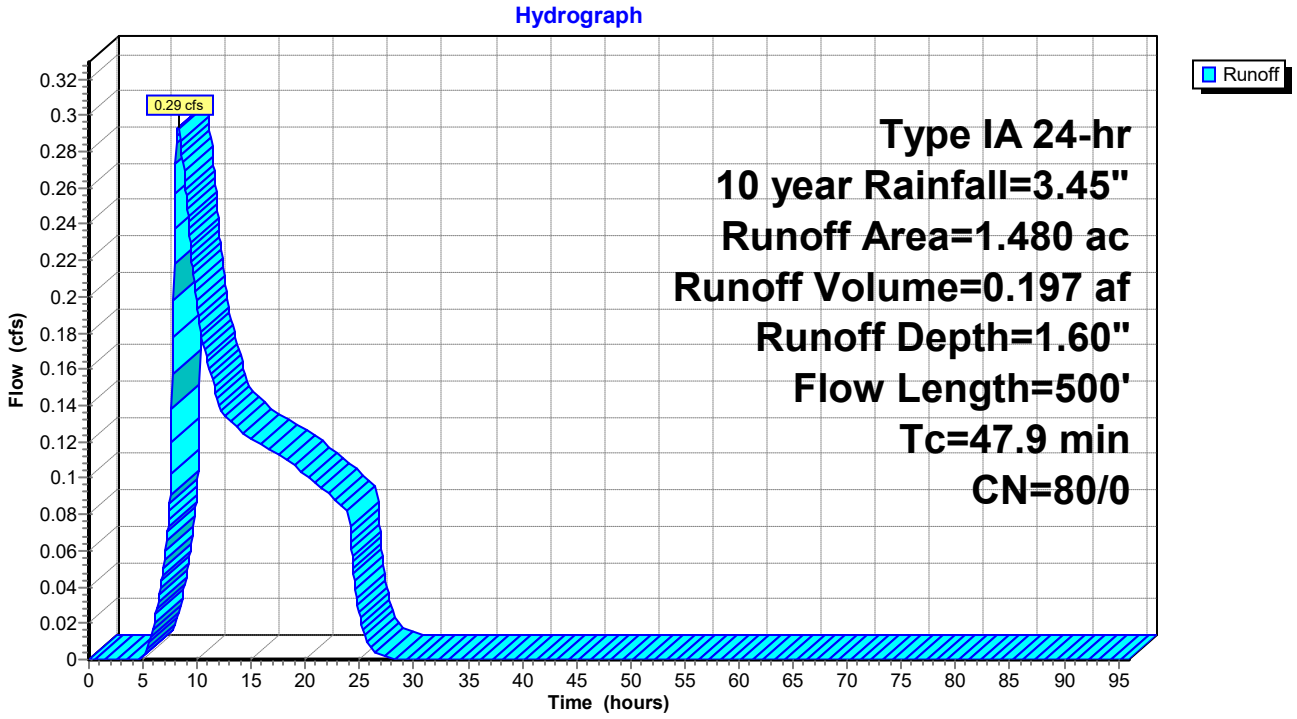
Runoff = 0.29 cfs @ 8.24 hrs, Volume= 0.197 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
1.480	80	Pasture/grassland/range, Good, HSG D
1.480	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
4.3	200	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
47.9	500	Total			

Subcatchment 1.3X: Pre Developed - E Parking



Summary for Subcatchment 1X: Pre Developed - Basin 1

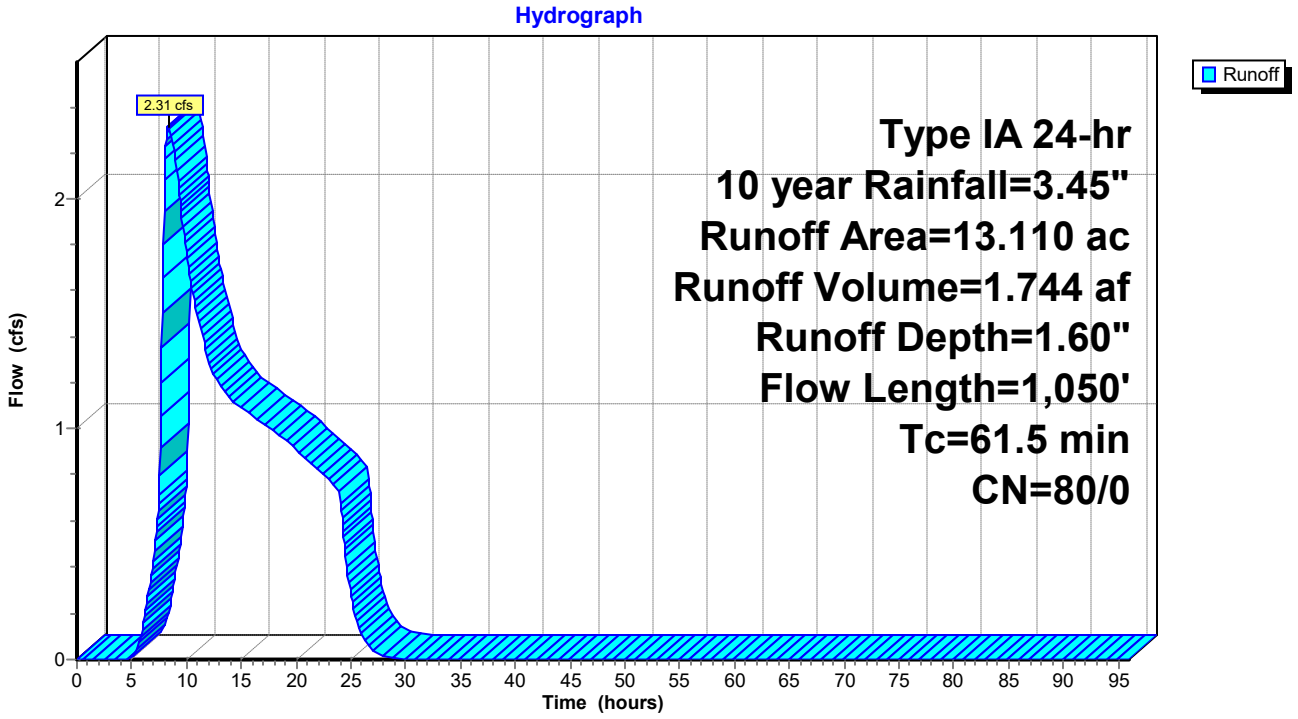
Runoff = 2.31 cfs @ 8.34 hrs, Volume= 1.744 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
13.110	80	Pasture/grassland/range, Good, HSG D
13.110	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
17.9	750	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
61.5	1,050	Total			

Subcatchment 1X: Pre Developed - Basin 1



Summary for Subcatchment 2XI: Impervious

[49] Hint: Tc<2dt may require smaller dt

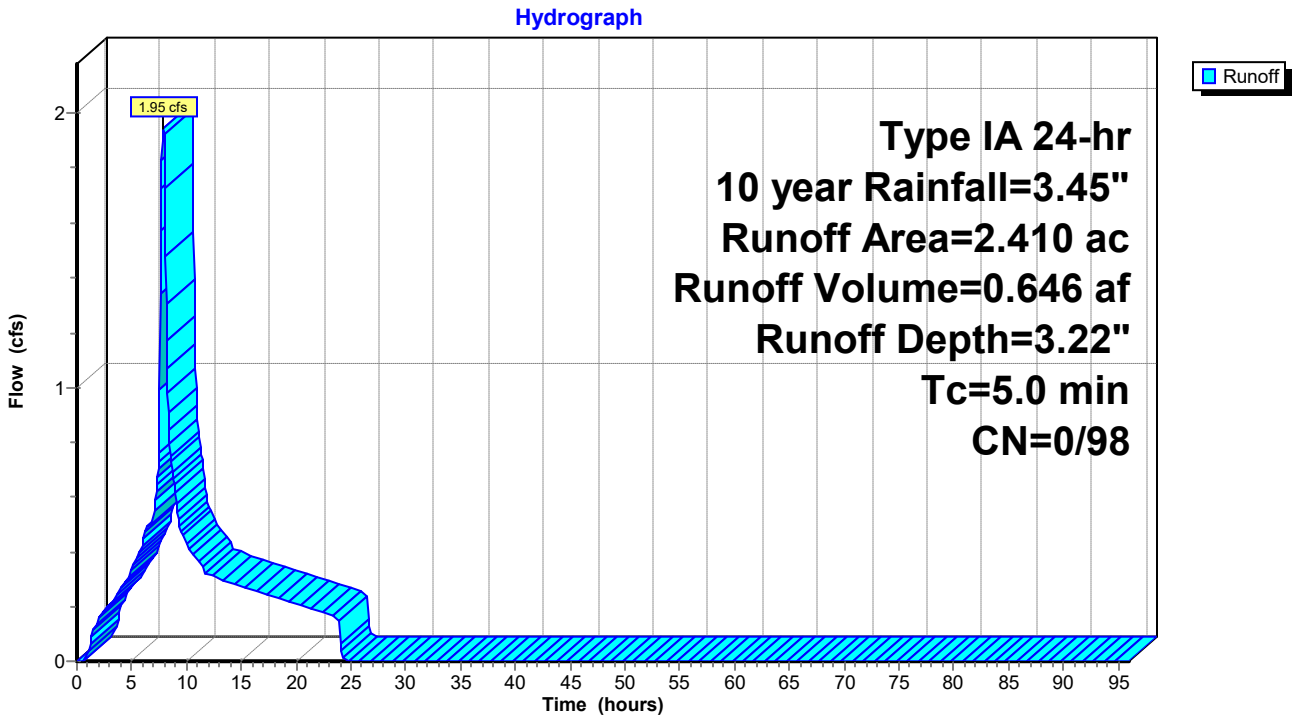
Runoff = 1.95 cfs @ 7.90 hrs, Volume= 0.646 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
2.410	98	Paved parking, HSG D
2.410	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2XI: Impervious



Summary for Subcatchment 2XP: Pervious

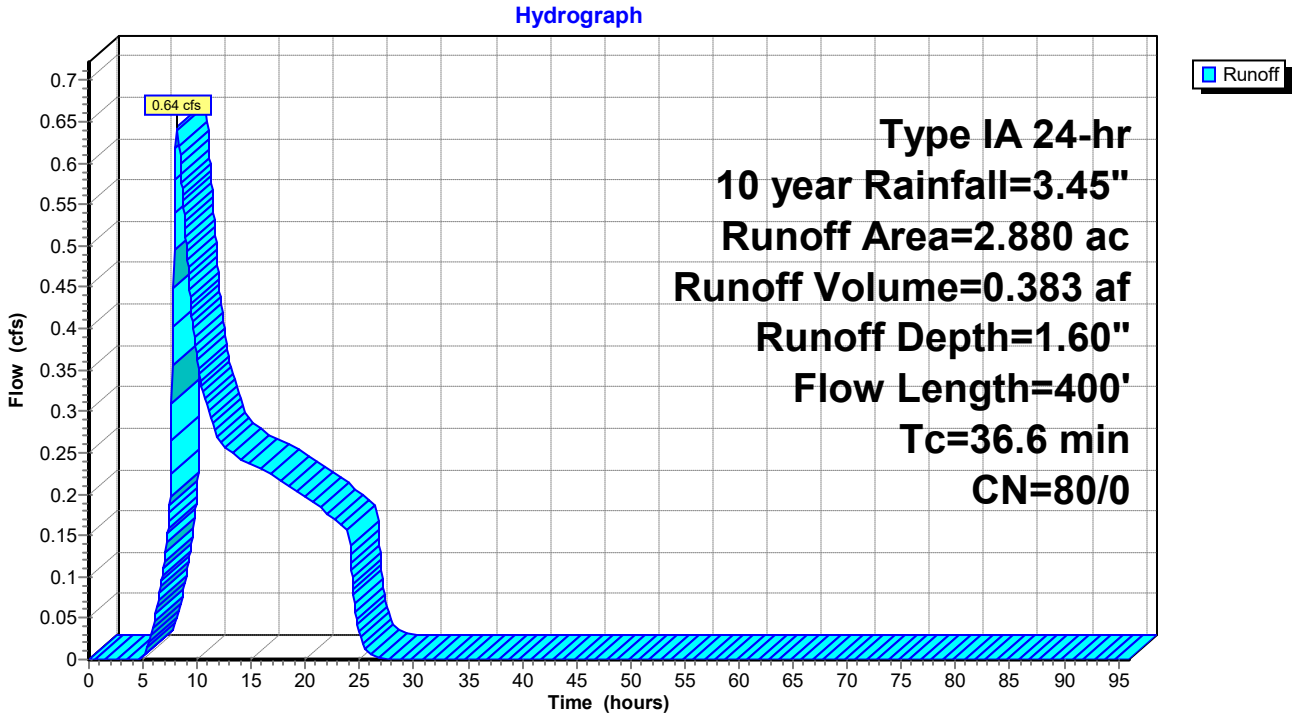
Runoff = 0.64 cfs @ 8.14 hrs, Volume= 0.383 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
2.880	80	Pasture/grassland/range, Good, HSG D
2.880	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	300	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
36.6	400	Total			

Subcatchment 2XP: Pervious



Summary for Subcatchment 3X: Pre Developed - Basin 3

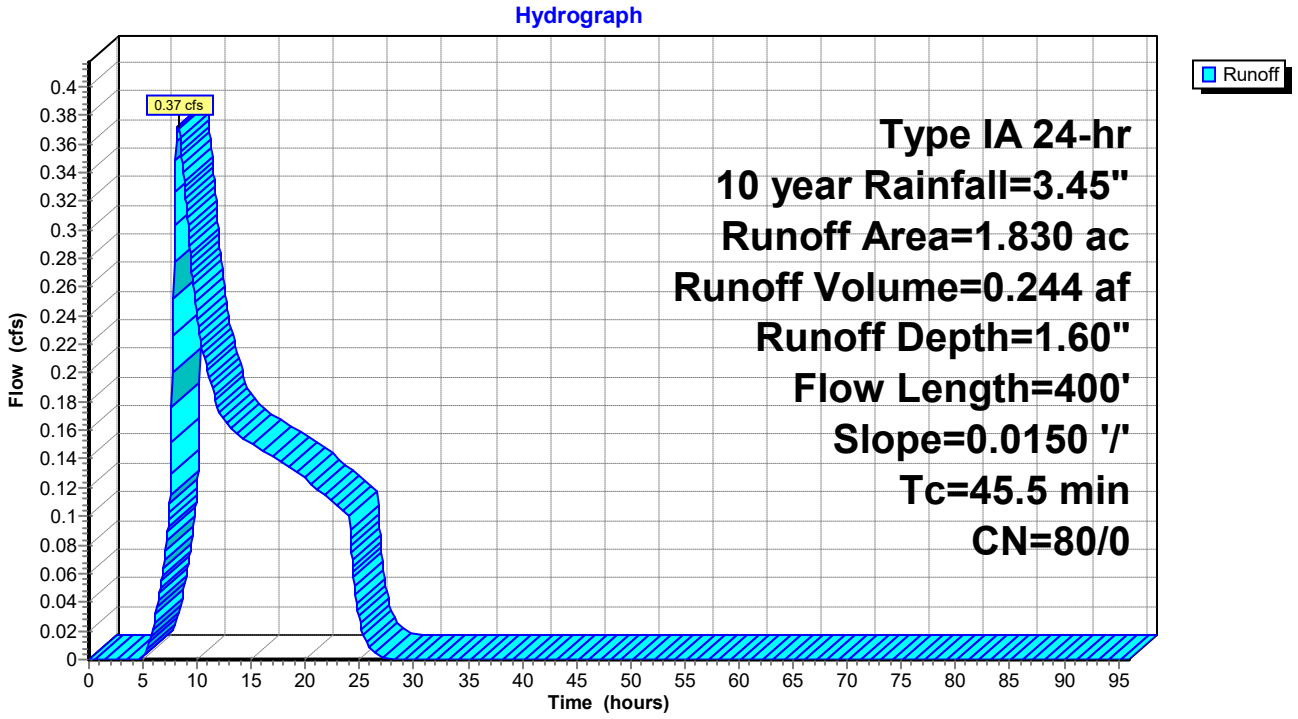
Runoff = 0.37 cfs @ 8.22 hrs, Volume= 0.244 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
1.830	80	Pasture/grassland/range, Good, HSG D
1.830	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
45.5	400	Total			

Subcatchment 3X: Pre Developed - Basin 3



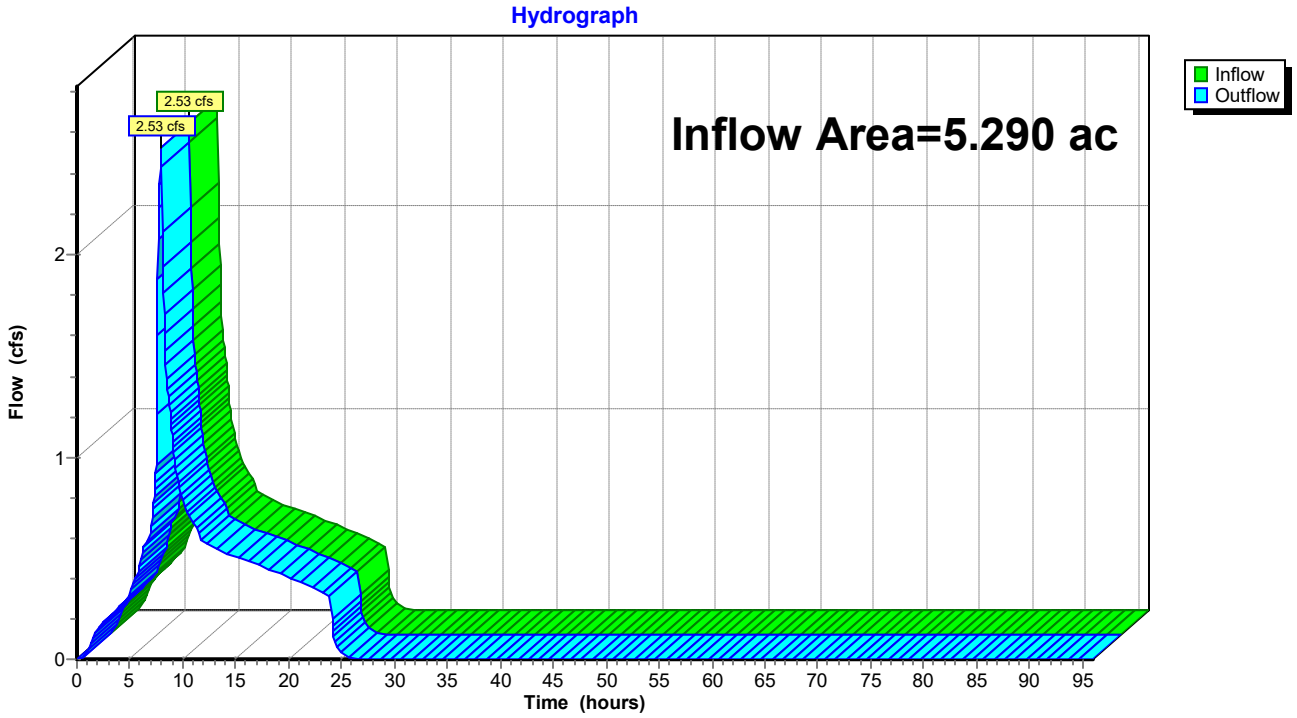
Summary for Reach 2X: Pre Developed Basin 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.290 ac, 45.56% Impervious, Inflow Depth = 2.33" for 10 year event
Inflow = 2.53 cfs @ 7.98 hrs, Volume= 1.029 af
Outflow = 2.53 cfs @ 7.98 hrs, Volume= 1.029 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 2X: Pre Developed Basin 2



Summary for Subcatchment 1.3X: Pre Developed - E Parking

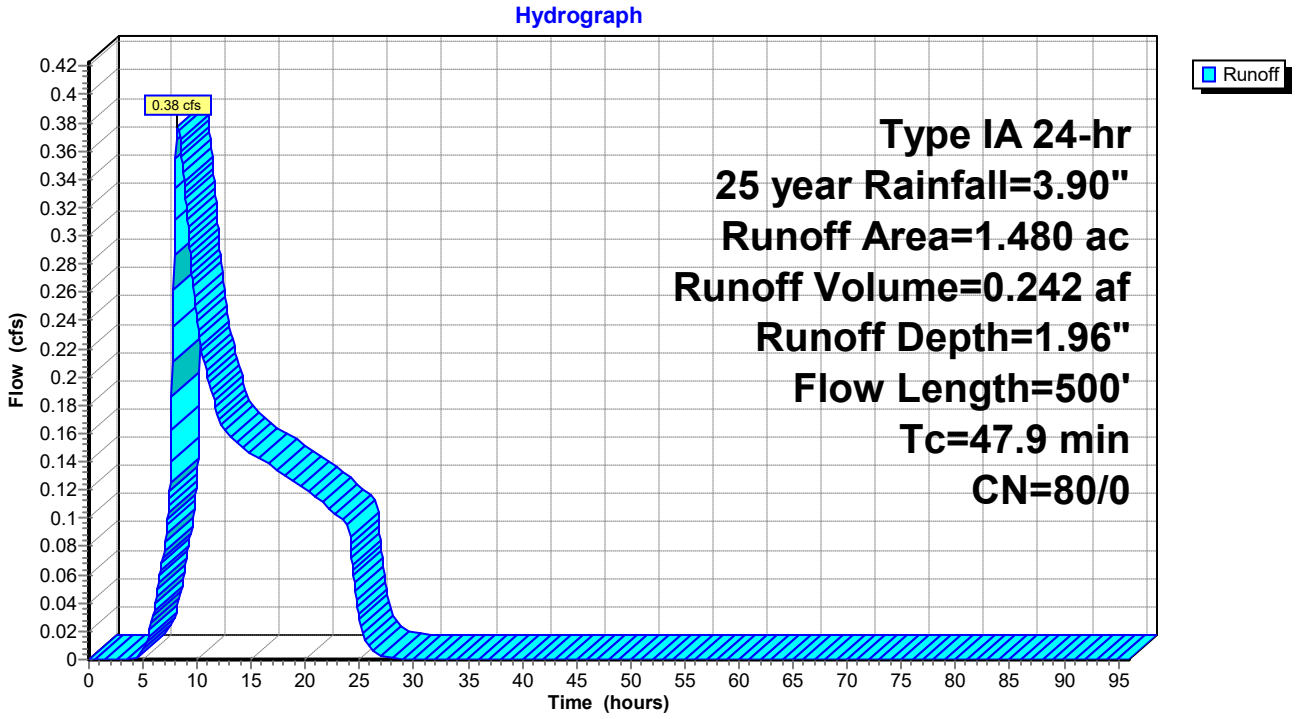
Runoff = 0.38 cfs @ 8.21 hrs, Volume= 0.242 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
1.480	80	Pasture/grassland/range, Good, HSG D
1.480	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
4.3	200	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
47.9	500	Total			

Subcatchment 1.3X: Pre Developed - E Parking



Summary for Subcatchment 1X: Pre Developed - Basin 1

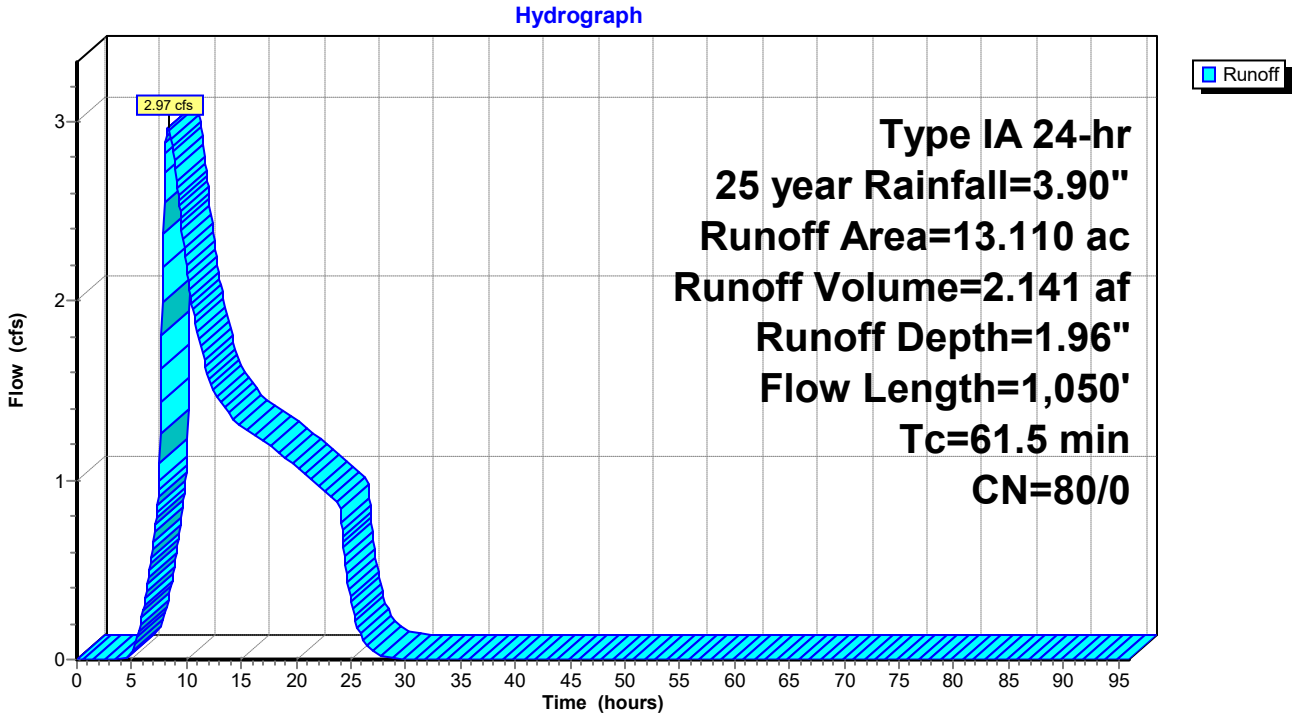
Runoff = 2.97 cfs @ 8.31 hrs, Volume= 2.141 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
13.110	80	Pasture/grassland/range, Good, HSG D
13.110	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
17.9	750	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
61.5	1,050	Total			

Subcatchment 1X: Pre Developed - Basin 1



Summary for Subcatchment 2XI: Impervious

[49] Hint: Tc<2dt may require smaller dt

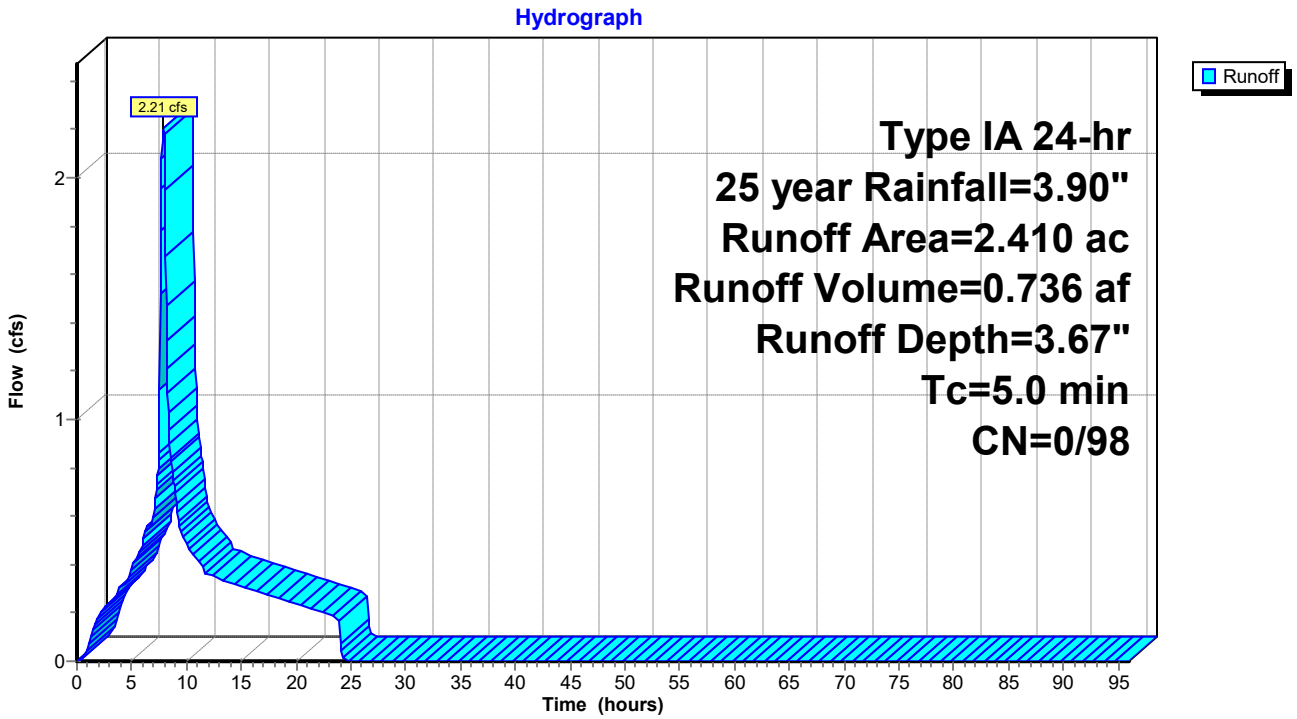
Runoff = 2.21 cfs @ 7.90 hrs, Volume= 0.736 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
2.410	98	Paved parking, HSG D
2.410	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2XI: Impervious



Summary for Subcatchment 2XP: Pervious

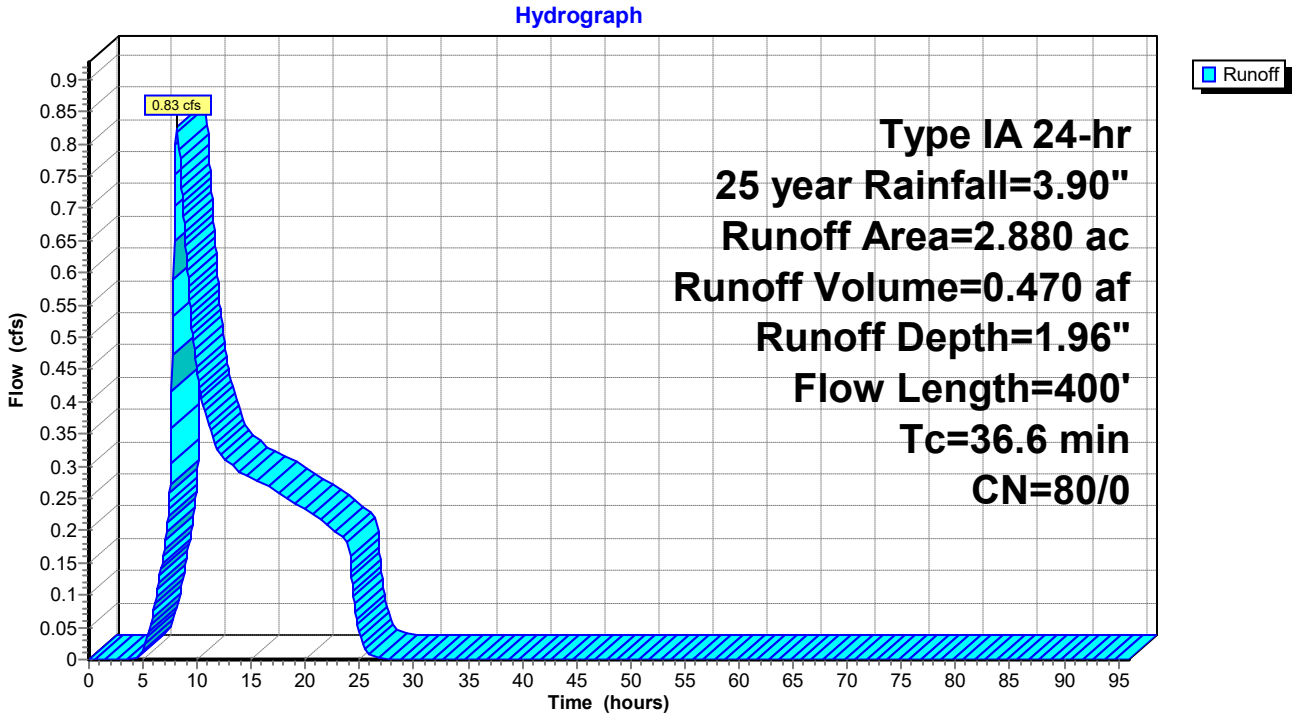
Runoff = 0.83 cfs @ 8.12 hrs, Volume= 0.470 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
2.880	80	Pasture/grassland/range, Good, HSG D
2.880	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	300	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
36.6	400	Total			

Subcatchment 2XP: Pervious



Summary for Subcatchment 3X: Pre Developed - Basin 3

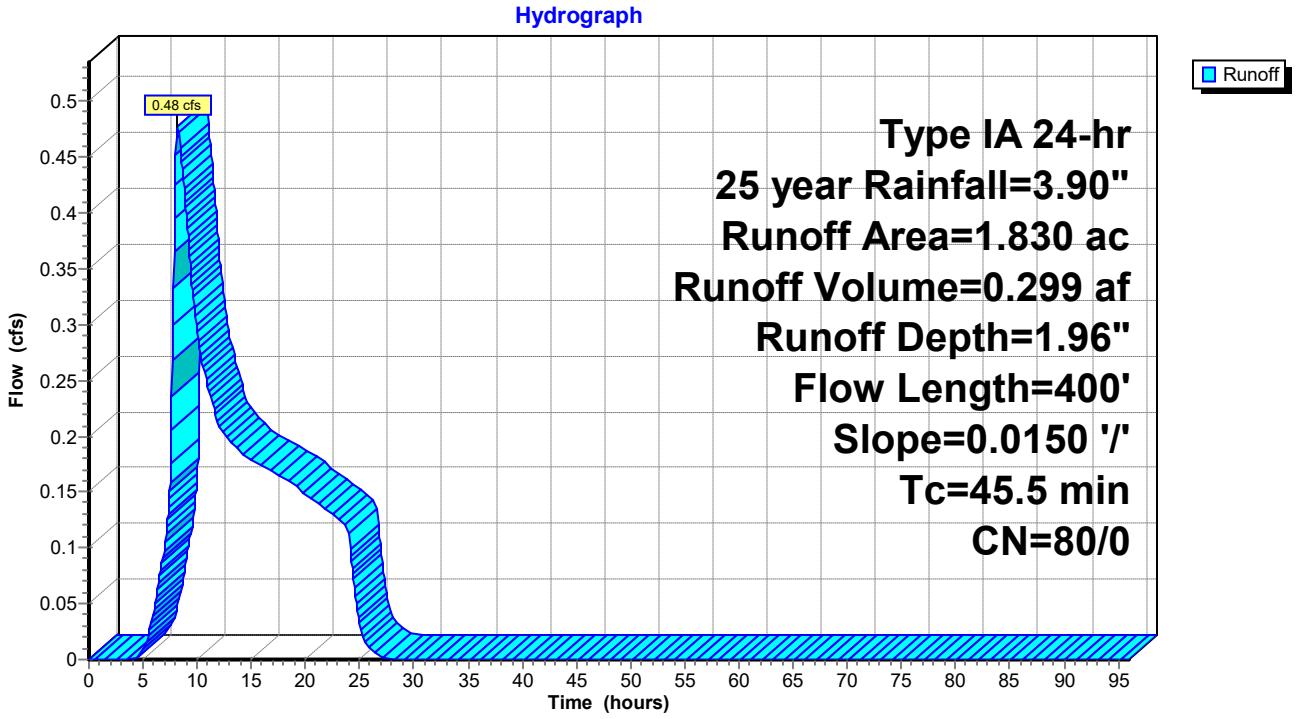
Runoff = 0.48 cfs @ 8.20 hrs, Volume= 0.299 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
1.830	80	Pasture/grassland/range, Good, HSG D
1.830	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
45.5	400	Total			

Subcatchment 3X: Pre Developed - Basin 3



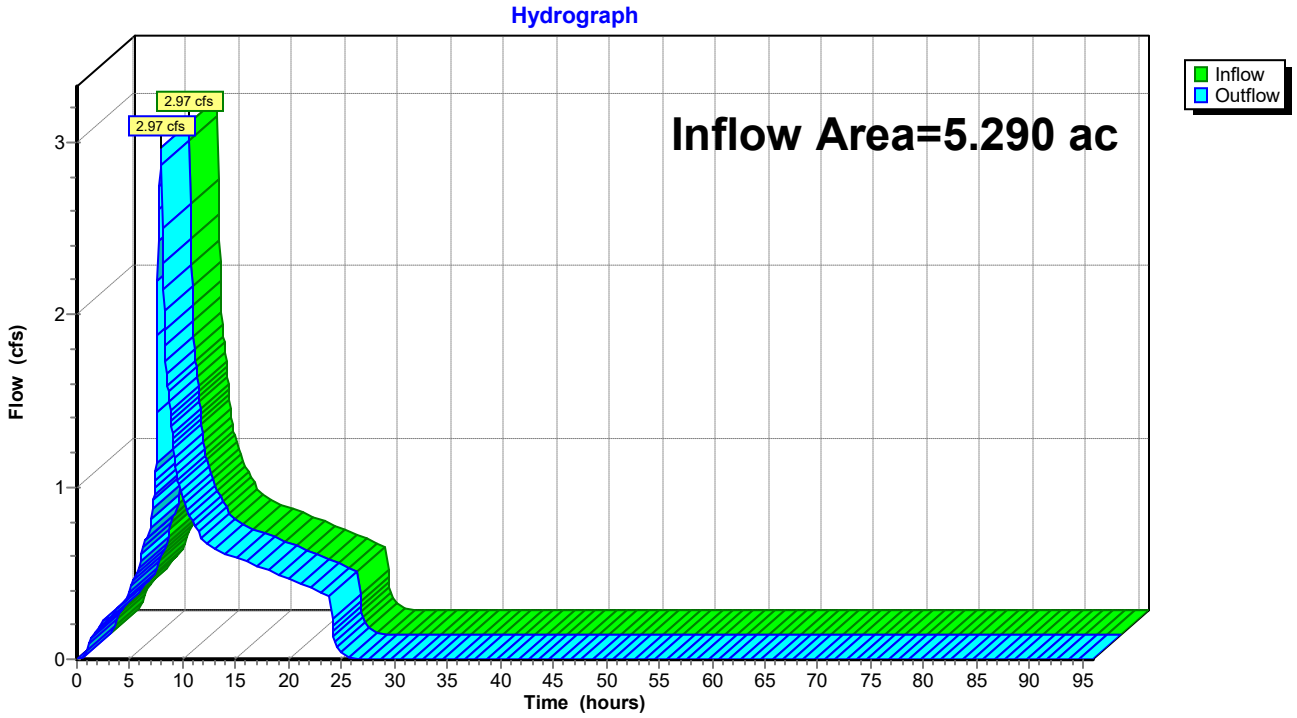
Summary for Reach 2X: Pre Developed Basin 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.290 ac, 45.56% Impervious, Inflow Depth = 2.74" for 25 year event
Inflow = 2.97 cfs @ 7.98 hrs, Volume= 1.206 af
Outflow = 2.97 cfs @ 7.98 hrs, Volume= 1.206 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 2X: Pre Developed Basin 2



Summary for Subcatchment 1.3X: Pre Developed - E Parking

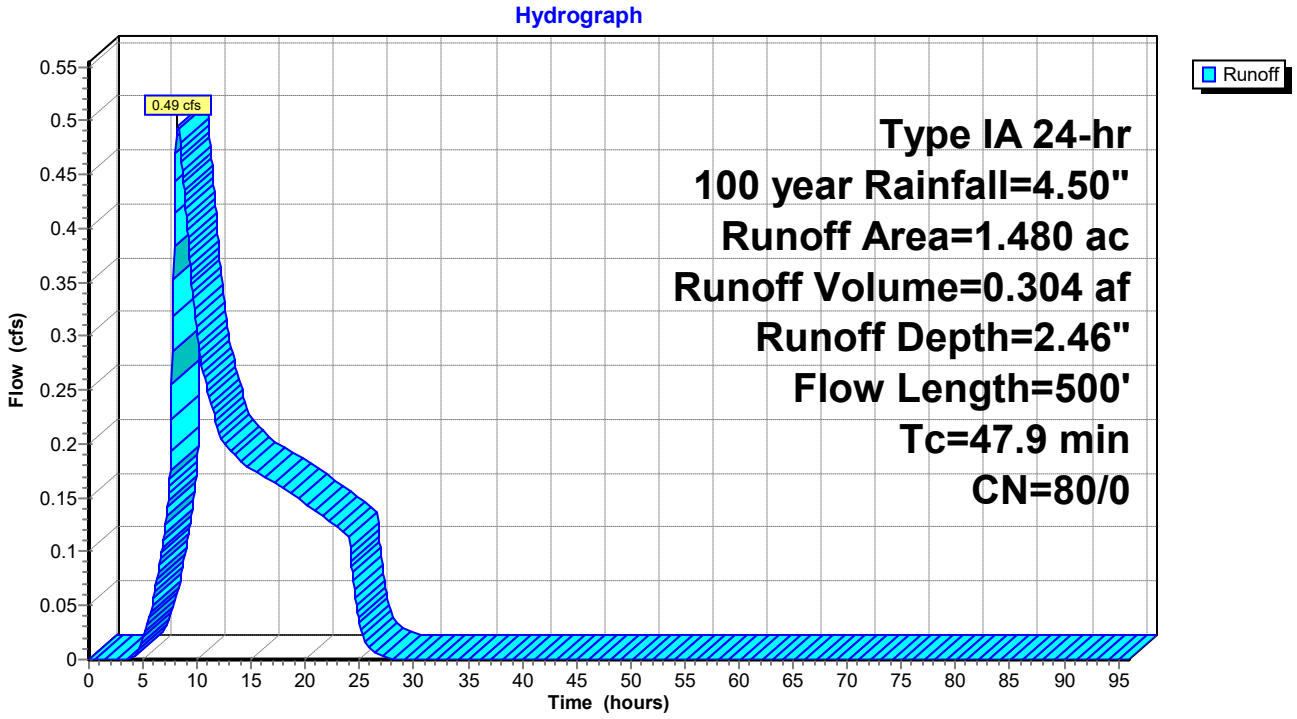
Runoff = 0.49 cfs @ 8.19 hrs, Volume= 0.304 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
1.480	80	Pasture/grassland/range, Good, HSG D
1.480	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
4.3	200	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
47.9	500	Total			

Subcatchment 1.3X: Pre Developed - E Parking



Summary for Subcatchment 1X: Pre Developed - Basin 1

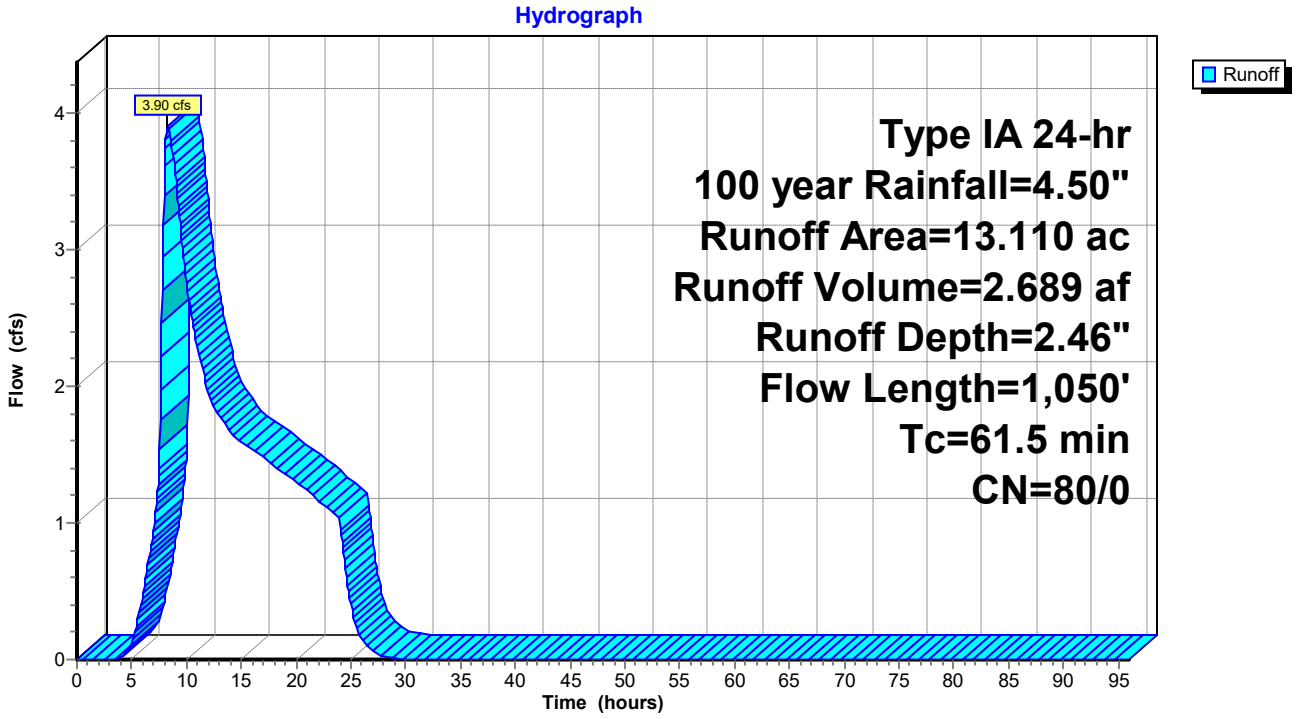
Runoff = 3.90 cfs @ 8.28 hrs, Volume= 2.689 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
13.110	80	Pasture/grassland/range, Good, HSG D
13.110	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
17.9	750	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
61.5	1,050	Total			

Subcatchment 1X: Pre Developed - Basin 1



Summary for Subcatchment 2XI: Impervious

[49] Hint: Tc<2dt may require smaller dt

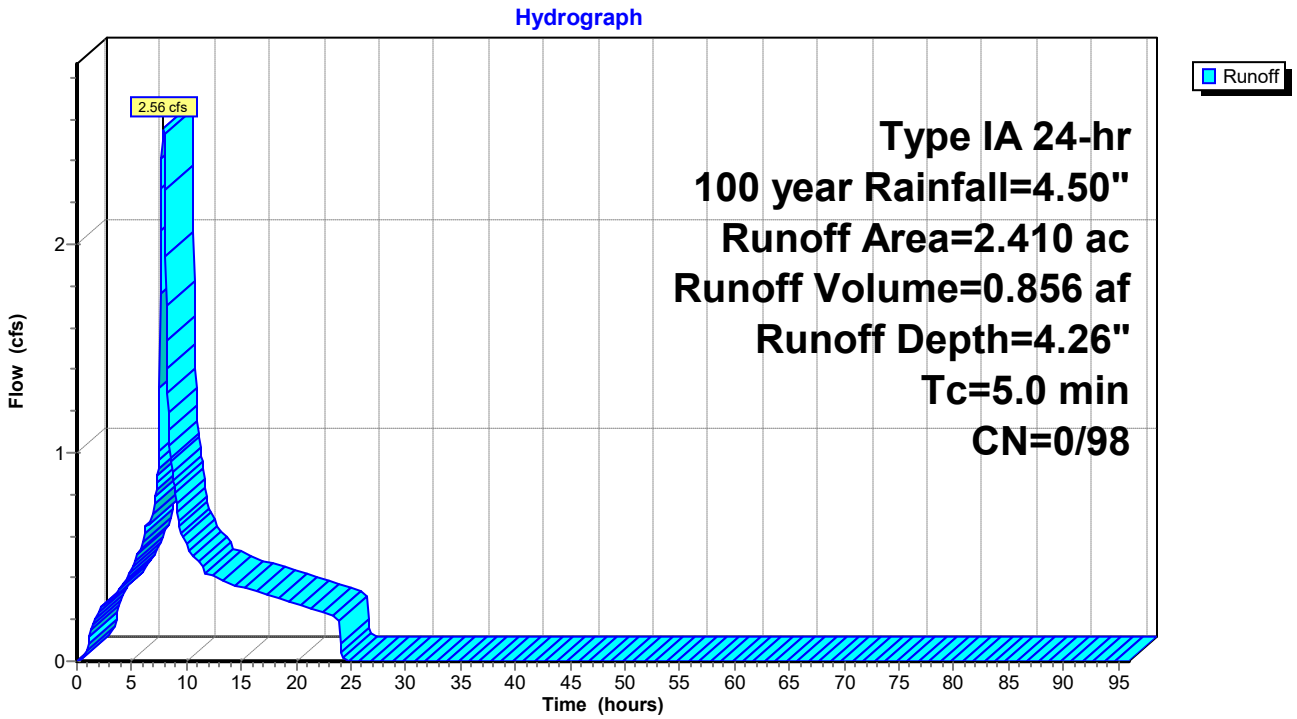
Runoff = 2.56 cfs @ 7.90 hrs, Volume= 0.856 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
2.410	98	Paved parking, HSG D
2.410	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2XI: Impervious



Summary for Subcatchment 2XP: Pervious

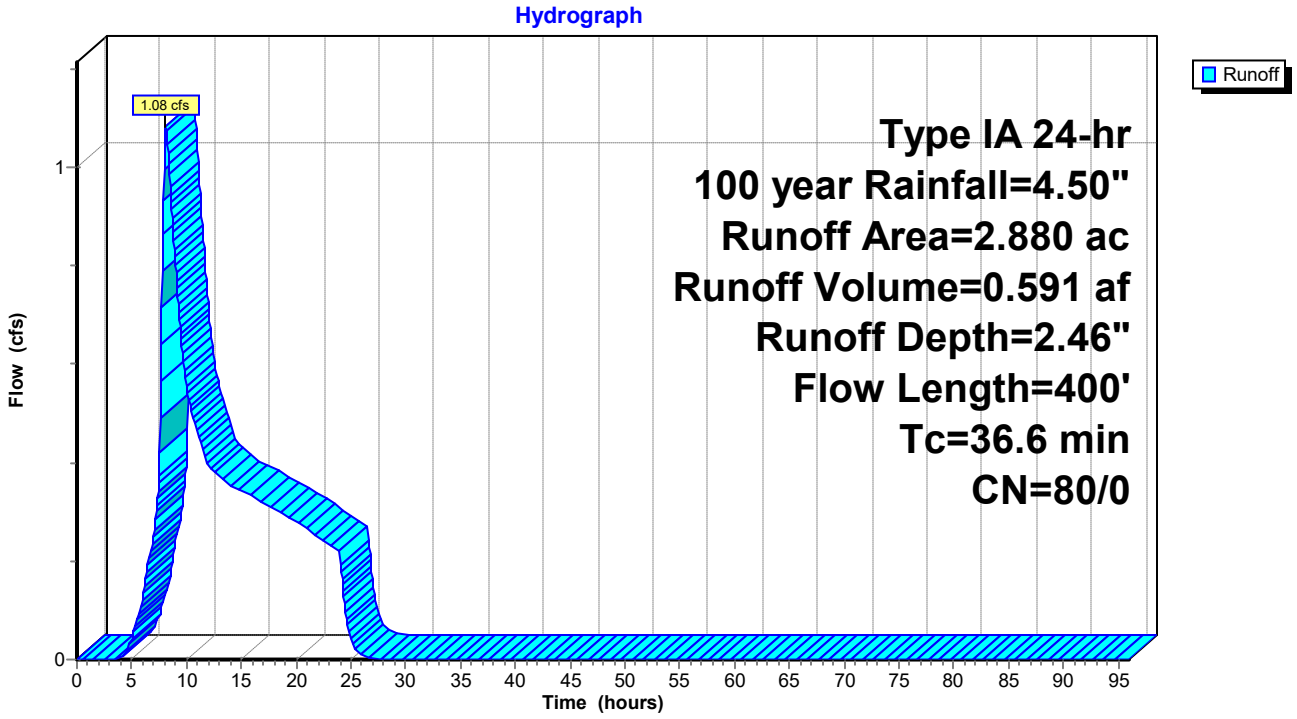
Runoff = 1.08 cfs @ 8.10 hrs, Volume= 0.591 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
2.880	80	Pasture/grassland/range, Good, HSG D
2.880	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2	300	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.50"
1.4	100	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
36.6	400	Total			

Subcatchment 2XP: Pervious



Summary for Subcatchment 3X: Pre Developed - Basin 3

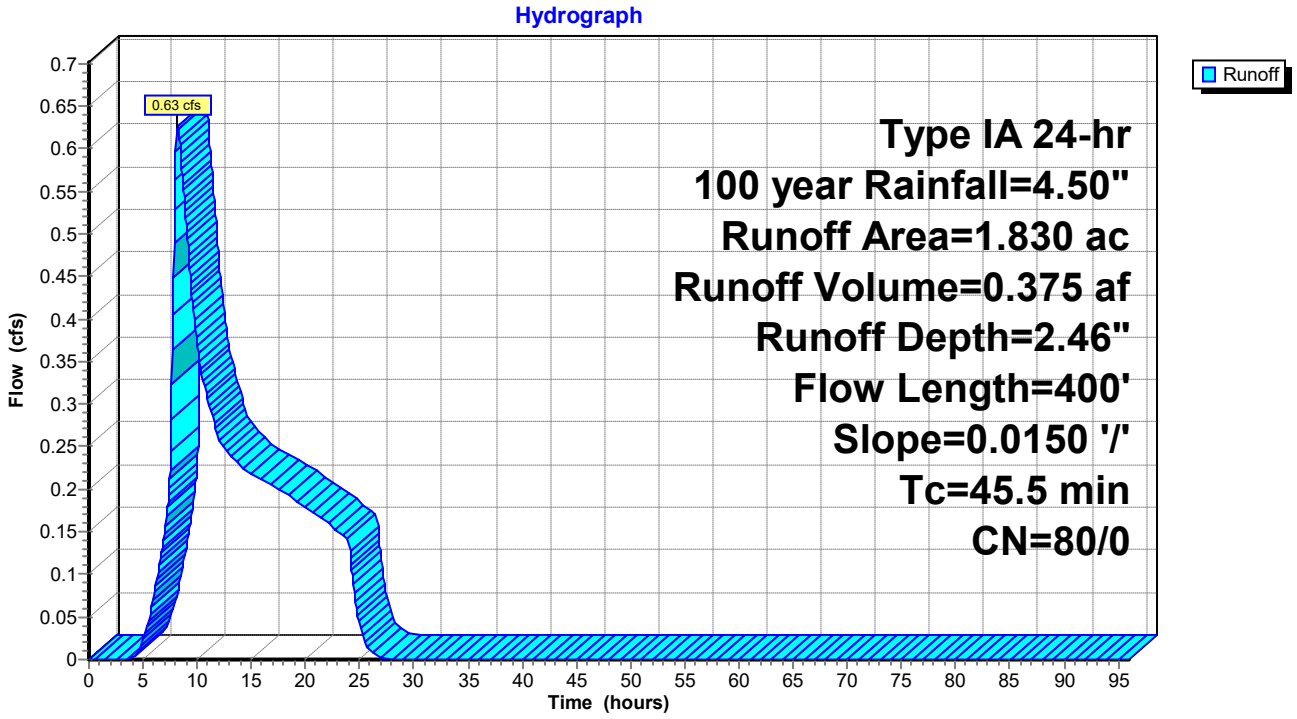
Runoff = 0.63 cfs @ 8.17 hrs, Volume= 0.375 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
1.830	80	Pasture/grassland/range, Good, HSG D
1.830	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.6	300	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.50"
1.9	100	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
45.5	400	Total			

Subcatchment 3X: Pre Developed - Basin 3



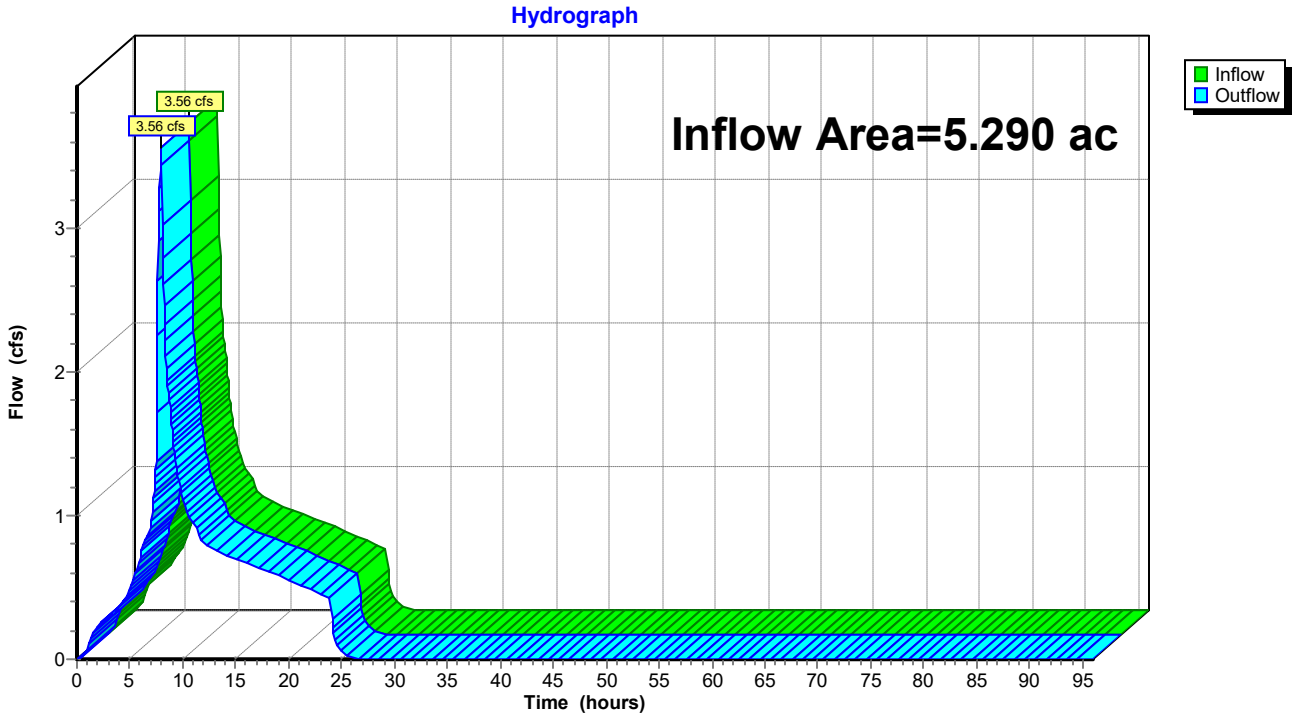
Summary for Reach 2X: Pre Developed Basin 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.290 ac, 45.56% Impervious, Inflow Depth = 3.28" for 100 year event
Inflow = 3.56 cfs @ 7.98 hrs, Volume= 1.447 af
Outflow = 3.56 cfs @ 7.98 hrs, Volume= 1.447 af, Atten= 0%, Lag= 0.0 min

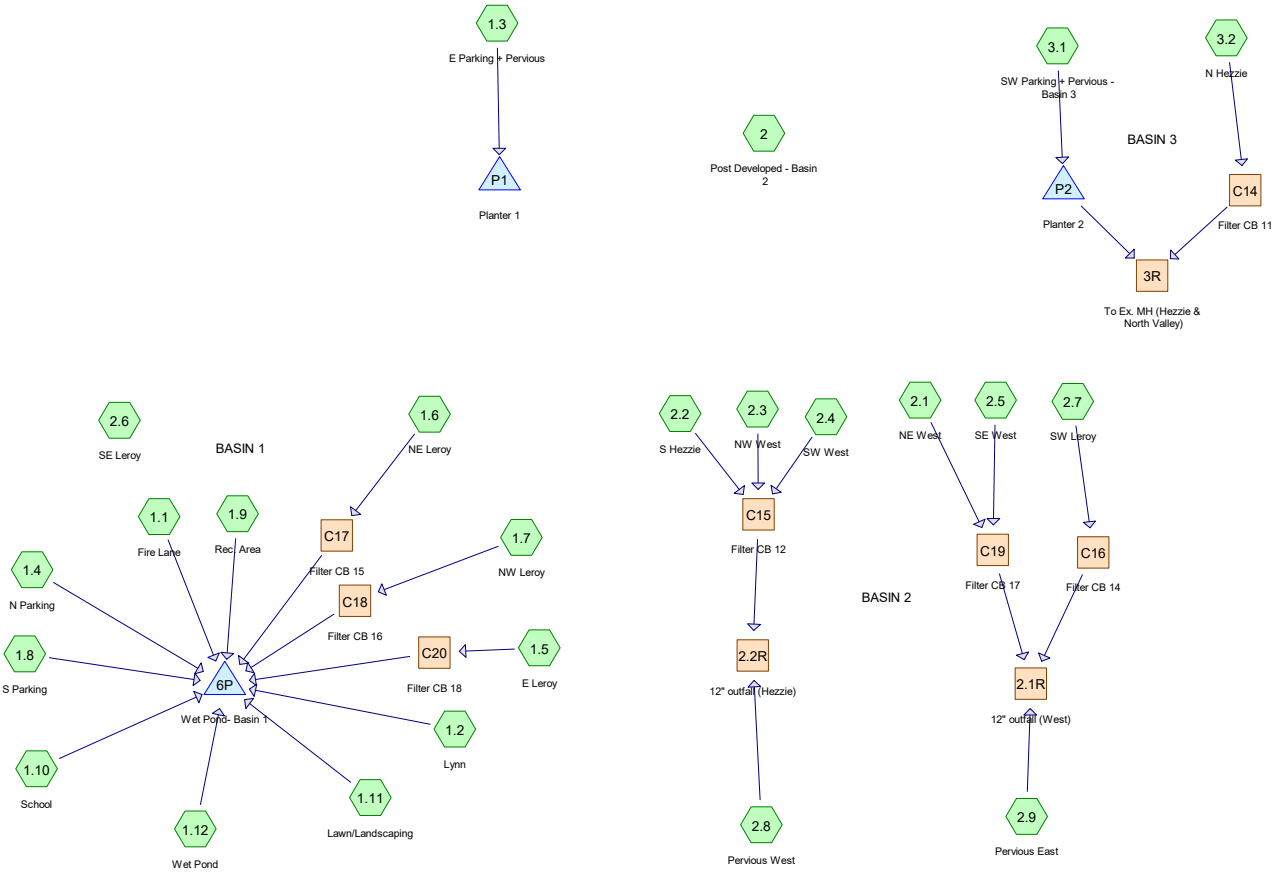
Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 2X: Pre Developed Basin 2



Appendix E: Post Development Calculations

POST DEVELOPEMENT DETENTION CALCUALTIONS



Subcat Reach Pond Link

Routing Diagram for 2025-05-16_Prelim Stormwater Facitlity Sizing
Prepared by Standridge Inc., Printed 5/21/2025
HydroCAD® 10.00-26 s/n 08941 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1.1: Fire Lane

[49] Hint: Tc<2dt may require smaller dt

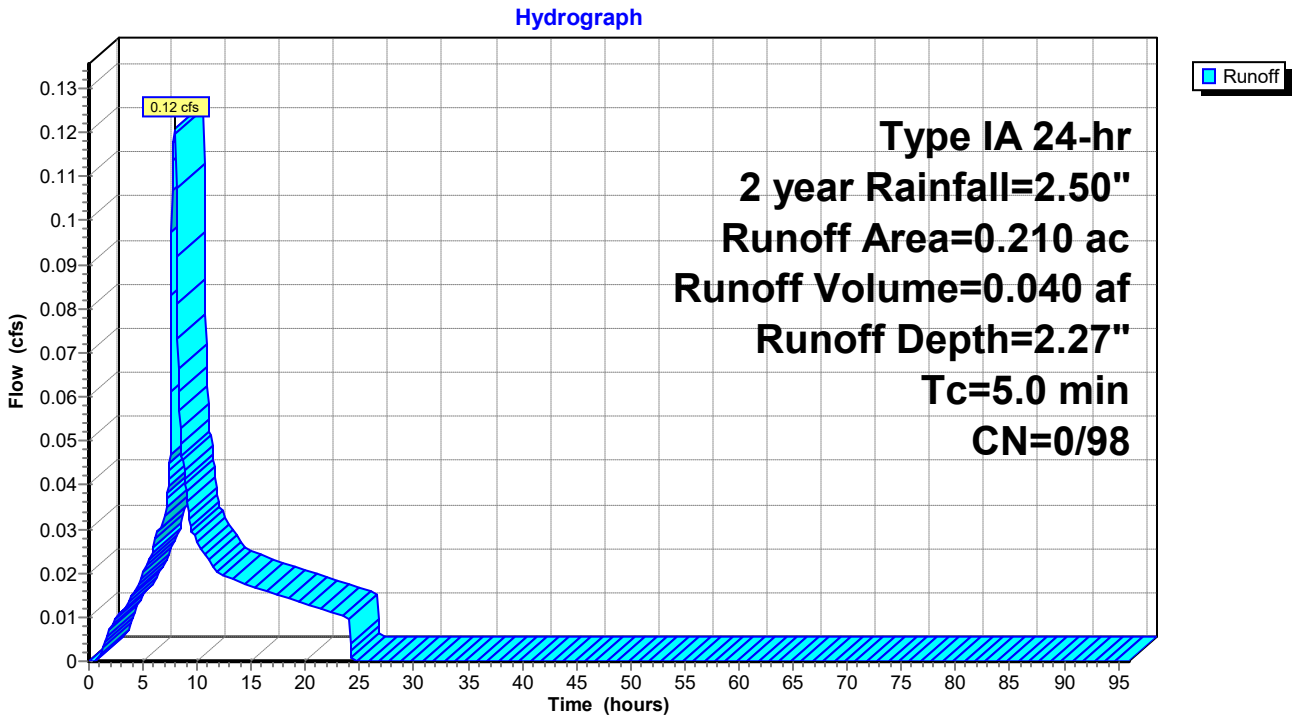
Runoff = 0.12 cfs @ 7.90 hrs, Volume= 0.040 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.210	98	Paved parking, HSG D
0.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.1: Fire Lane



Summary for Subcatchment 1.10: School

[49] Hint: Tc<2dt may require smaller dt

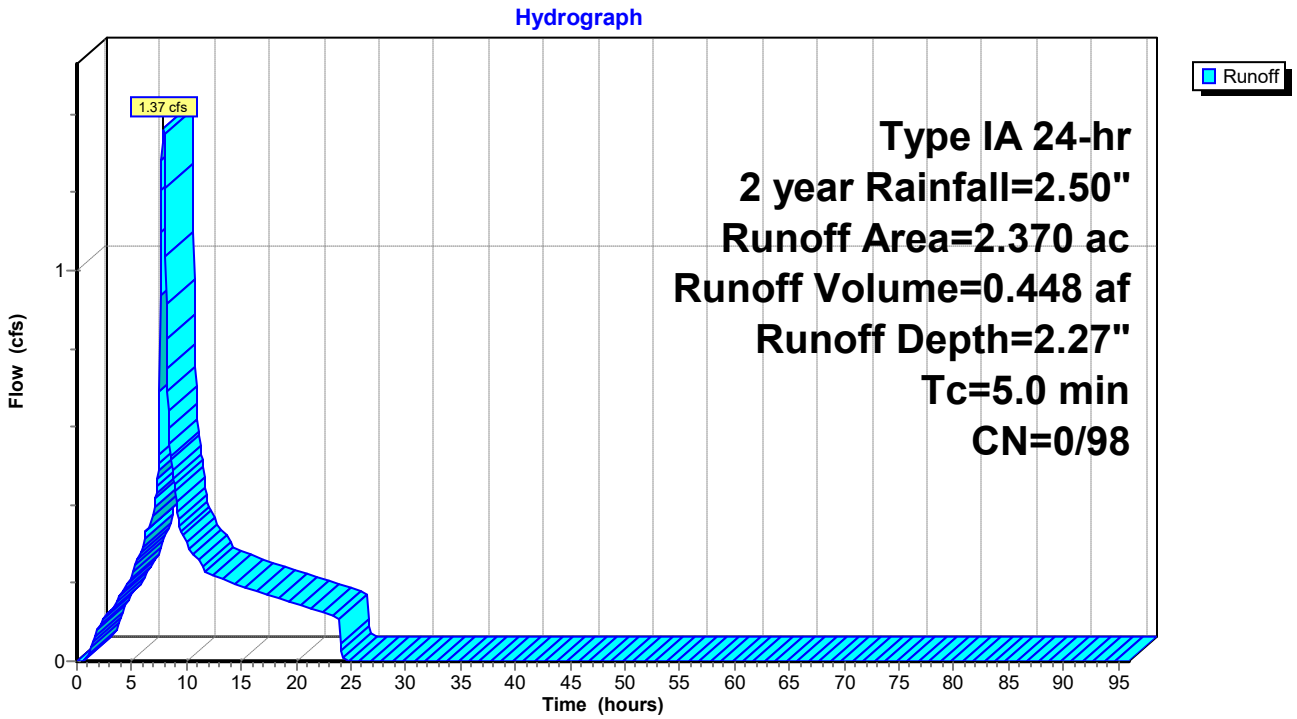
Runoff = 1.37 cfs @ 7.90 hrs, Volume= 0.448 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
2.370	98	Roofs, HSG D
2.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.10: School



Summary for Subcatchment 1.11: Lawn/Landscaping

Impervious Leroy

[49] Hint: Tc<2dt may require smaller dt

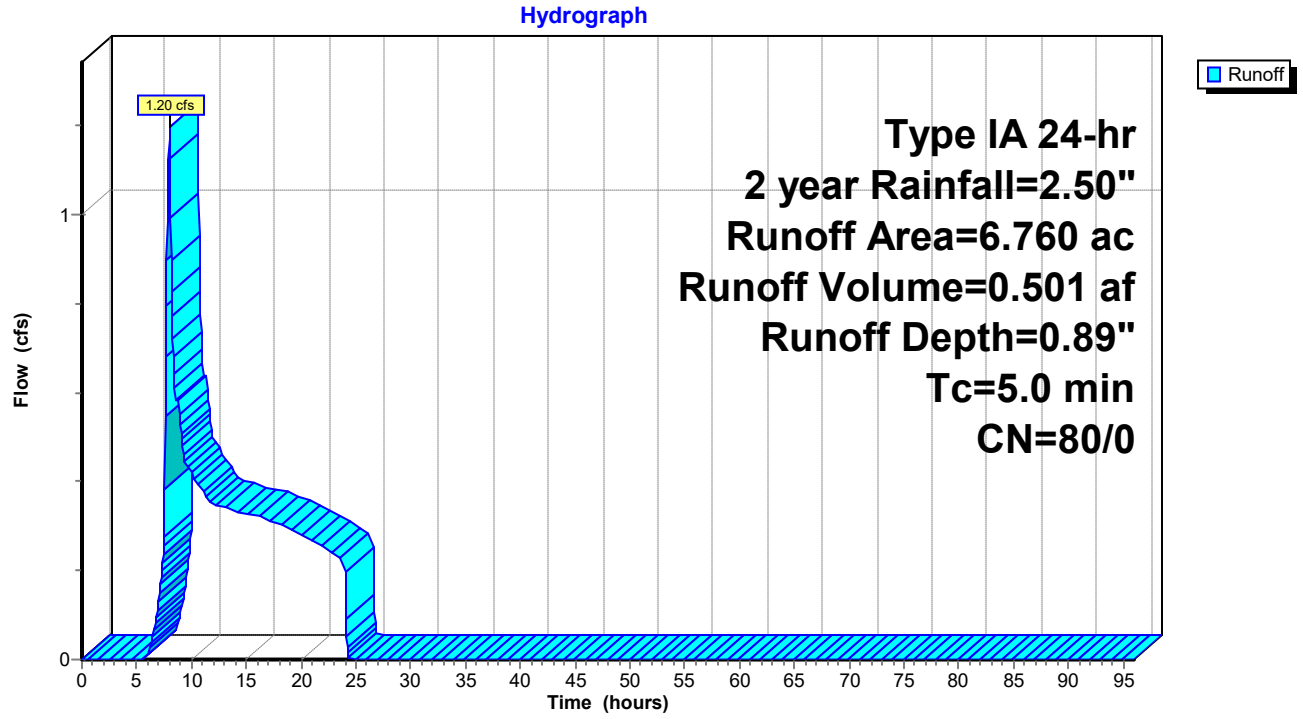
Runoff = 1.20 cfs @ 7.99 hrs, Volume= 0.501 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
6.760	80	>75% Grass cover, Good, HSG D
6.760	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.11: Lawn/Landscaping



Summary for Subcatchment 1.12: Wet Pond

[49] Hint: Tc<2dt may require smaller dt

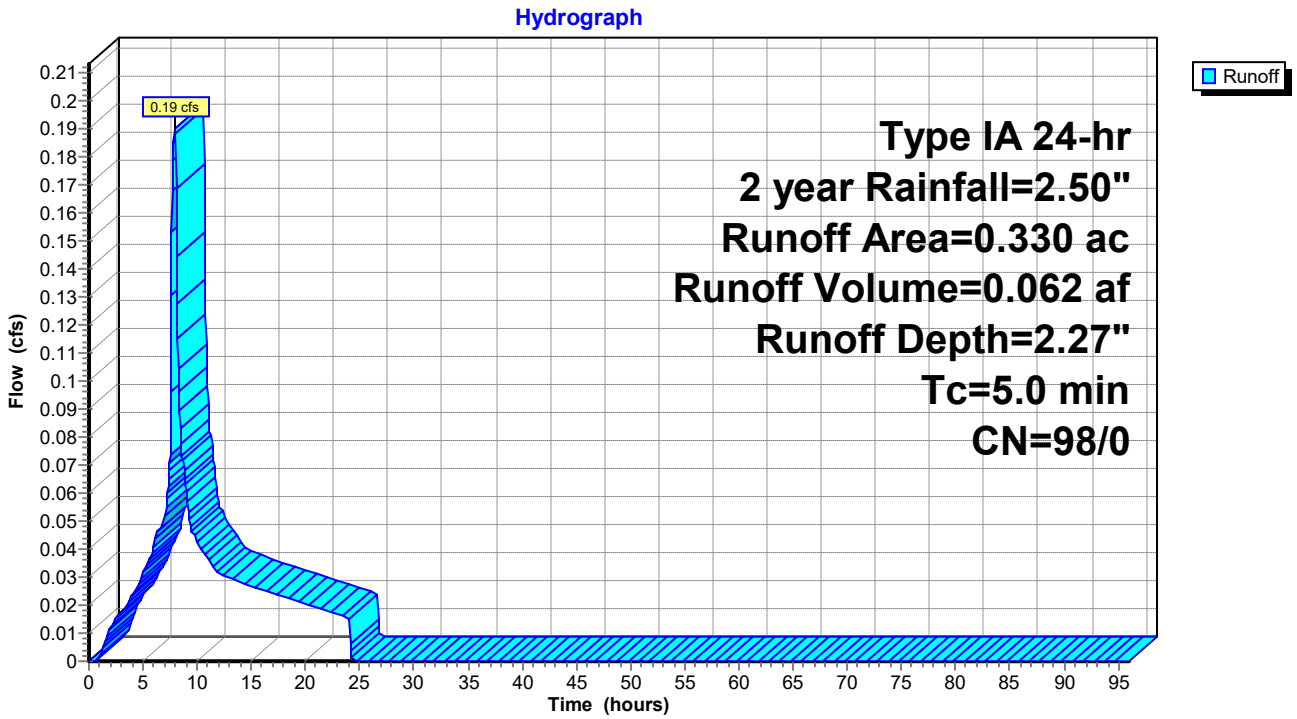
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.062 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.330	98	Water Surface, 0% imp, HSG D
0.330	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.12: Wet Pond



Summary for Subcatchment 1.2: Lynn

[49] Hint: Tc<2dt may require smaller dt

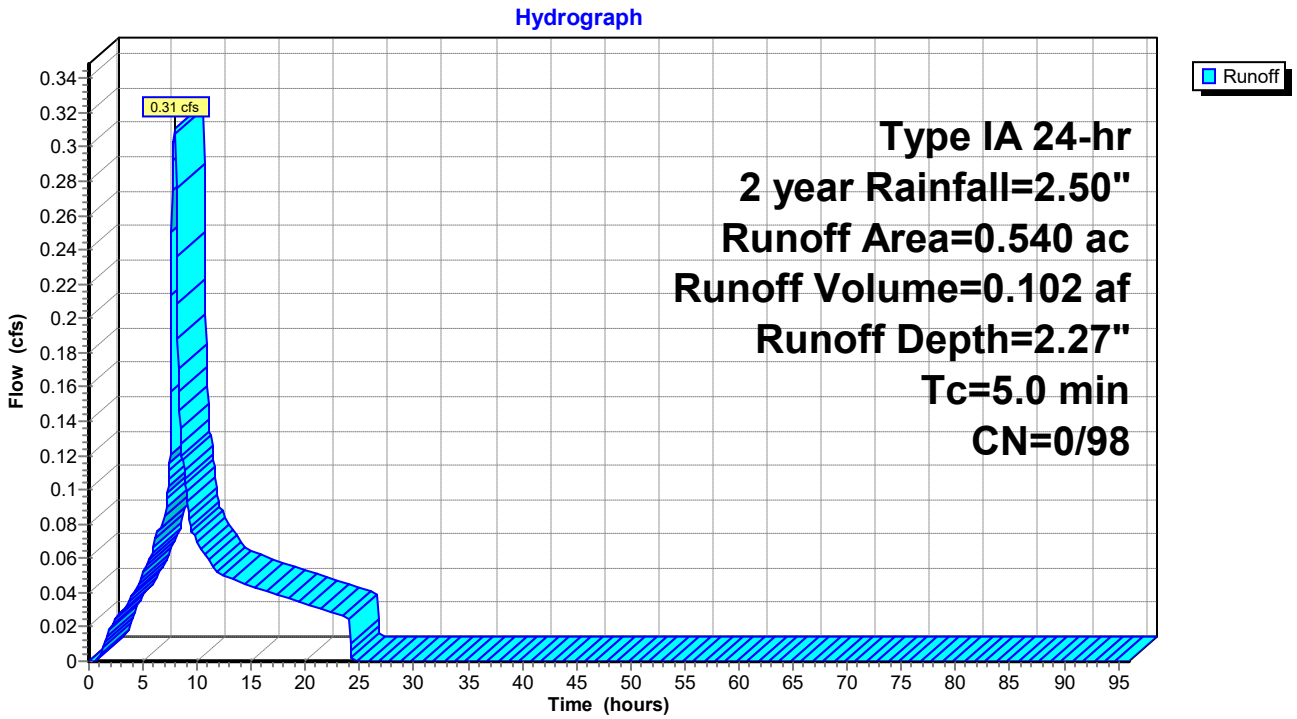
Runoff = 0.31 cfs @ 7.90 hrs, Volume= 0.102 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.540	98	Paved roads w/curbs & sewers, HSG D
0.540	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.2: Lynn



Summary for Subcatchment 1.3: E Parking + Pervious

[49] Hint: Tc<2dt may require smaller dt

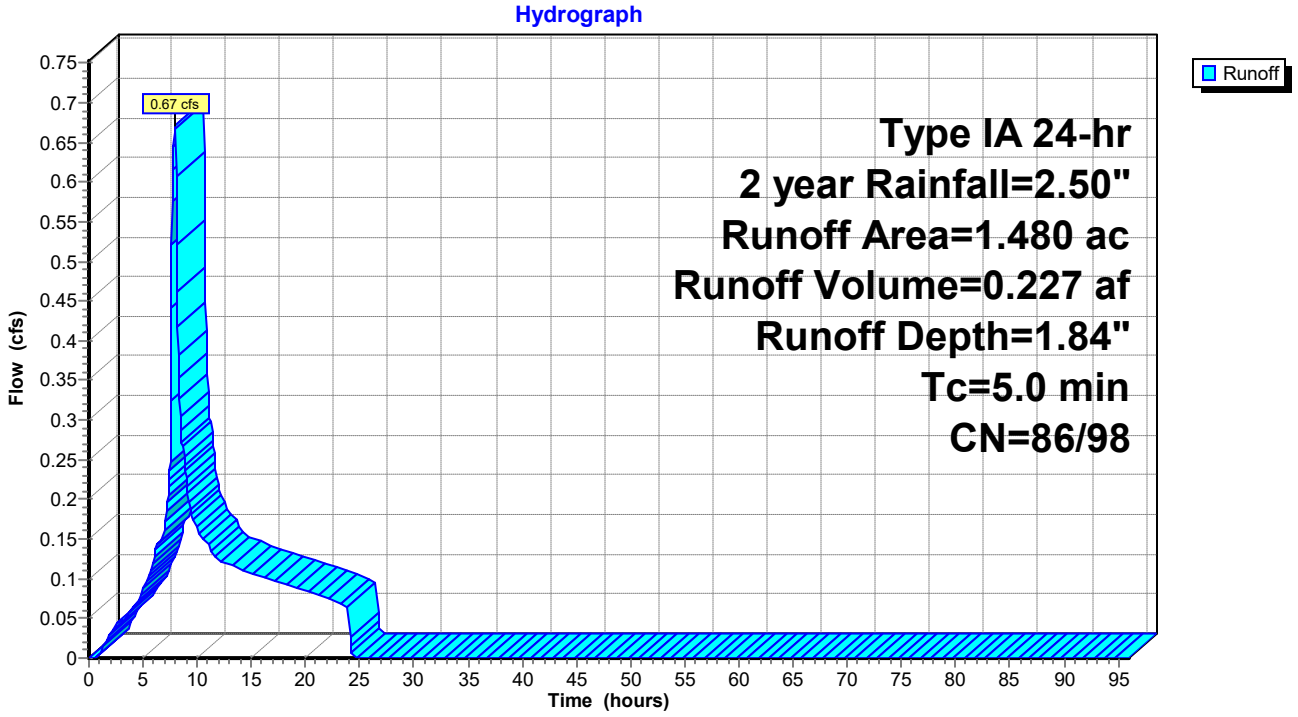
Runoff = 0.67 cfs @ 7.93 hrs, Volume= 0.227 af, Depth= 1.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG D
0.410	80	>75% Grass cover, Good, HSG D
0.210	98	Water Surface, 0% imp, HSG D
1.480	93	Weighted Average
0.620	86	41.89% Pervious Area
0.860	98	58.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.3: E Parking + Pervious



Summary for Subcatchment 1.4: N Parking

[49] Hint: Tc<2dt may require smaller dt

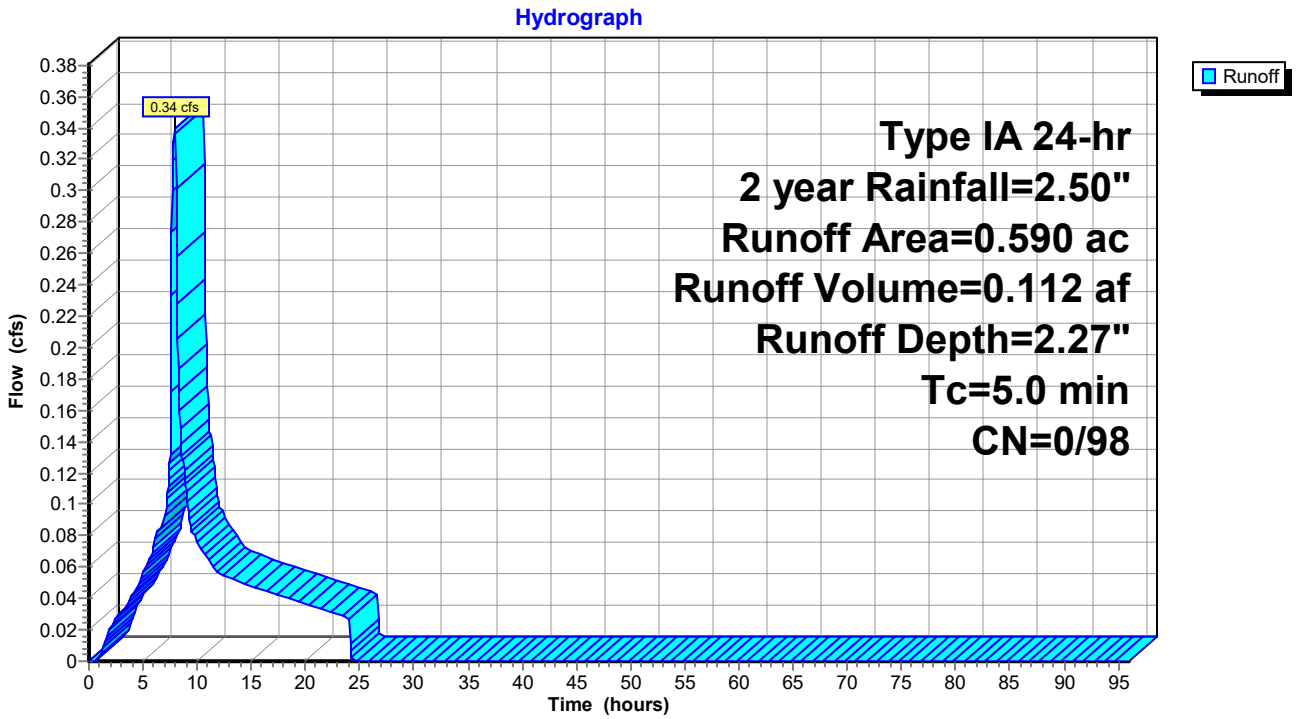
Runoff = 0.34 cfs @ 7.90 hrs, Volume= 0.112 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.590	98	Paved parking, HSG D
0.590	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.4: N Parking



Summary for Subcatchment 1.5: E Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

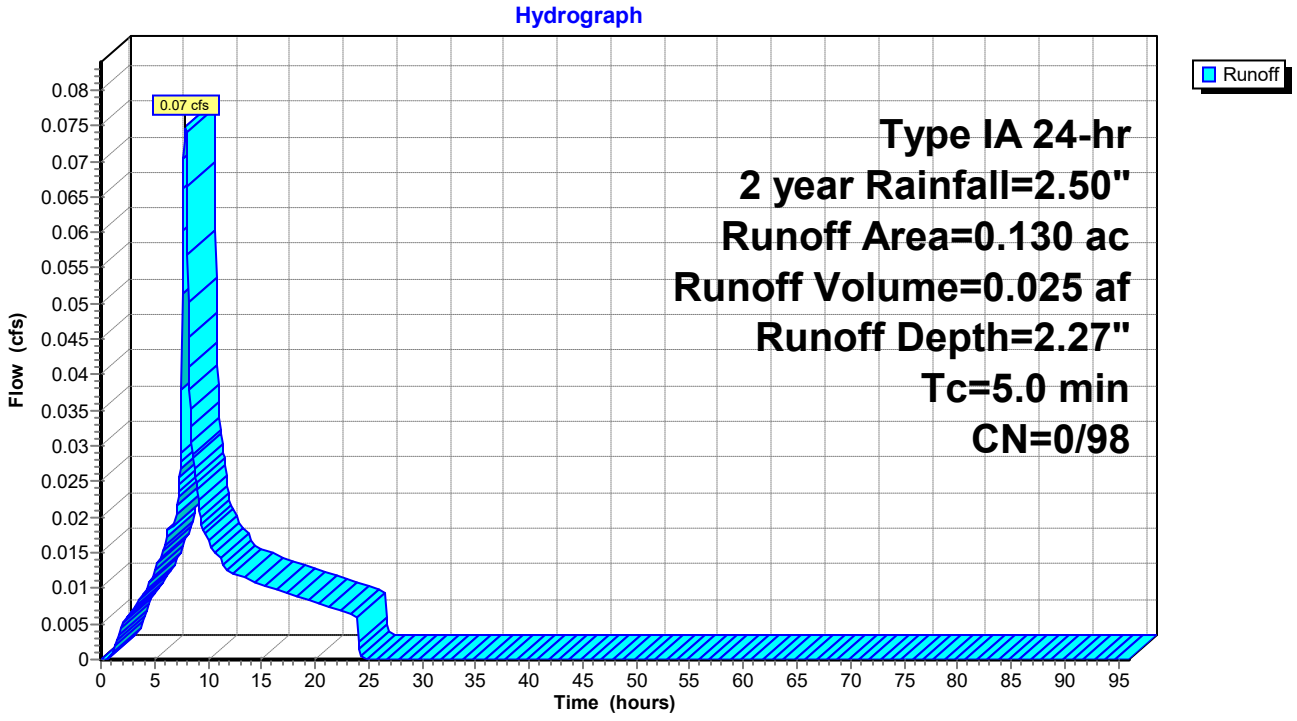
Runoff = 0.07 cfs @ 7.90 hrs, Volume= 0.025 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG D
0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.5: E Leroy



Summary for Subcatchment 1.6: NE Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

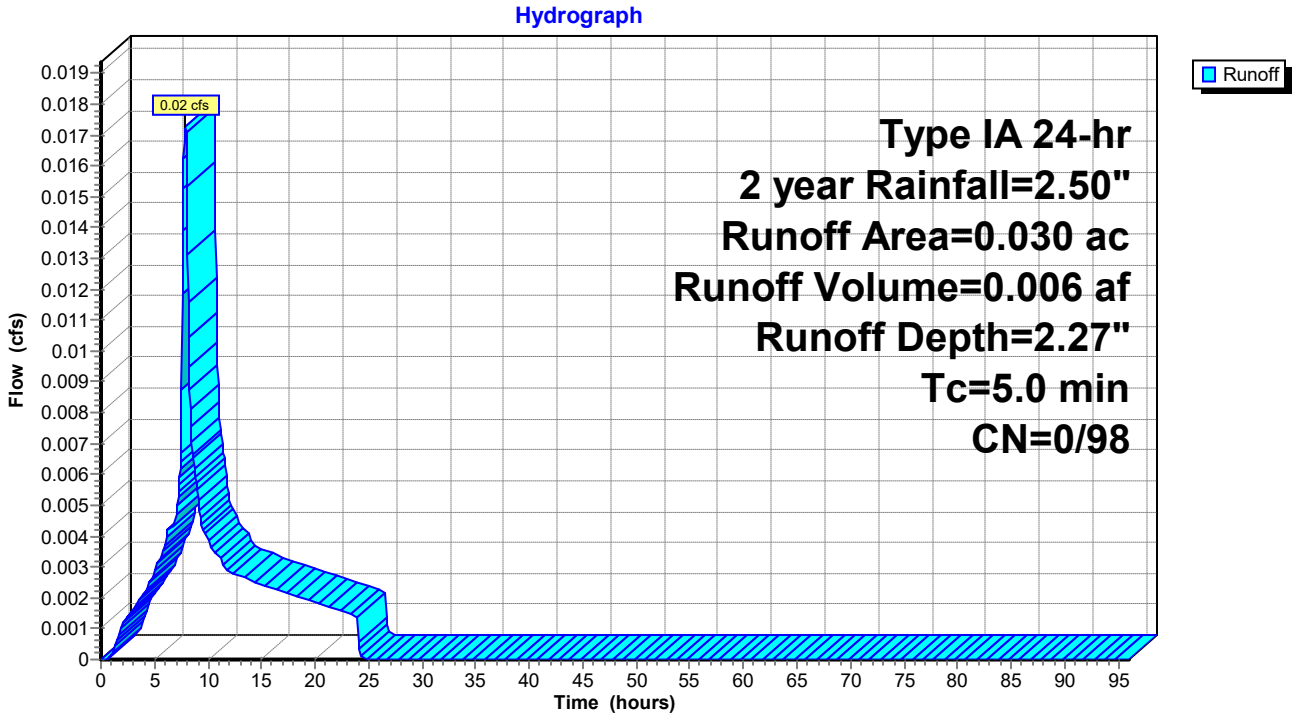
Runoff = 0.02 cfs @ 7.90 hrs, Volume= 0.006 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.6: NE Leroy



Summary for Subcatchment 1.7: NW Leroy

[49] Hint: Tc<2dt may require smaller dt

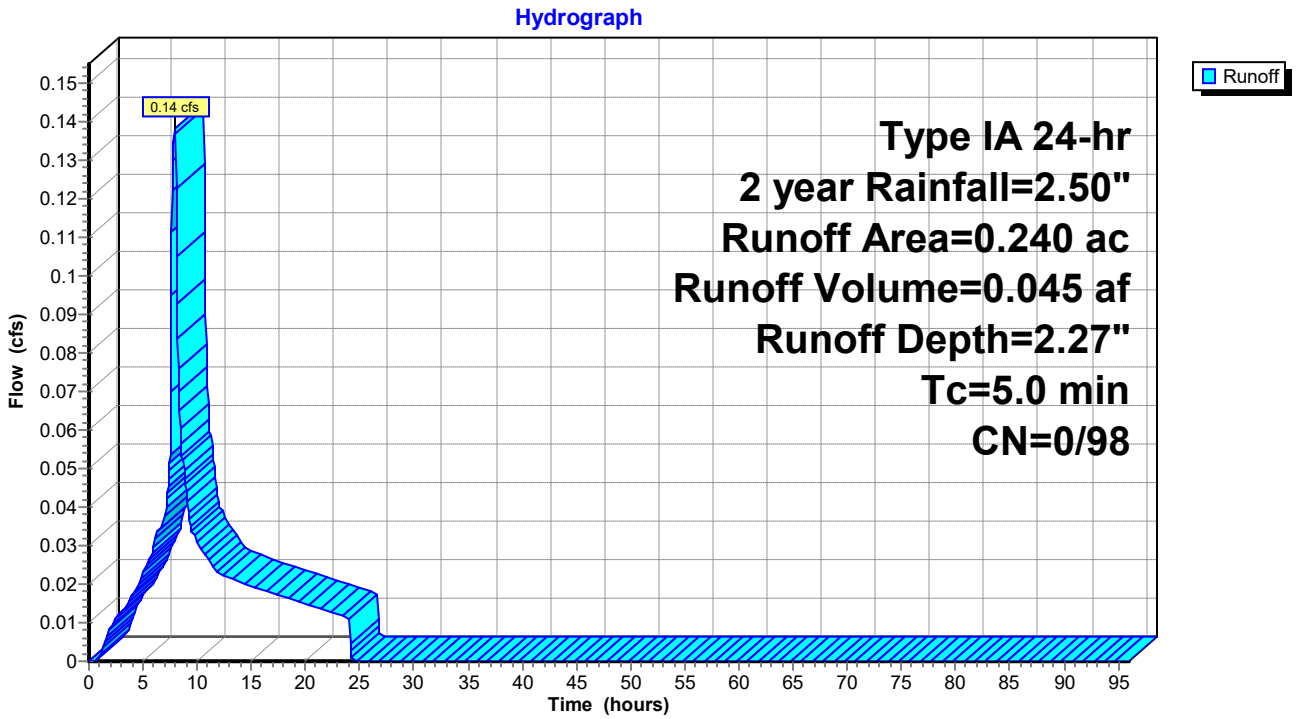
Runoff = 0.14 cfs @ 7.90 hrs, Volume= 0.045 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.7: NW Leroy



Summary for Subcatchment 1.8: S Parking

[49] Hint: Tc<2dt may require smaller dt

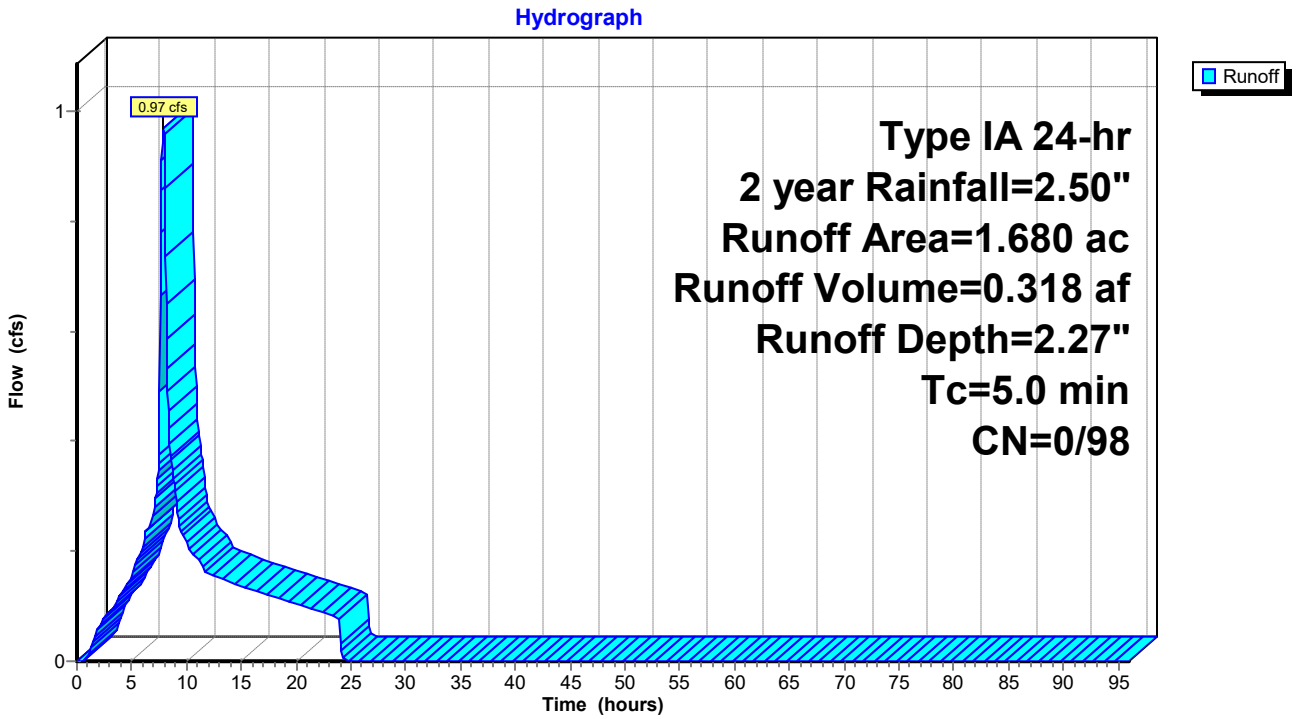
Runoff = 0.97 cfs @ 7.90 hrs, Volume= 0.318 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
1.680	98	Paved parking, HSG D
1.680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.8: S Parking



Summary for Subcatchment 1.9: Rec. Area

[49] Hint: Tc<2dt may require smaller dt

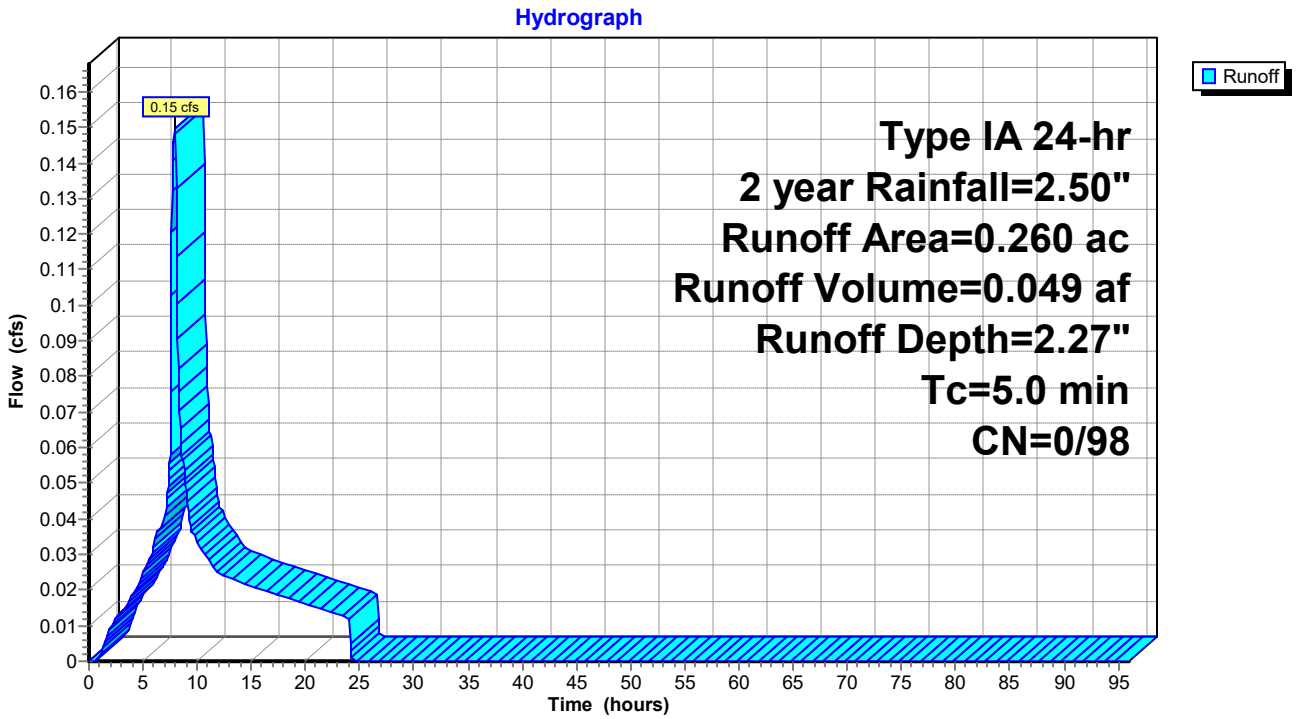
Runoff = 0.15 cfs @ 7.90 hrs, Volume= 0.049 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers, HSG D
0.260	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.9: Rec. Area



Summary for Subcatchment 2: Post Developed - Basin 2

[49] Hint: Tc<2dt may require smaller dt

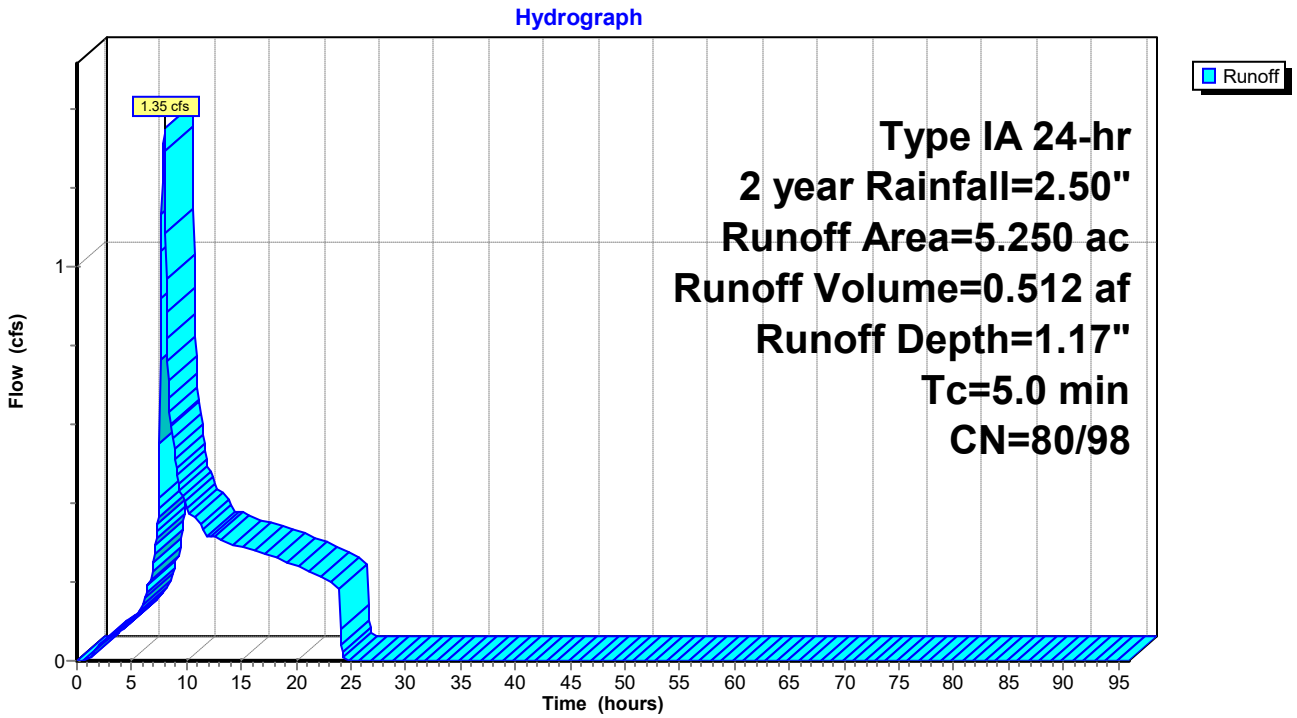
Runoff = 1.35 cfs @ 7.98 hrs, Volume= 0.512 af, Depth= 1.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
4.180	80	>75% Grass cover, Good, HSG D
1.070	98	Paved roads w/curbs & sewers, HSG D
5.250	84	Weighted Average
4.180	80	79.62% Pervious Area
1.070	98	20.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2: Post Developed - Basin 2



Summary for Subcatchment 2.1: NE West

[49] Hint: Tc<2dt may require smaller dt

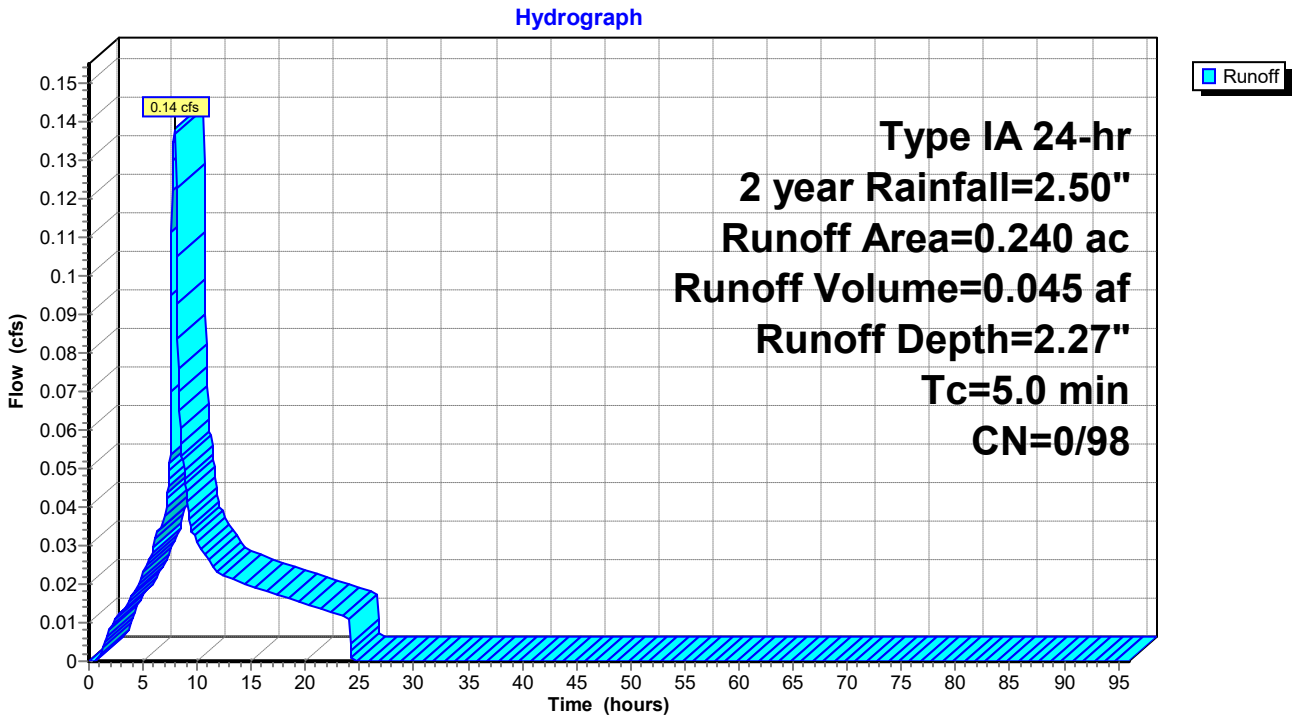
Runoff = 0.14 cfs @ 7.90 hrs, Volume= 0.045 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.1: NE West



Summary for Subcatchment 2.2: S Hezzie

[49] Hint: Tc<2dt may require smaller dt

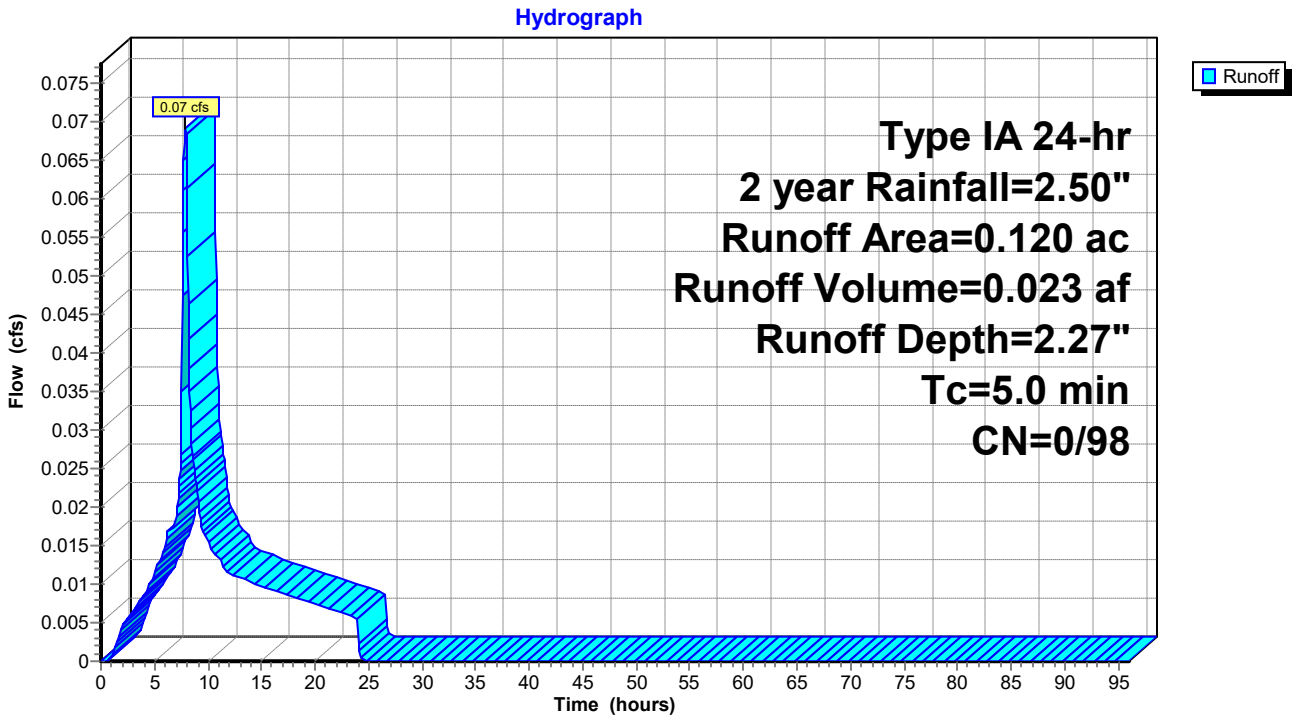
Runoff = 0.07 cfs @ 7.90 hrs, Volume= 0.023 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.120	98	Paved roads w/curbs & sewers, HSG D
0.120	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.2: S Hezzie



Summary for Subcatchment 2.3: NW West

[49] Hint: Tc<2dt may require smaller dt

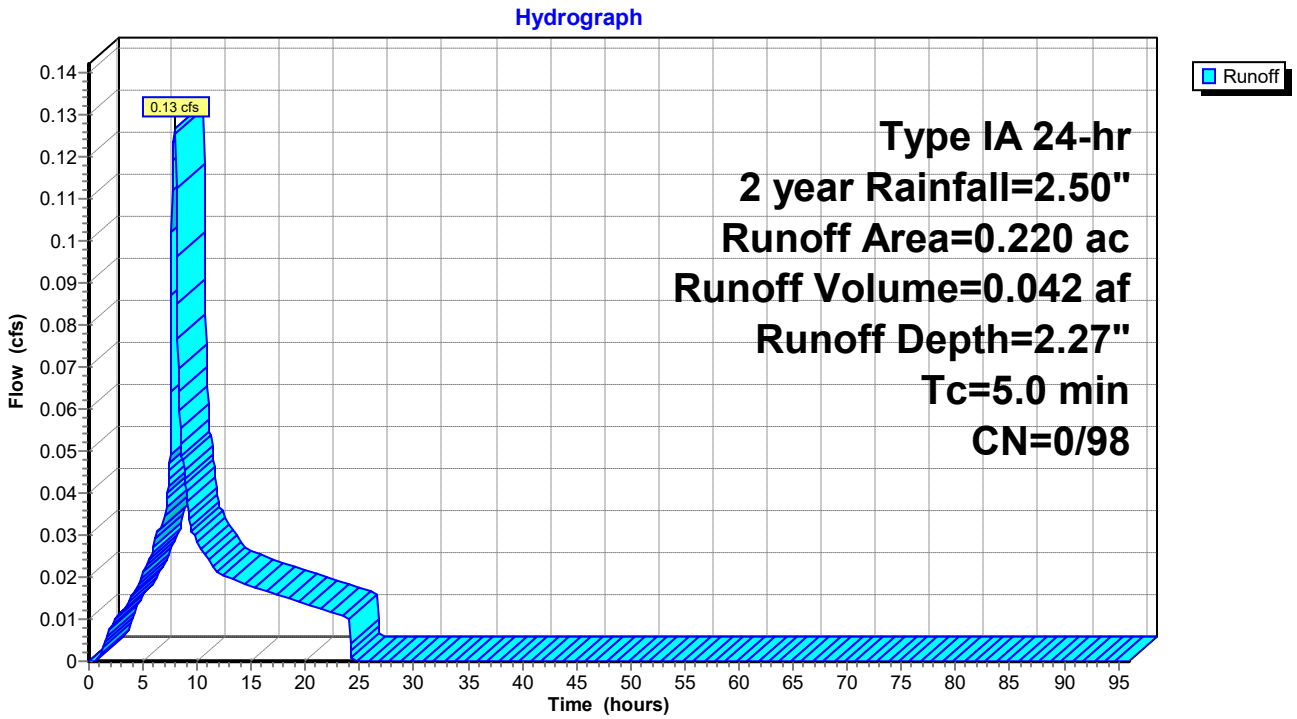
Runoff = 0.13 cfs @ 7.90 hrs, Volume= 0.042 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.220	98	Paved roads w/curbs & sewers, HSG D
0.220	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.3: NW West



Summary for Subcatchment 2.4: SW West

[49] Hint: Tc<2dt may require smaller dt

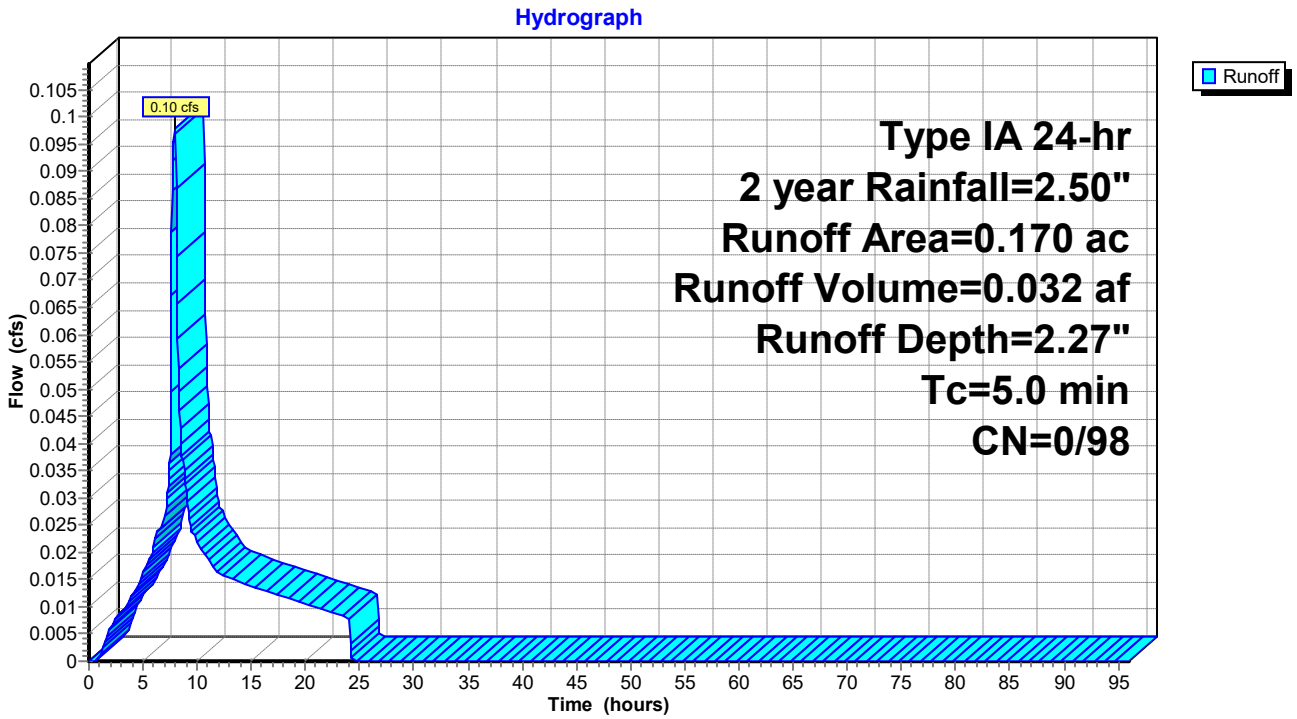
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 0.032 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers, HSG D
0.170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.4: SW West



Summary for Subcatchment 2.5: SE West

[49] Hint: Tc<2dt may require smaller dt

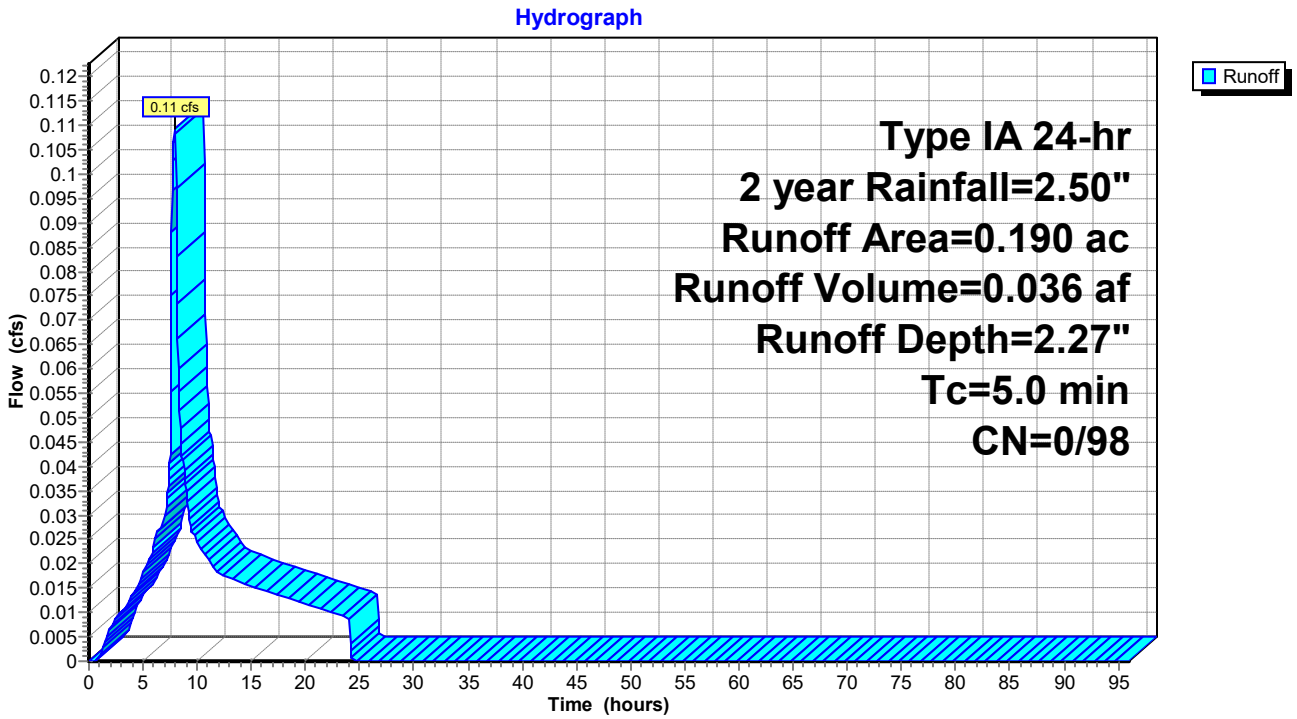
Runoff = 0.11 cfs @ 7.90 hrs, Volume= 0.036 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers, HSG D
0.190	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.5: SE West



Summary for Subcatchment 2.6: SE Leroy

[49] Hint: Tc<2dt may require smaller dt

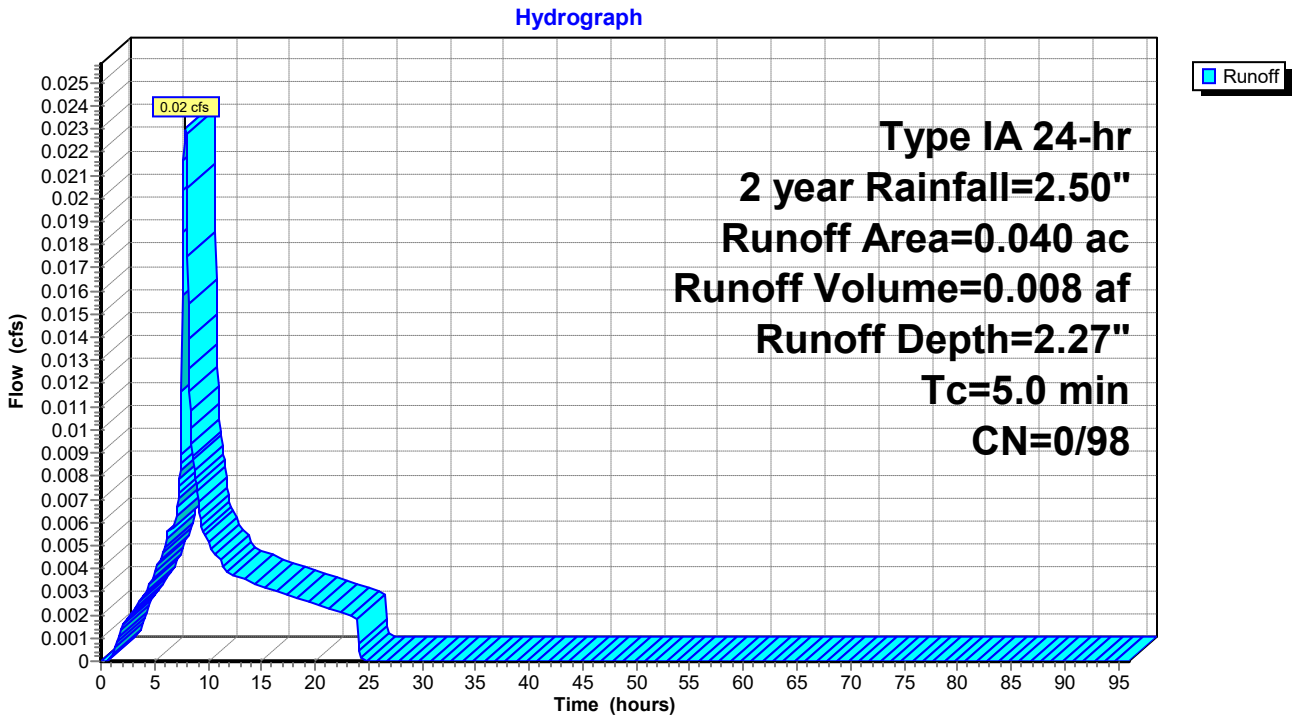
Runoff = 0.02 cfs @ 7.90 hrs, Volume= 0.008 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers, HSG D
0.040	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.6: SE Leroy



Summary for Subcatchment 2.7: SW Leroy

[49] Hint: Tc<2dt may require smaller dt

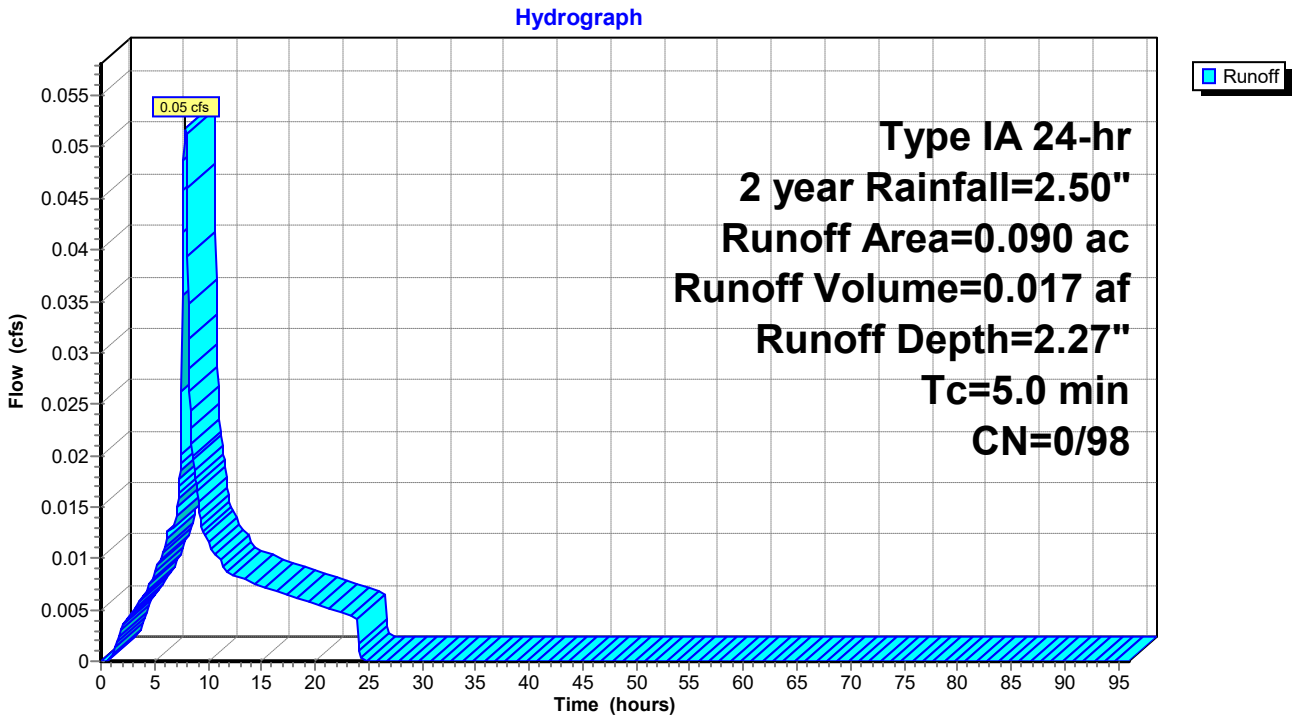
Runoff = 0.05 cfs @ 7.90 hrs, Volume= 0.017 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers, HSG D
0.090	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.7: SW Leroy



Summary for Subcatchment 2.8: Pervious West

[49] Hint: Tc<2dt may require smaller dt

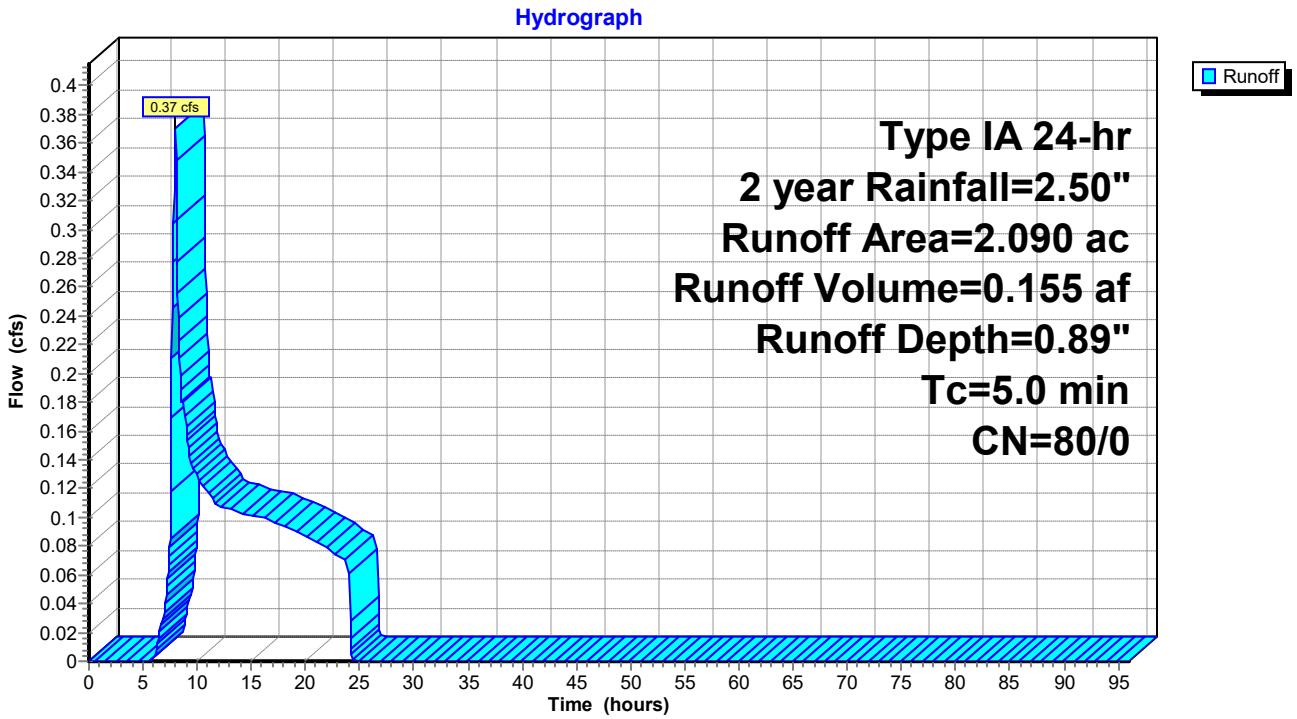
Runoff = 0.37 cfs @ 7.99 hrs, Volume= 0.155 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.8: Pervious West



Summary for Subcatchment 2.9: Pervious East

[49] Hint: Tc<2dt may require smaller dt

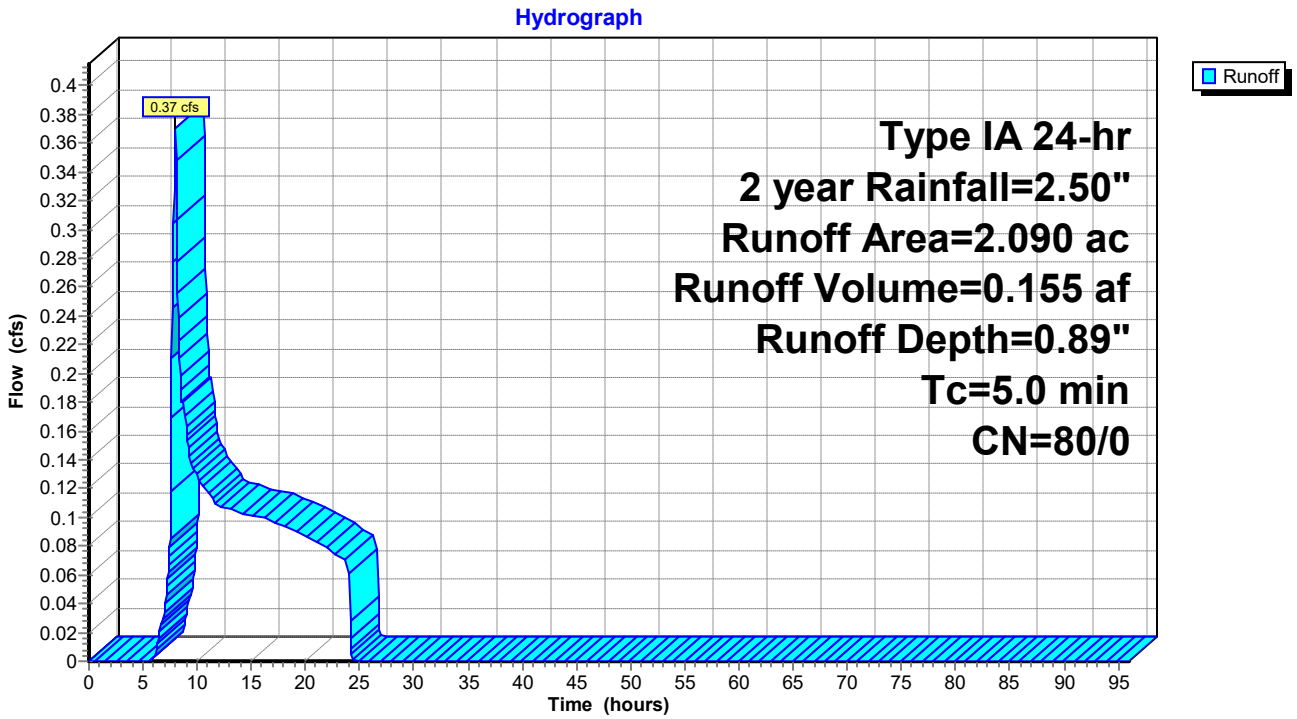
Runoff = 0.37 cfs @ 7.99 hrs, Volume= 0.155 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.9: Pervious East



Summary for Subcatchment 3.1: SW Parking + Pervious - Basin 3

[49] Hint: Tc<2dt may require smaller dt

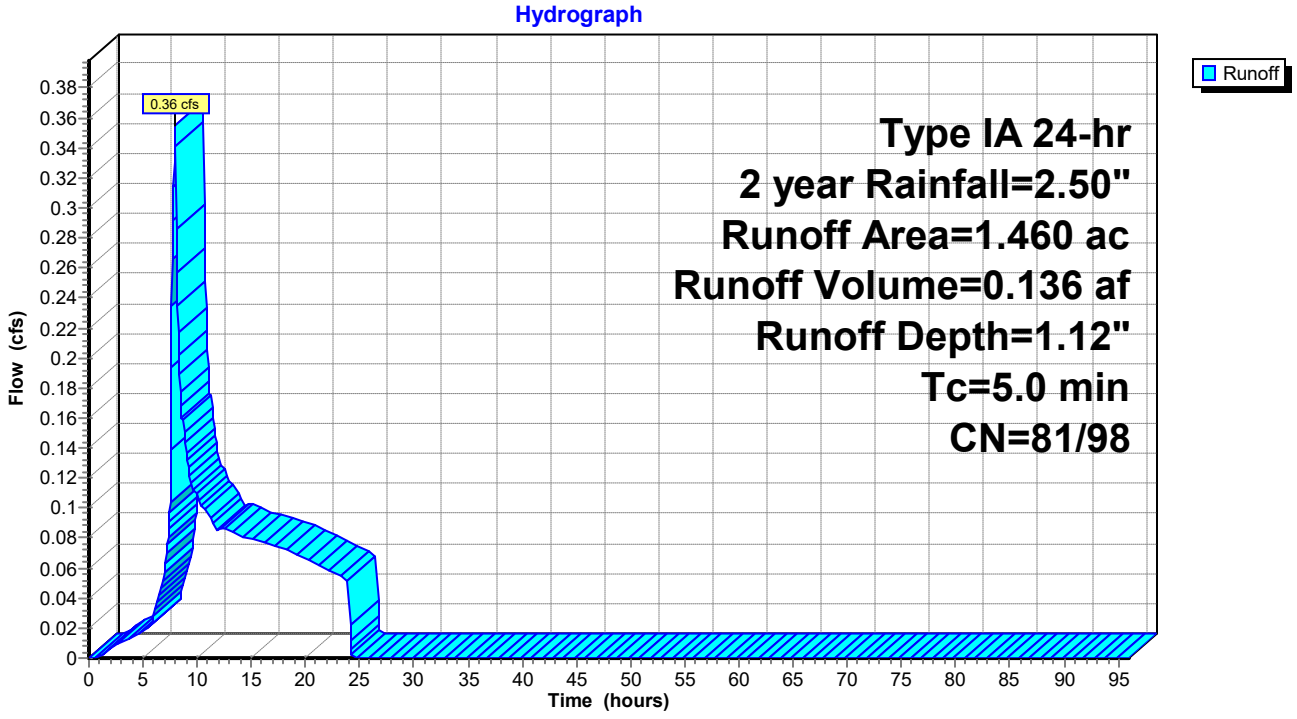
Runoff = 0.36 cfs @ 7.98 hrs, Volume= 0.136 af, Depth= 1.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
1.190	80	>75% Grass cover, Good, HSG D
0.190	98	Paved parking, HSG D
0.080	98	Water Surface, 0% imp, HSG D
1.460	83	Weighted Average
1.270	81	86.99% Pervious Area
0.190	98	13.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.1: SW Parking + Pervious - Basin 3



Summary for Subcatchment 3.2: N Hezzie

[49] Hint: Tc<2dt may require smaller dt

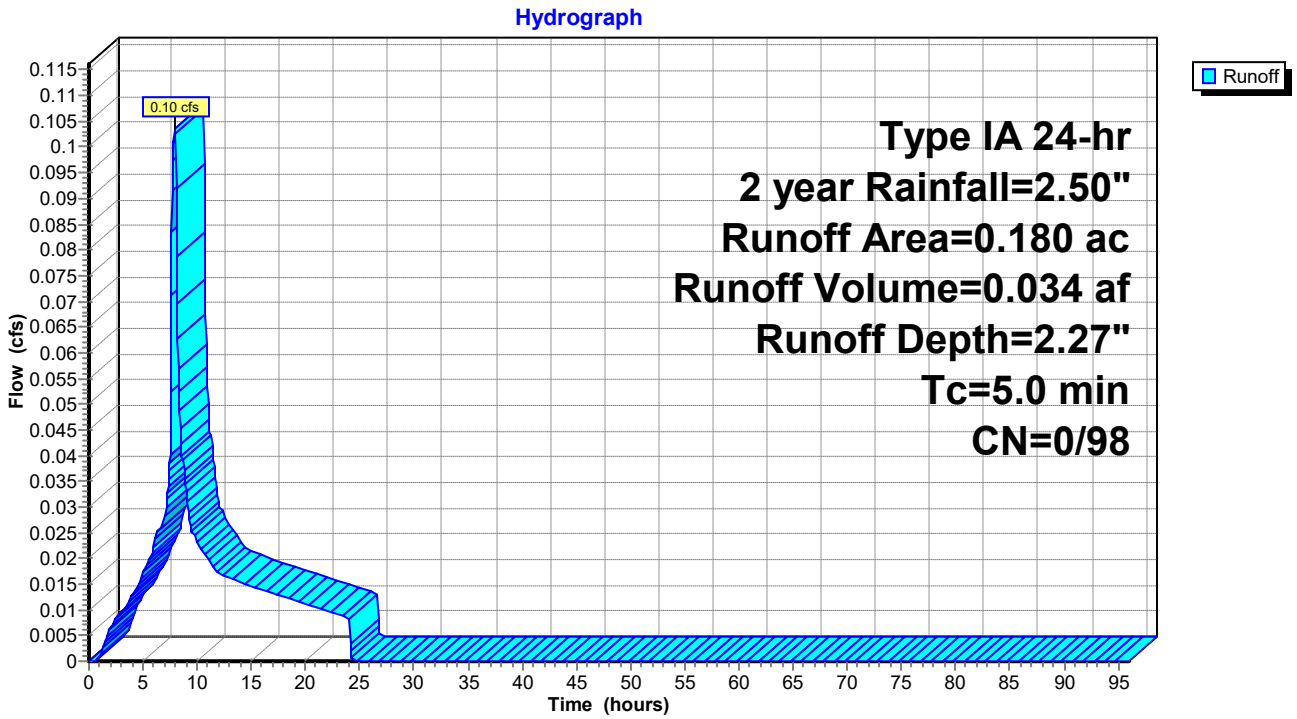
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 0.034 af, Depth= 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=2.50"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG D
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.2: N Hezzie



Summary for Reach 2.1R: 12" outfall (West)

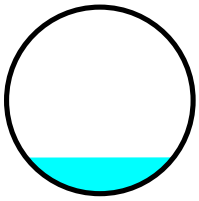
[52] Hint: Inlet/Outlet conditions not evaluated

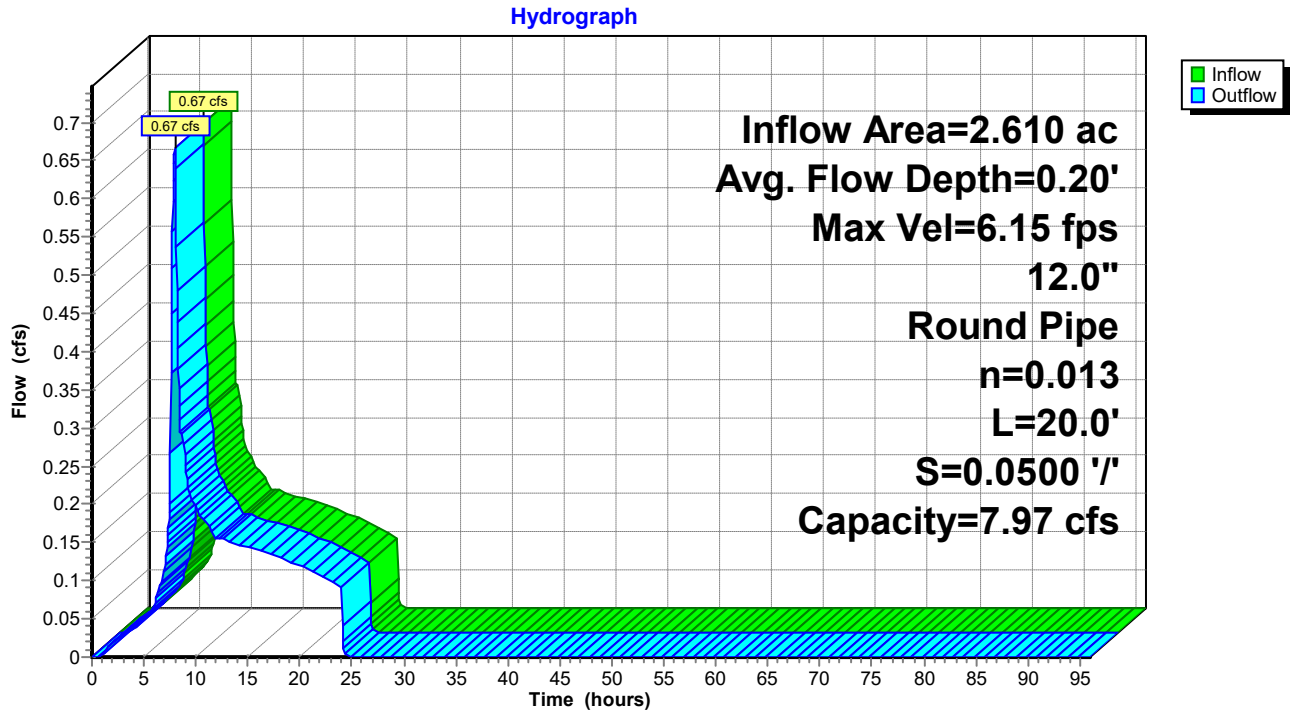
Inflow Area = 2.610 ac, 19.92% Impervious, Inflow Depth = 1.16" for 2 year event
Inflow = 0.67 cfs @ 7.98 hrs, Volume= 0.253 af
Outflow = 0.67 cfs @ 7.98 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.15 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.55 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





Summary for Reach 2.2R: 12" outfall (Hezzie)

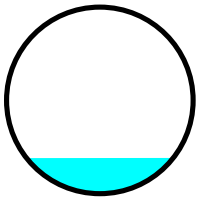
[52] Hint: Inlet/Outlet conditions not evaluated

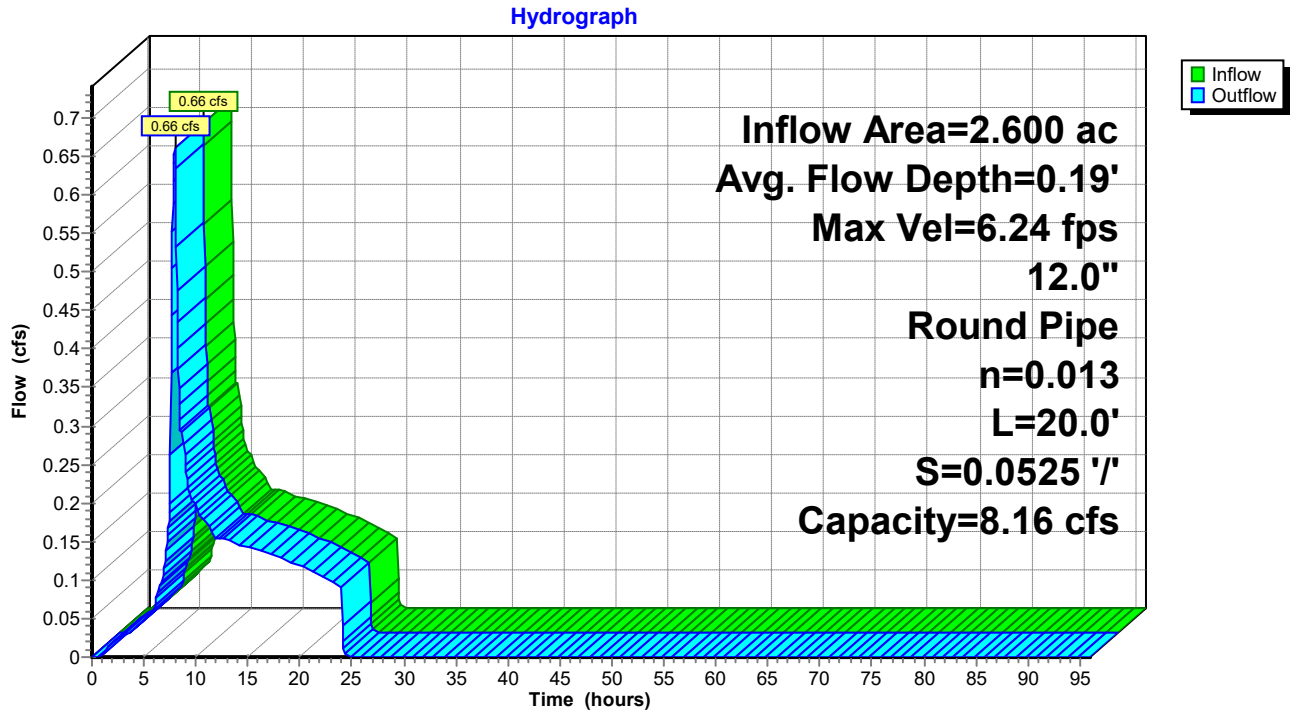
Inflow Area = 2.600 ac, 19.62% Impervious, Inflow Depth = 1.16" for 2 year event
Inflow = 0.66 cfs @ 7.98 hrs, Volume= 0.251 af
Outflow = 0.66 cfs @ 7.98 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.24 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.61 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.16 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0525 '/'
Inlet Invert= 1.05', Outlet Invert= 0.00'





Summary for Reach 3R: To Ex. MH (Hezzie & North Valley)

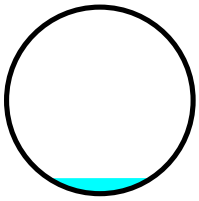
[52] Hint: Inlet/Outlet conditions not evaluated

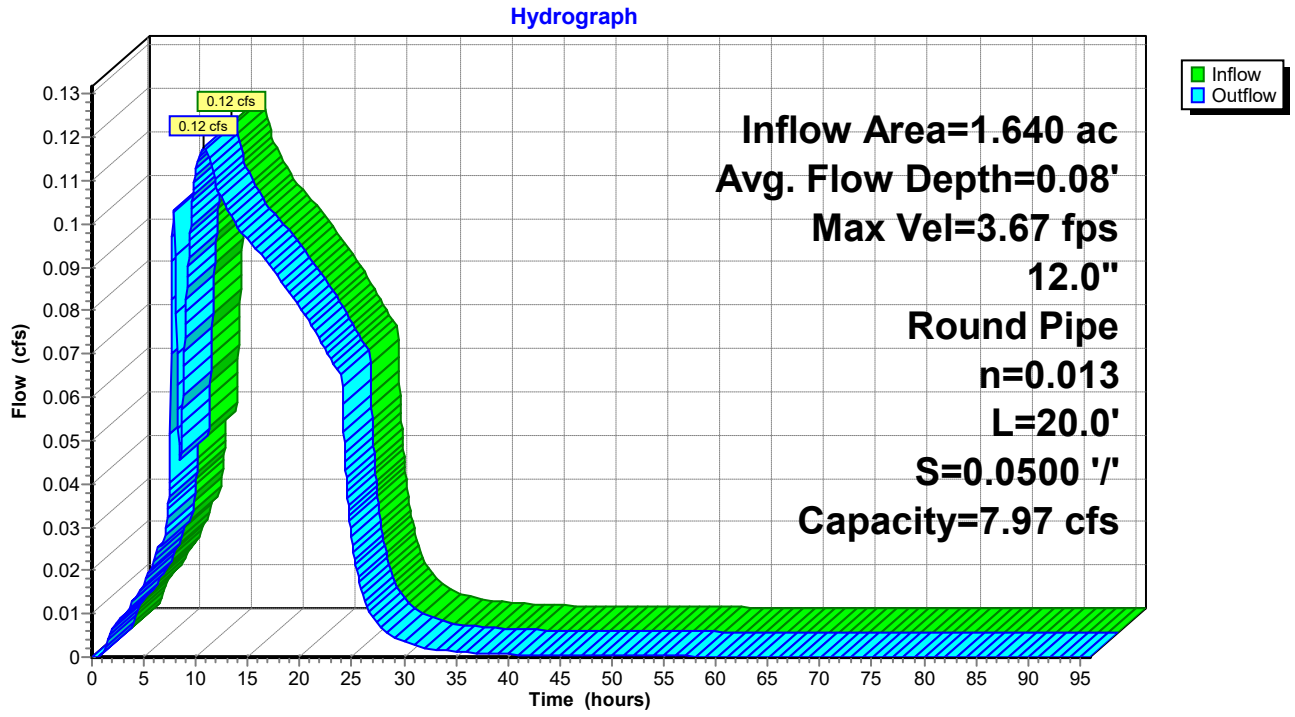
Inflow Area = 1.640 ac, 22.56% Impervious, Inflow Depth > 1.02" for 2 year event
Inflow = 0.12 cfs @ 10.81 hrs, Volume= 0.140 af
Outflow = 0.12 cfs @ 10.82 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 10.81 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





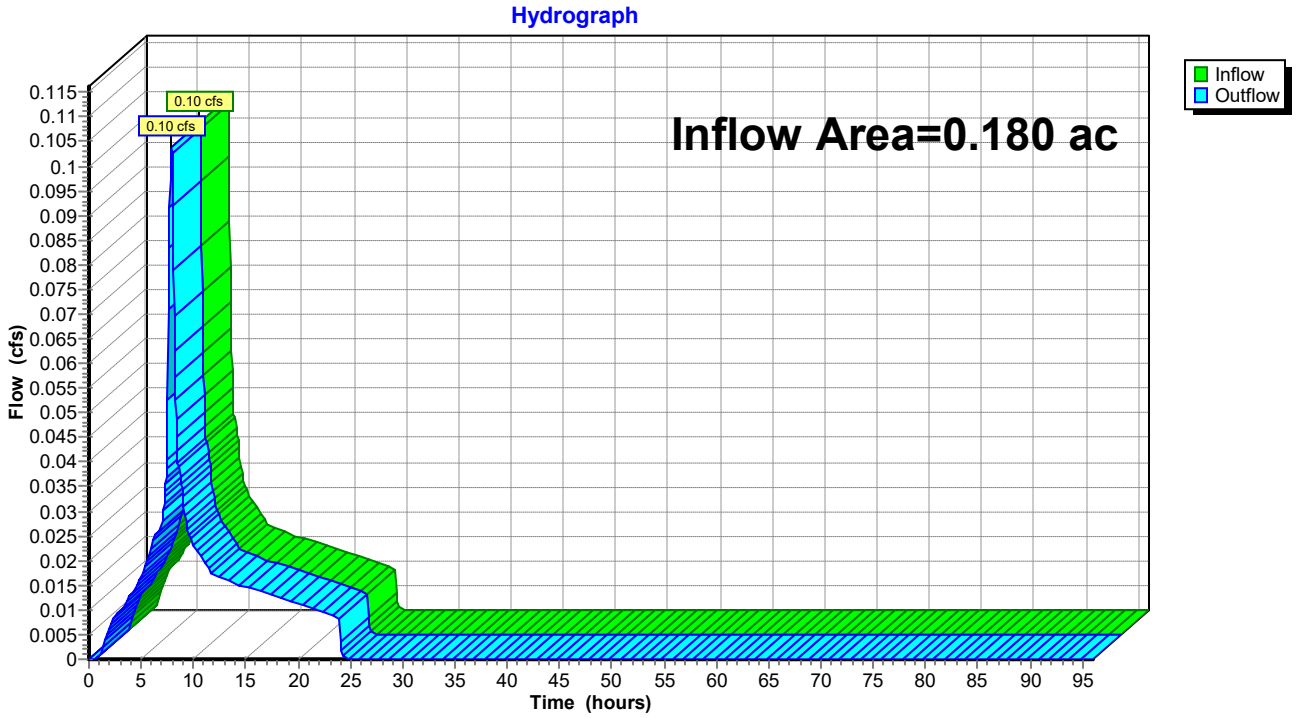
Summary for Reach C14: Filter CB 11

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.10 cfs @ 7.90 hrs, Volume= 0.034 af
Outflow = 0.10 cfs @ 7.90 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C14: Filter CB 11



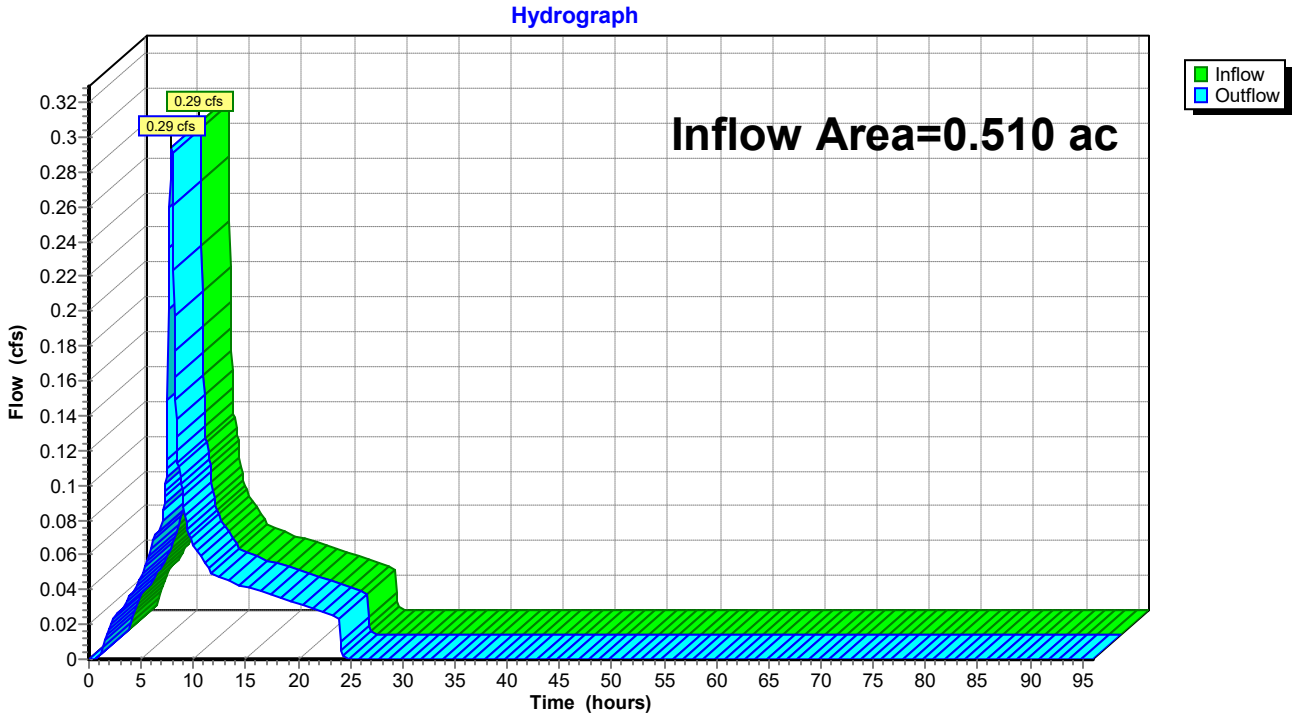
Summary for Reach C15: Filter CB 12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.510 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.29 cfs @ 7.90 hrs, Volume= 0.097 af
Outflow = 0.29 cfs @ 7.90 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C15: Filter CB 12



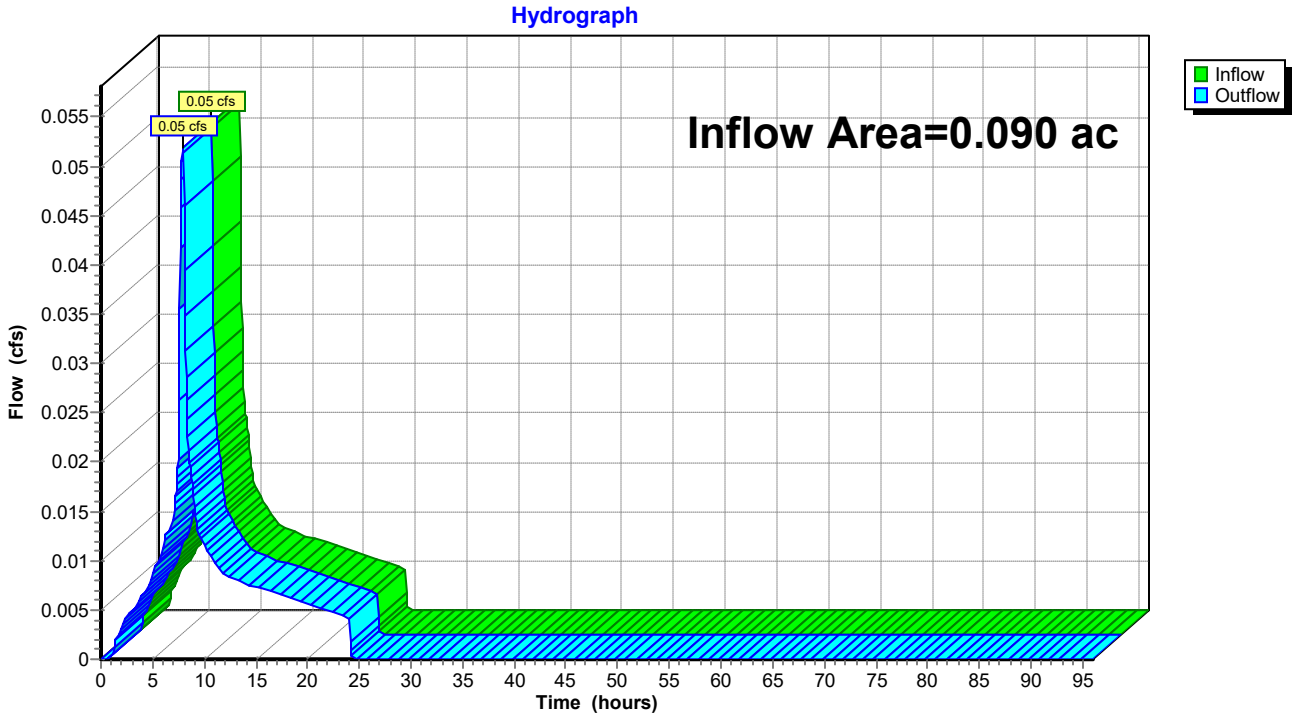
Summary for Reach C16: Filter CB 14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.05 cfs @ 7.90 hrs, Volume= 0.017 af
Outflow = 0.05 cfs @ 7.90 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C16: Filter CB 14



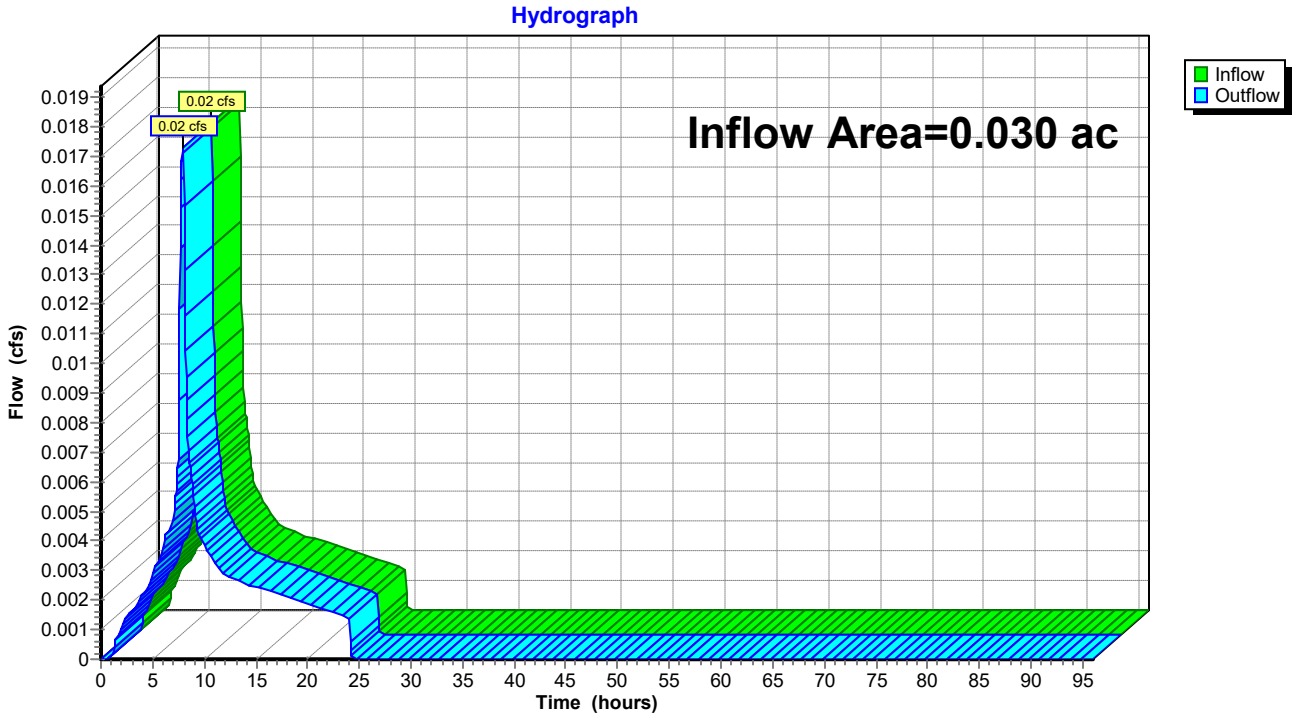
Summary for Reach C17: Filter CB 15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.030 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.02 cfs @ 7.90 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 7.90 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C17: Filter CB 15



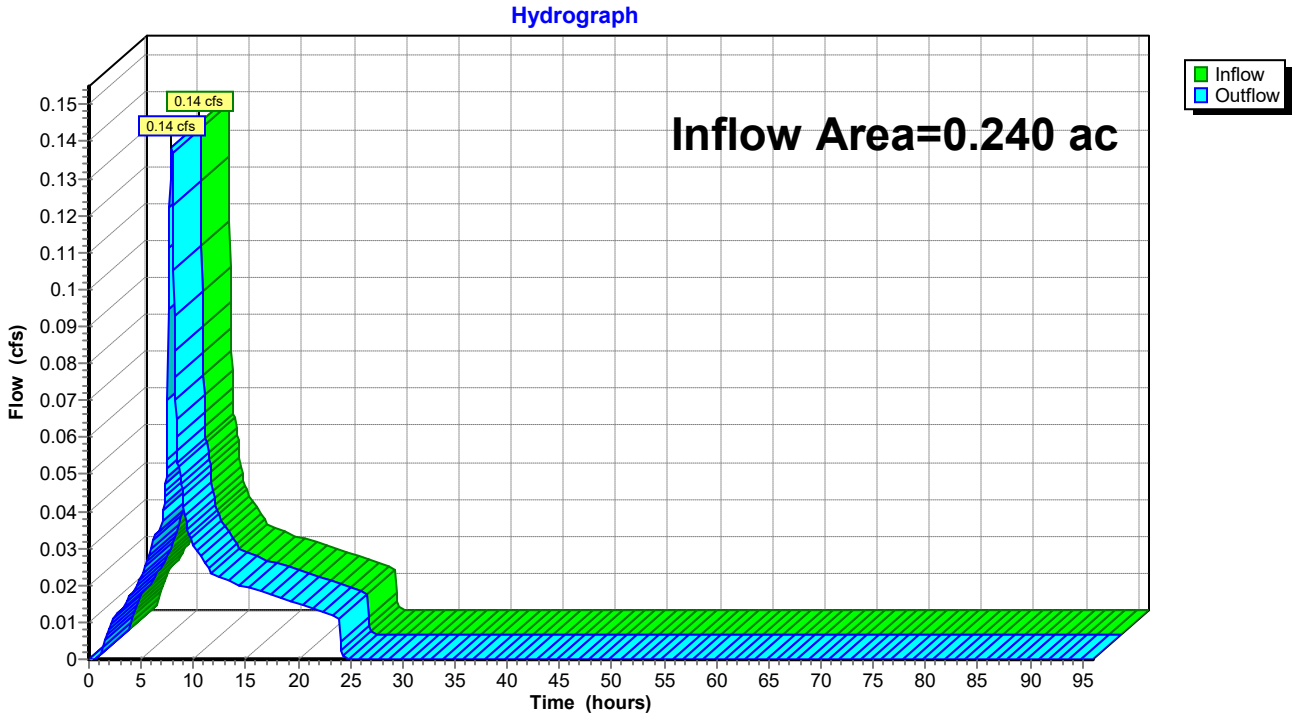
Summary for Reach C18: Filter CB 16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.240 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.14 cfs @ 7.90 hrs, Volume= 0.045 af
Outflow = 0.14 cfs @ 7.90 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C18: Filter CB 16



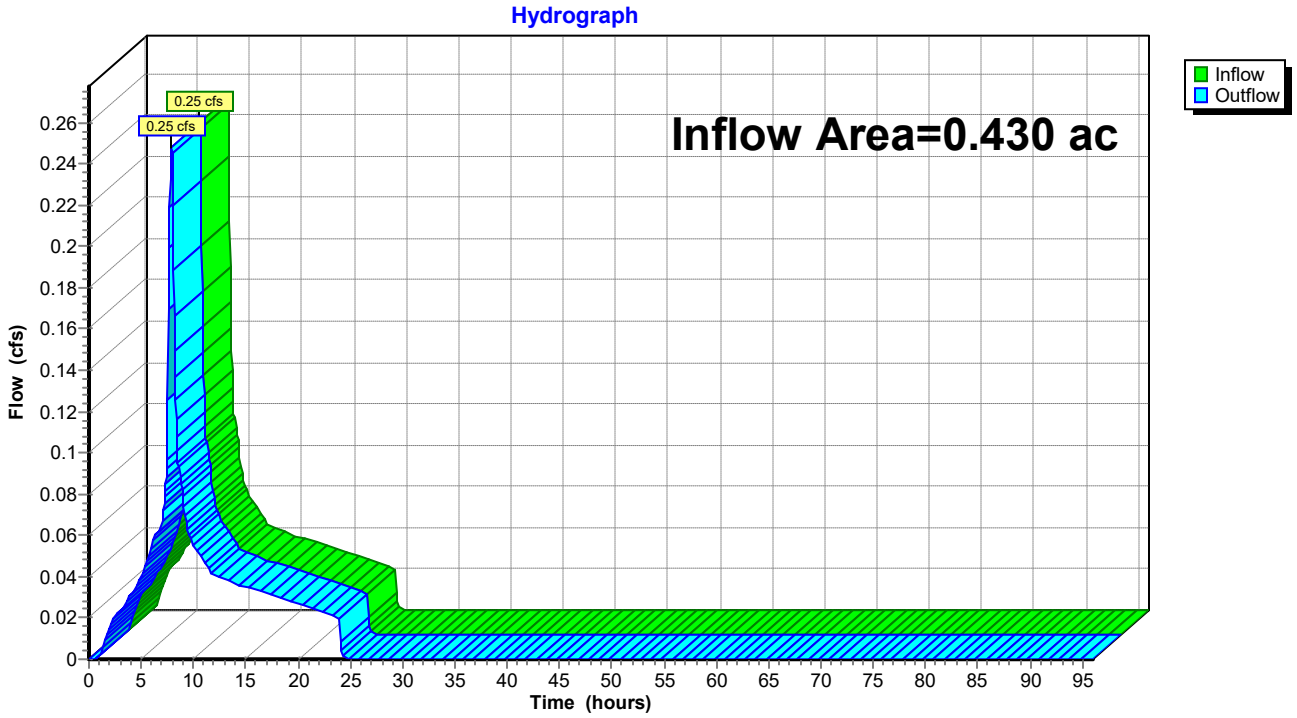
Summary for Reach C19: Filter CB 17

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.430 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.25 cfs @ 7.90 hrs, Volume= 0.081 af
Outflow = 0.25 cfs @ 7.90 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C19: Filter CB 17



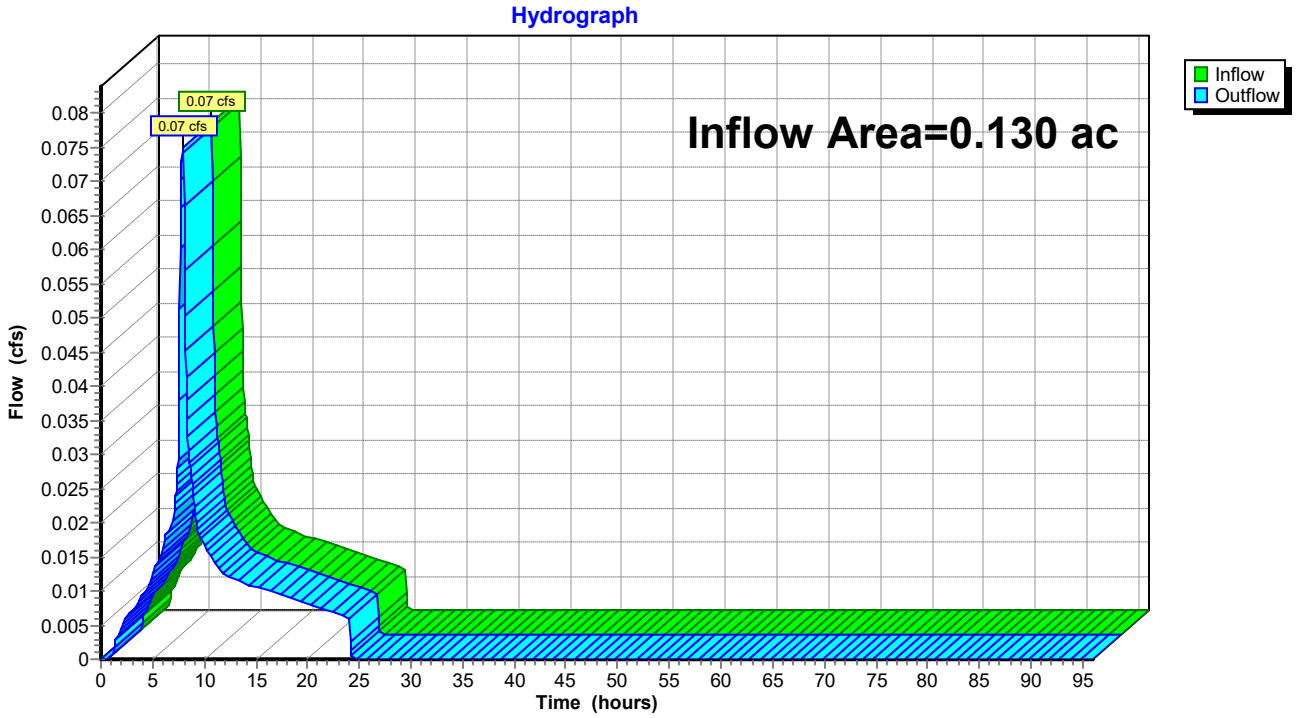
Summary for Reach C20: Filter CB 18

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.130 ac,100.00% Impervious, Inflow Depth = 2.27" for 2 year event
Inflow = 0.07 cfs @ 7.90 hrs, Volume= 0.025 af
Outflow = 0.07 cfs @ 7.90 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C20: Filter CB 18



Summary for Pond 6P: Wet Pond- Basin 1

Inflow Area = 13.140 ac, 46.04% Impervious, Inflow Depth = 1.56" for 2 year event
Inflow = 4.82 cfs @ 7.94 hrs, Volume= 1.708 af
Outflow = 1.08 cfs @ 11.10 hrs, Volume= 1.708 af, Atten= 78%, Lag= 189.3 min
Primary = 1.08 cfs @ 11.10 hrs, Volume= 1.708 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Starting Elev= 340.66' Surf.Area= 0.163 ac Storage= 0.100 af
Peak Elev= 342.87' @ 11.10 hrs Surf.Area= 0.248 ac Storage= 0.552 af (0.452 af above start)

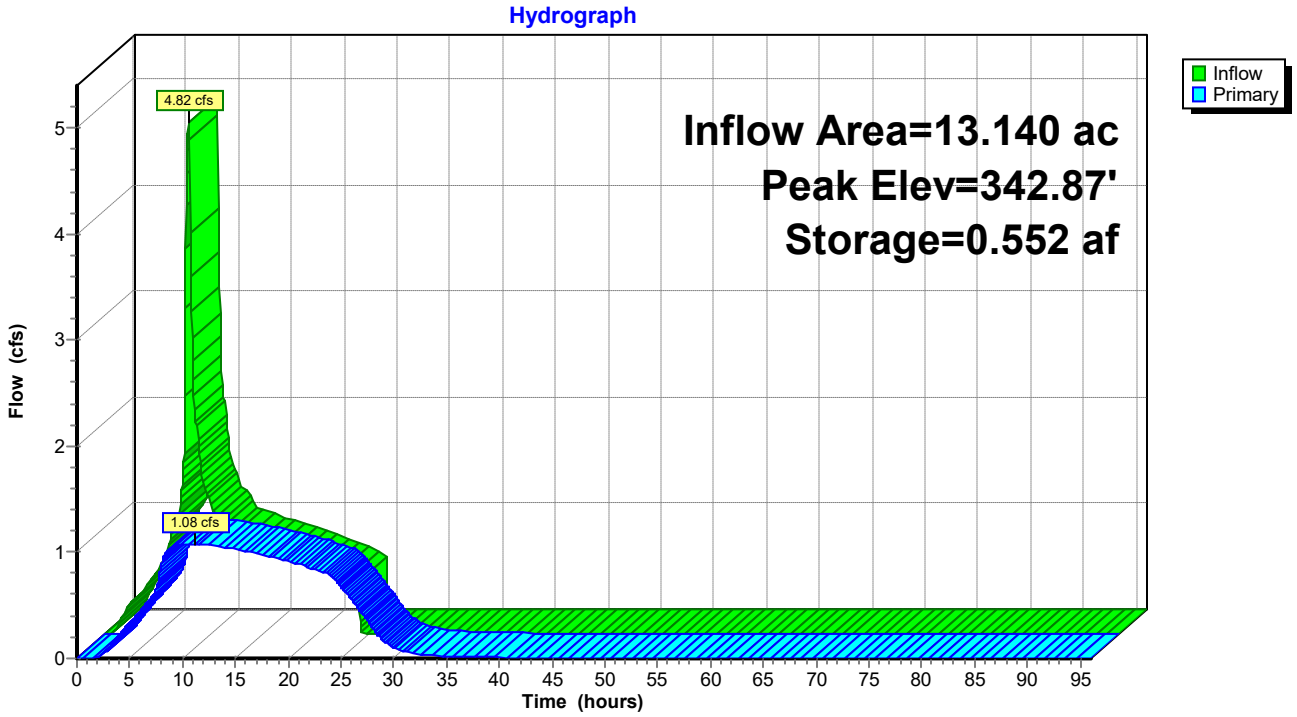
Plug-Flow detention time= 341.9 min calculated for 1.608 af (94% of inflow)
Center-of-Mass det. time= 258.8 min (984.8 - 726.0)

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	1.179 af	**45.00'W x 136.00'L x 5.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices		
#1	Primary	340.66'	**5.4" Vert. Orifice/Grate**	C= 0.600	
#2	Primary	342.88'	**7.9" Vert. Orifice/Grate**	C= 0.600	
#3	Primary	343.62'	**4.9" Vert. Orifice/Grate**	C= 0.600	
#4	Primary	344.00'	**8.0" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=1.08 cfs @ 11.10 hrs HW=342.87' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.08 cfs @ 6.79 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Wet Pond- Basin 1



Summary for Pond P1: Planter 1

Inflow Area = 1.480 ac, 58.11% Impervious, Inflow Depth = 1.84" for 2 year event
Inflow = 0.67 cfs @ 7.93 hrs, Volume= 0.227 af
Outflow = 0.13 cfs @ 11.66 hrs, Volume= 0.155 af, Atten= 81%, Lag= 224.2 min
Primary = 0.13 cfs @ 11.66 hrs, Volume= 0.155 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 347.21' @ 11.66 hrs Surf.Area= 0.165 ac Storage= 0.105 af

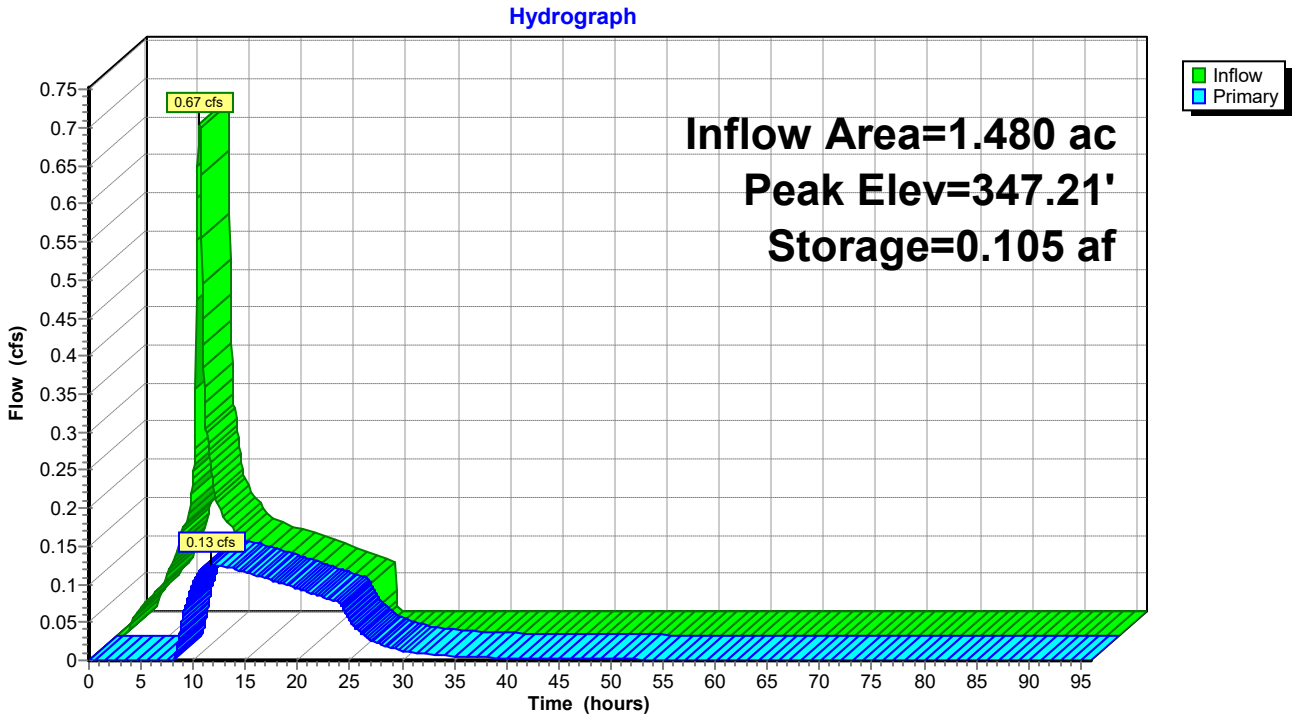
Plug-Flow detention time= 597.1 min calculated for 0.155 af (68% of inflow)
Center-of-Mass det. time= 405.0 min (1,115.3 - 710.3)

Volume	Invert	Avail.Storage	Storage Description
#1	346.50'	0.154 af	**16.00'W x 350.00'L x 1.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	347.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.13 cfs @ 11.66 hrs HW=347.21' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.13 cfs @ 1.57 fps)

Pond P1: Planter 1



Summary for Pond P2: Planter 2

Inflow Area = 1.460 ac, 13.01% Impervious, Inflow Depth = 1.12" for 2 year event
Inflow = 0.36 cfs @ 7.98 hrs, Volume= 0.136 af
Outflow = 0.10 cfs @ 11.01 hrs, Volume= 0.106 af, Atten= 73%, Lag= 182.0 min
Primary = 0.10 cfs @ 11.01 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 344.69' @ 11.01 hrs Surf.Area= 0.068 ac Storage= 0.042 af

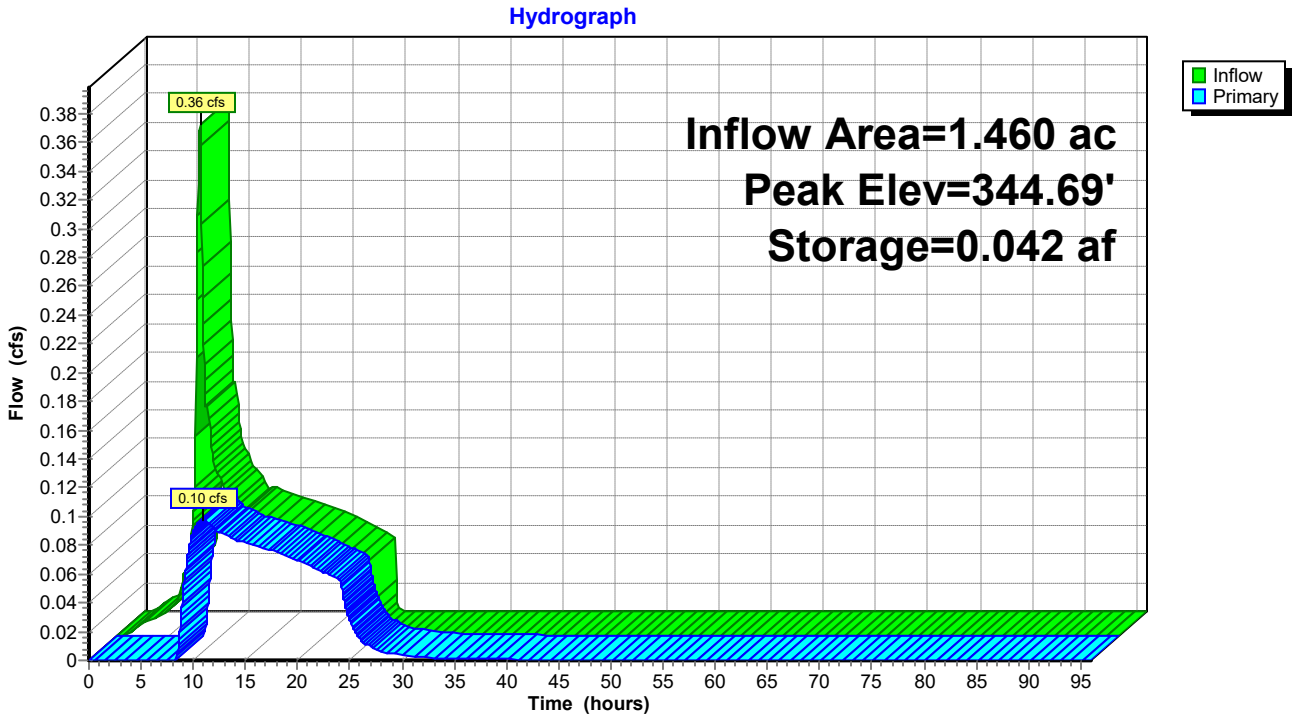
Plug-Flow detention time= 359.1 min calculated for 0.106 af (78% of inflow)
Center-of-Mass det. time= 227.8 min (1,026.4 - 798.6)

Volume	Invert	Avail.Storage	Storage Description
#1	344.00'	0.065 af	**50.00'W x 48.00'L x 1.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.10 cfs @ 11.01 hrs HW=344.69' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.10 cfs @ 1.47 fps)

Pond P2: Planter 2



Summary for Subcatchment 1.1: Fire Lane

[49] Hint: Tc<2dt may require smaller dt

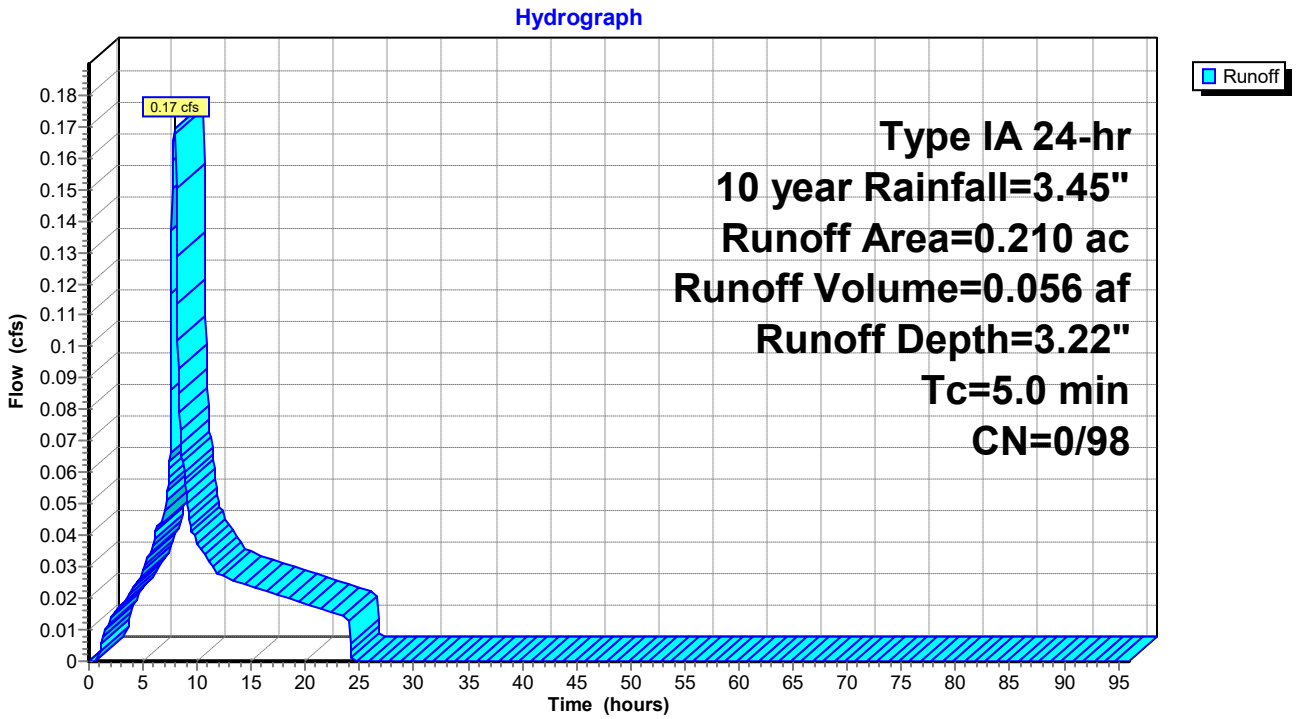
Runoff = 0.17 cfs @ 7.90 hrs, Volume= 0.056 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.210	98	Paved parking, HSG D
0.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.1: Fire Lane



Summary for Subcatchment 1.10: School

[49] Hint: Tc<2dt may require smaller dt

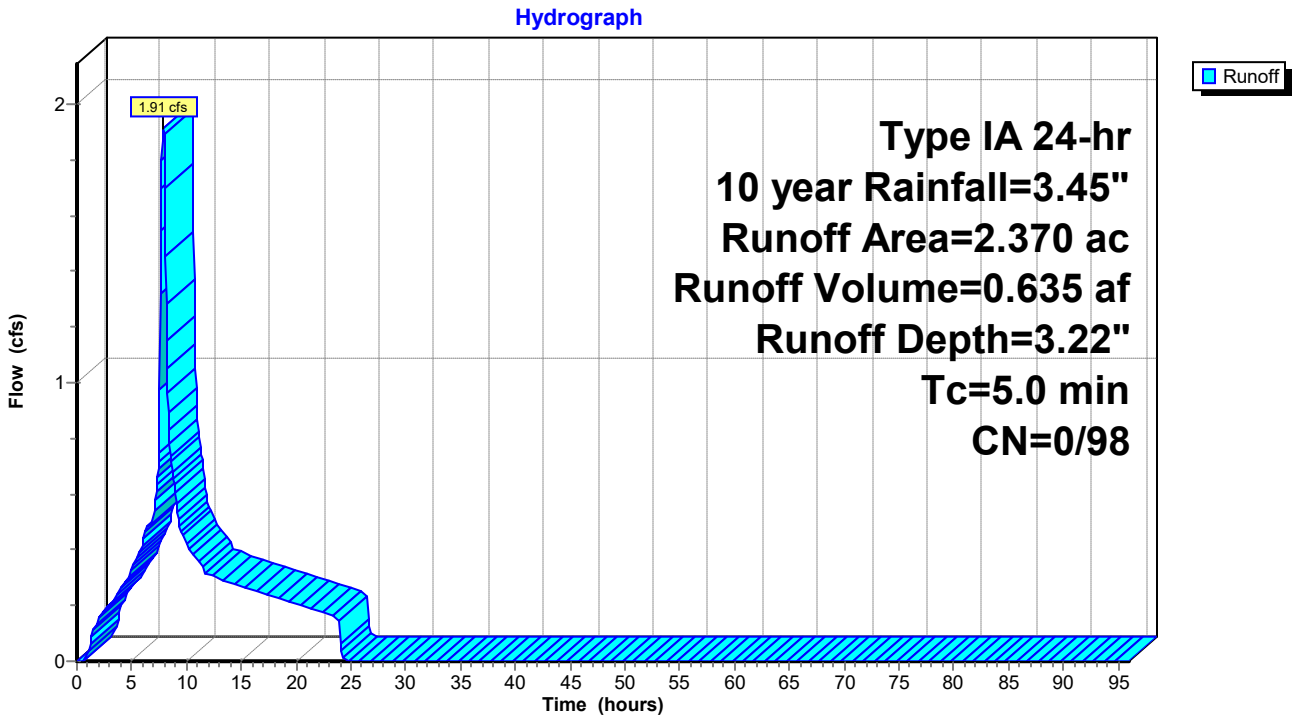
Runoff = 1.91 cfs @ 7.90 hrs, Volume= 0.635 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
2.370	98	Roofs, HSG D
2.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.10: School



Summary for Subcatchment 1.11: Lawn/Landscaping

Impervious Leroy

[49] Hint: Tc<2dt may require smaller dt

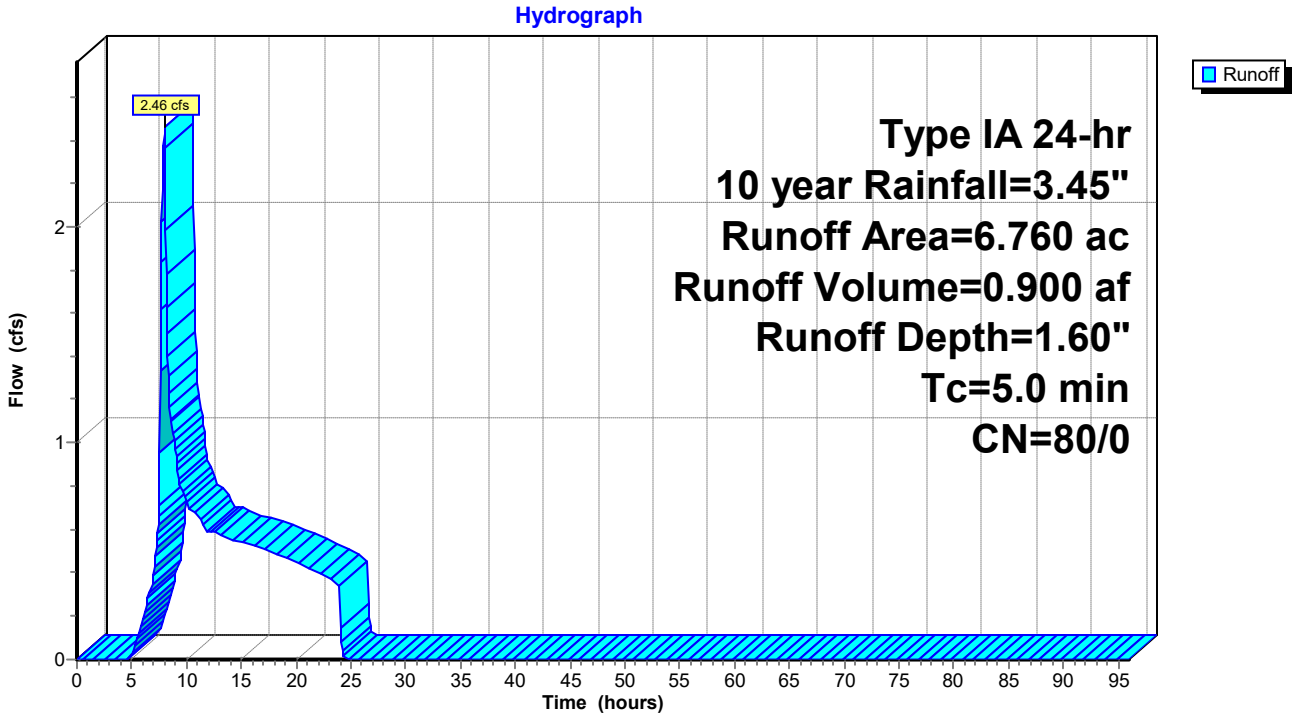
Runoff = 2.46 cfs @ 7.98 hrs, Volume= 0.900 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
6.760	80	>75% Grass cover, Good, HSG D
6.760	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.11: Lawn/Landscaping



Summary for Subcatchment 1.12: Wet Pond

[49] Hint: Tc<2dt may require smaller dt

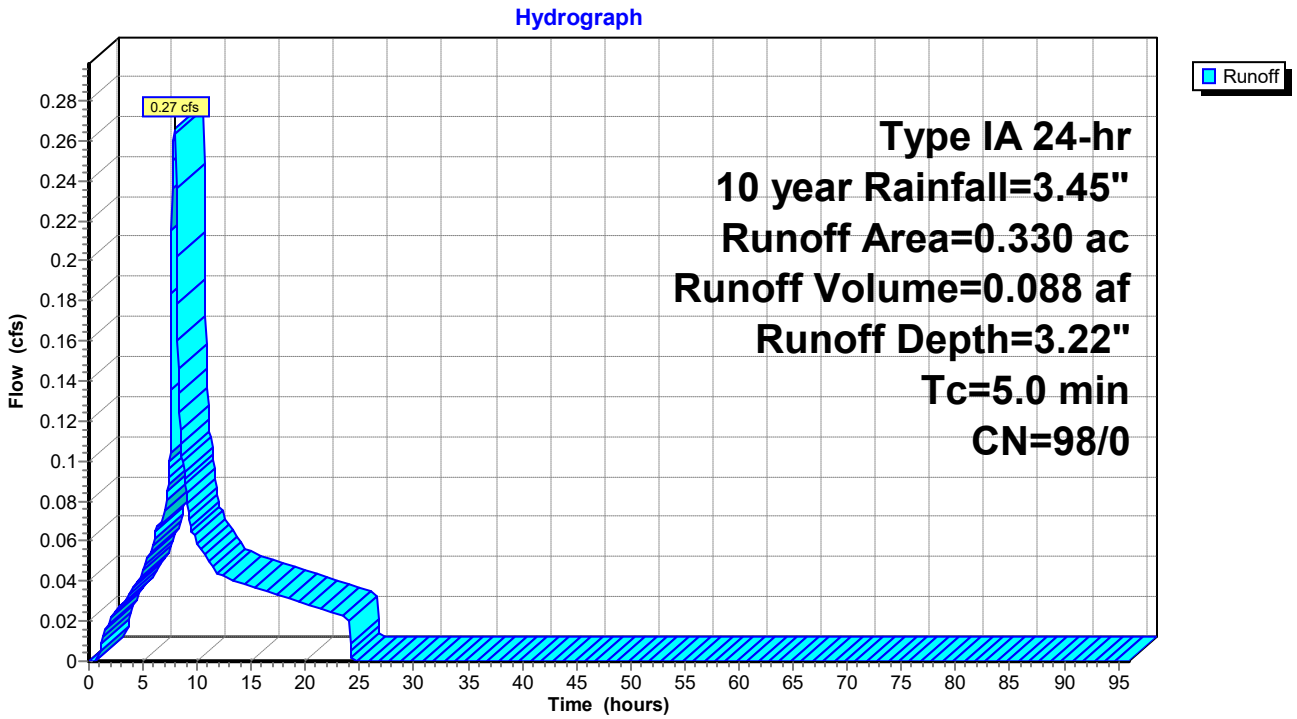
Runoff = 0.27 cfs @ 7.90 hrs, Volume= 0.088 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.330	98	Water Surface, 0% imp, HSG D
0.330	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.12: Wet Pond



Summary for Subcatchment 1.2: Lynn

[49] Hint: Tc<2dt may require smaller dt

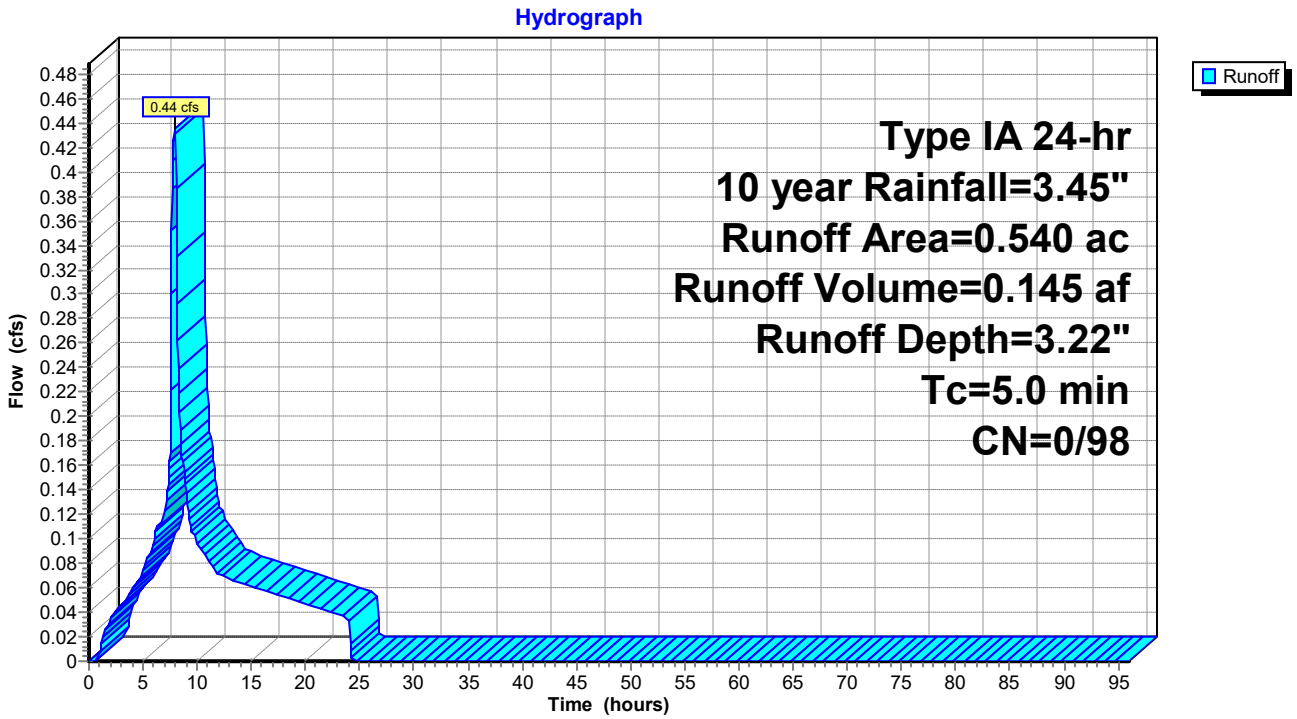
Runoff = 0.44 cfs @ 7.90 hrs, Volume= 0.145 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.540	98	Paved roads w/curbs & sewers, HSG D
0.540	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.2: Lynn



Summary for Subcatchment 1.3: E Parking + Pervious

[49] Hint: Tc<2dt may require smaller dt

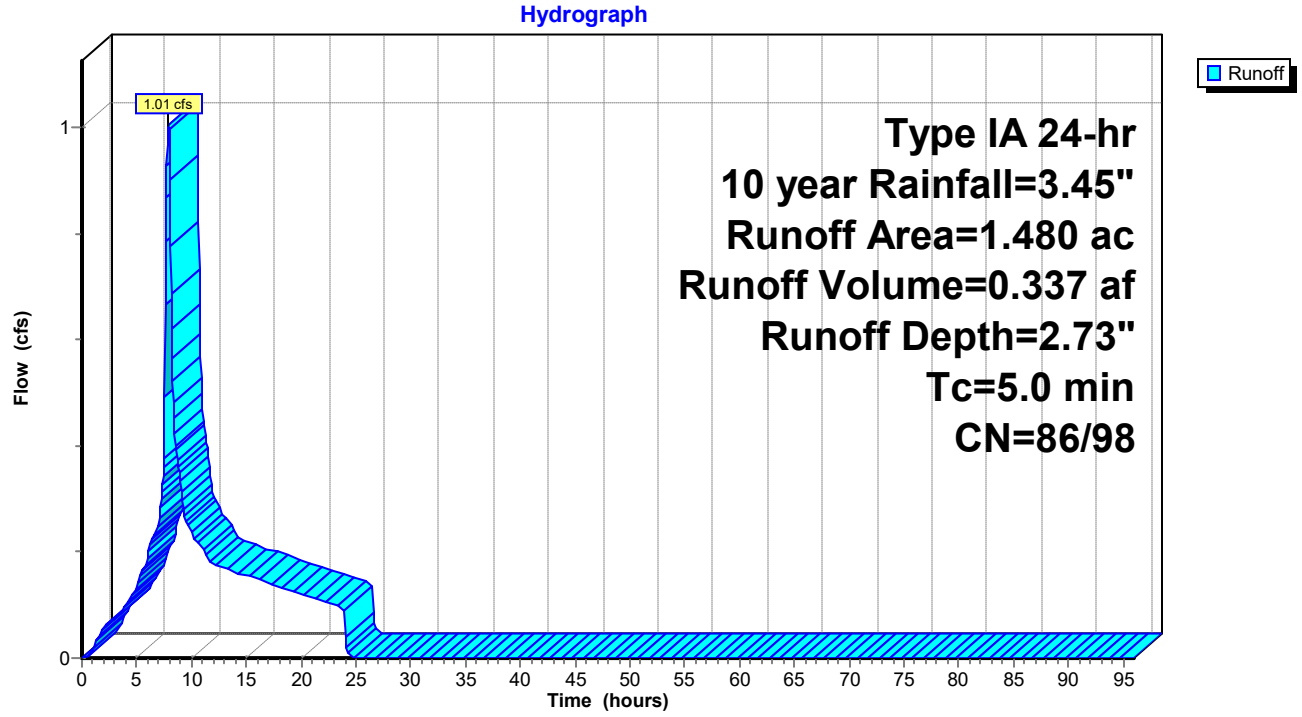
Runoff = 1.01 cfs @ 7.92 hrs, Volume= 0.337 af, Depth= 2.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG D
0.410	80	>75% Grass cover, Good, HSG D
0.210	98	Water Surface, 0% imp, HSG D
1.480	93	Weighted Average
0.620	86	41.89% Pervious Area
0.860	98	58.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.3: E Parking + Pervious



Summary for Subcatchment 1.4: N Parking

[49] Hint: Tc<2dt may require smaller dt

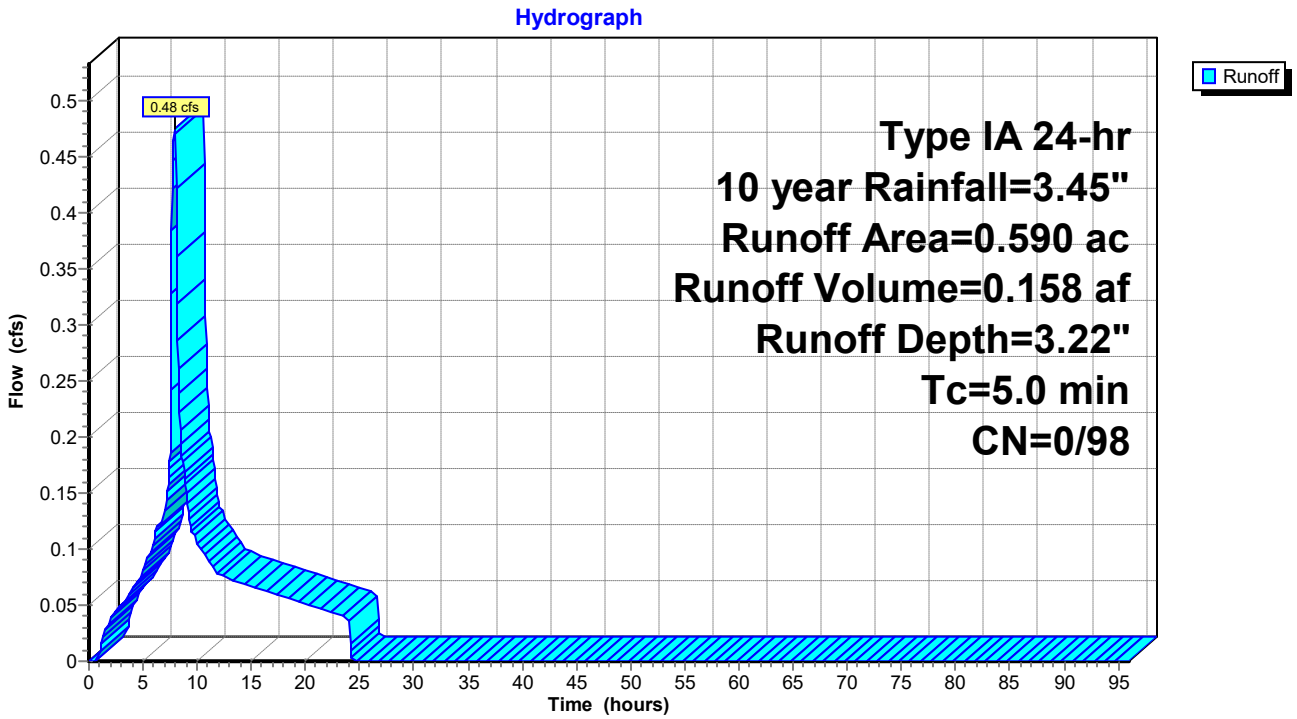
Runoff = 0.48 cfs @ 7.90 hrs, Volume= 0.158 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.590	98	Paved parking, HSG D
0.590	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.4: N Parking



Summary for Subcatchment 1.5: E Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

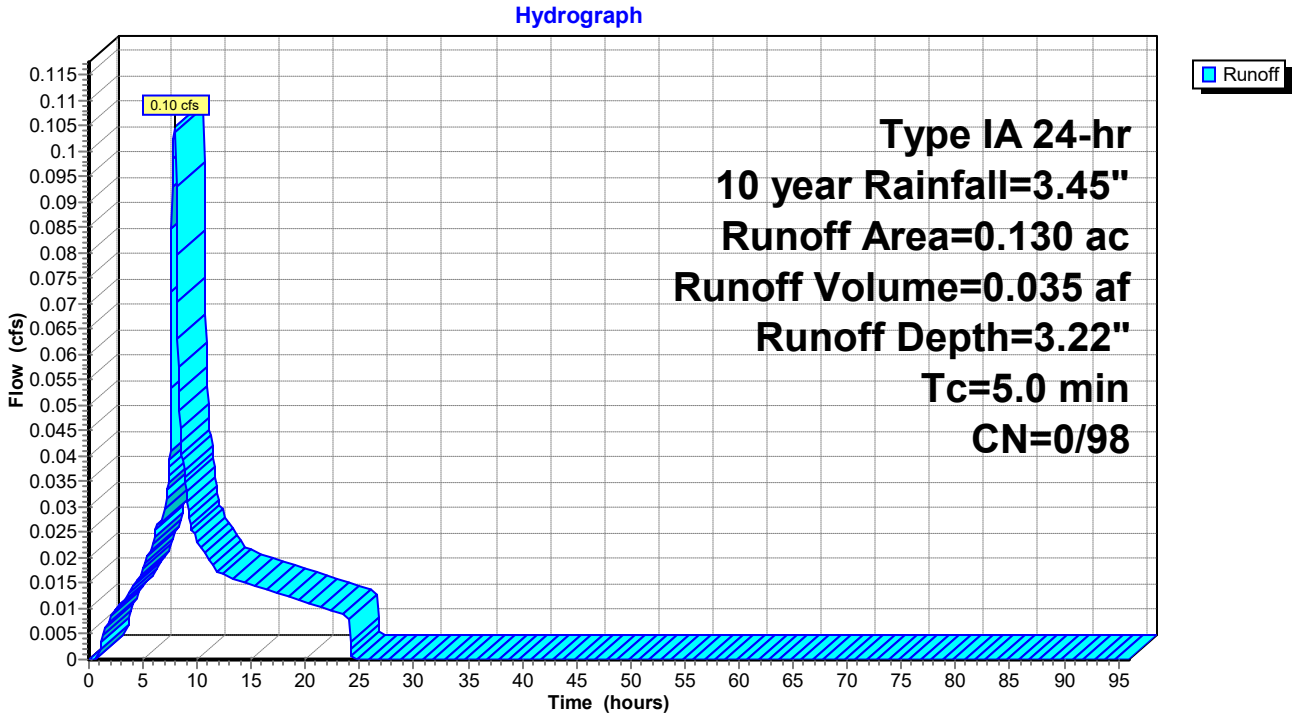
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 0.035 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG D
0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.5: E Leroy



Summary for Subcatchment 1.6: NE Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

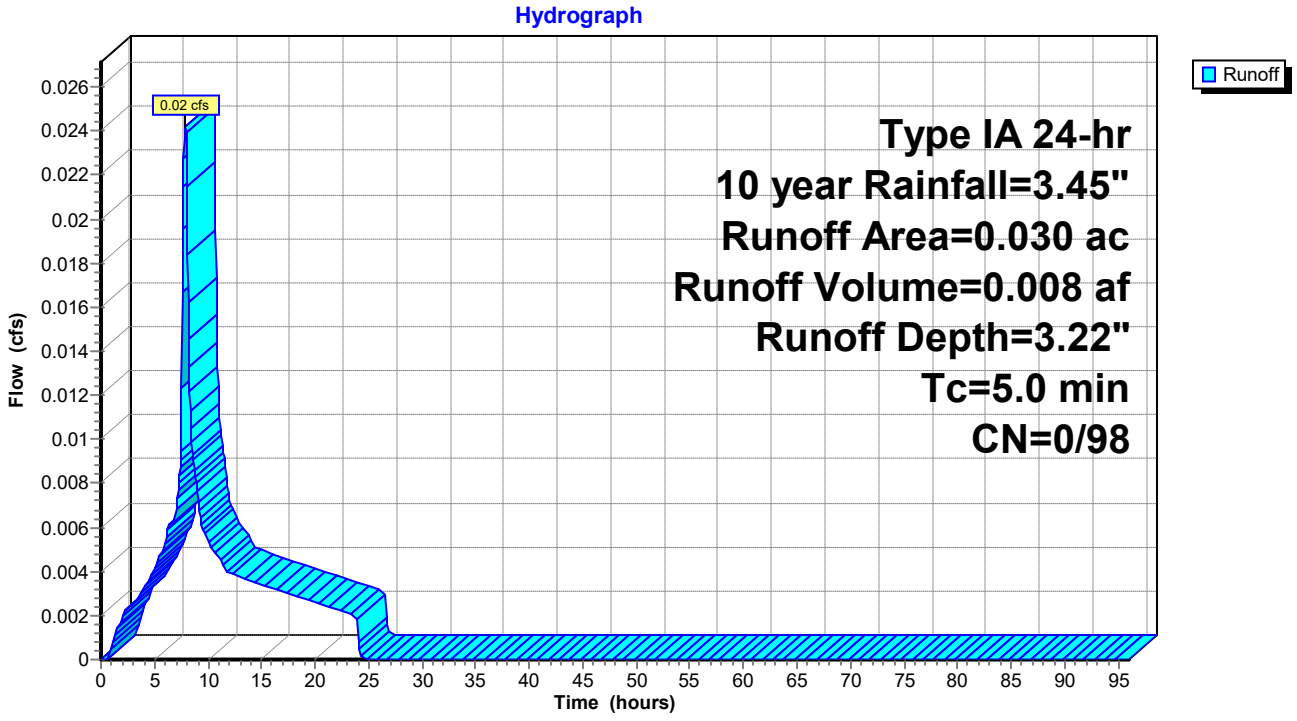
Runoff = 0.02 cfs @ 7.90 hrs, Volume= 0.008 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.6: NE Leroy



Summary for Subcatchment 1.7: NW Leroy

[49] Hint: Tc<2dt may require smaller dt

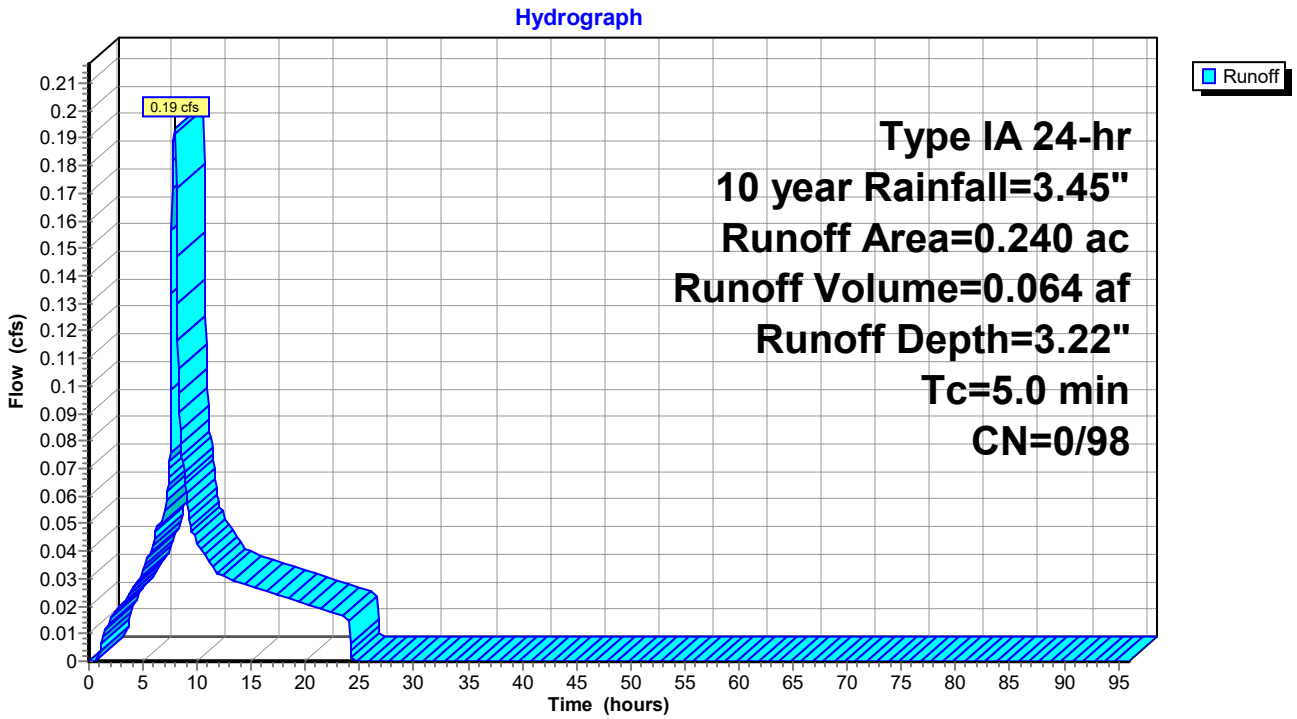
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.7: NW Leroy



Summary for Subcatchment 1.8: S Parking

[49] Hint: Tc<2dt may require smaller dt

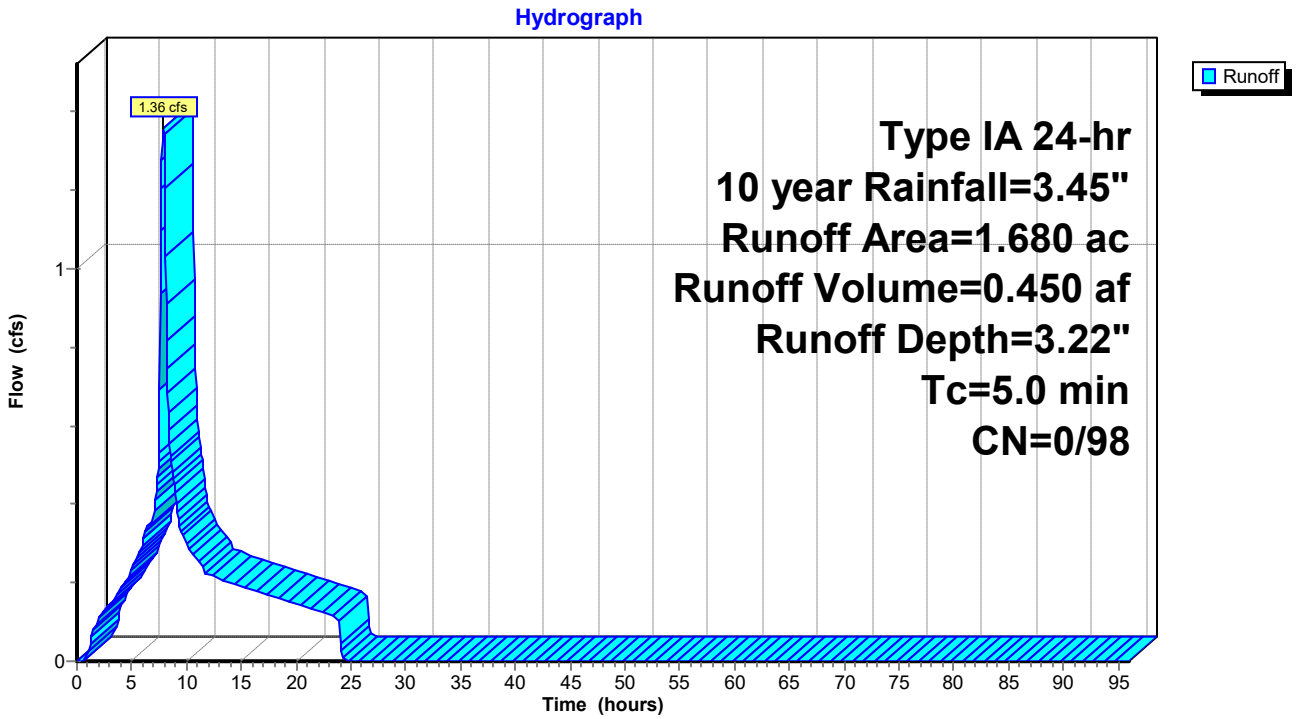
Runoff = 1.36 cfs @ 7.90 hrs, Volume= 0.450 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
1.680	98	Paved parking, HSG D
1.680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.8: S Parking



Summary for Subcatchment 1.9: Rec. Area

[49] Hint: Tc<2dt may require smaller dt

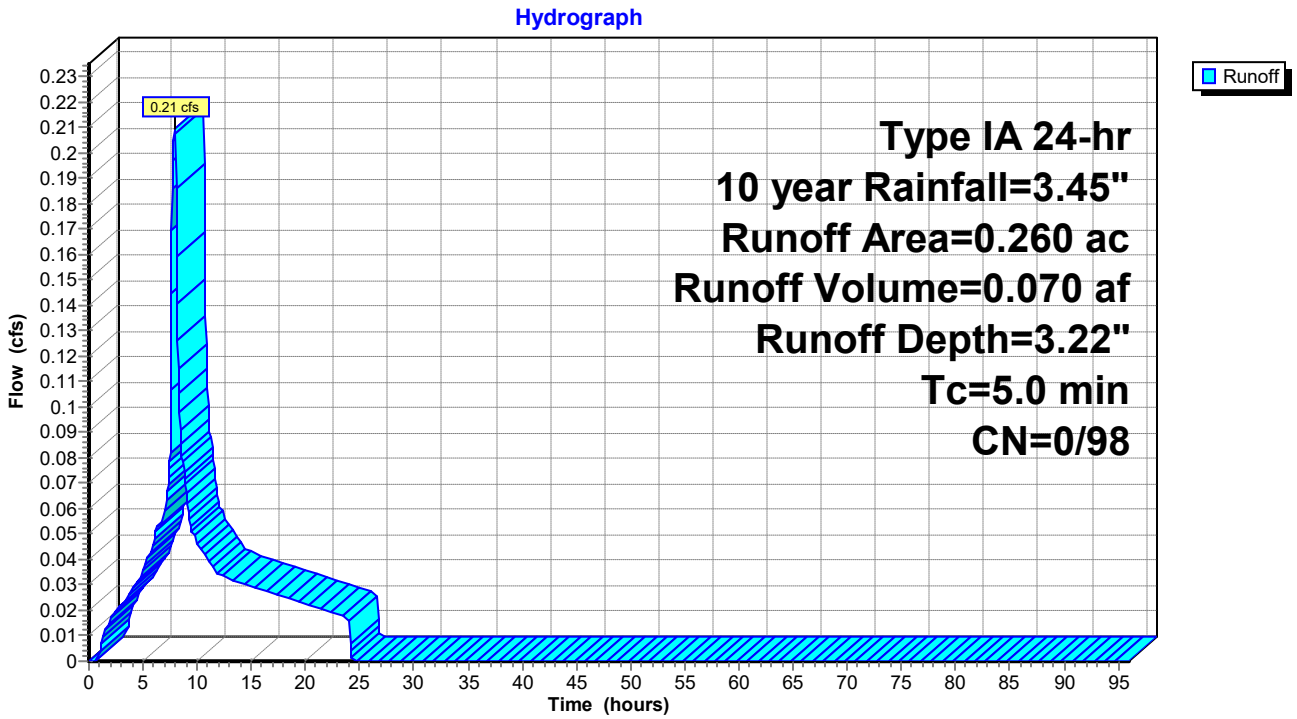
Runoff = 0.21 cfs @ 7.90 hrs, Volume= 0.070 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers, HSG D
0.260	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.9: Rec. Area



Summary for Subcatchment 2: Post Developed - Basin 2

[49] Hint: Tc<2dt may require smaller dt

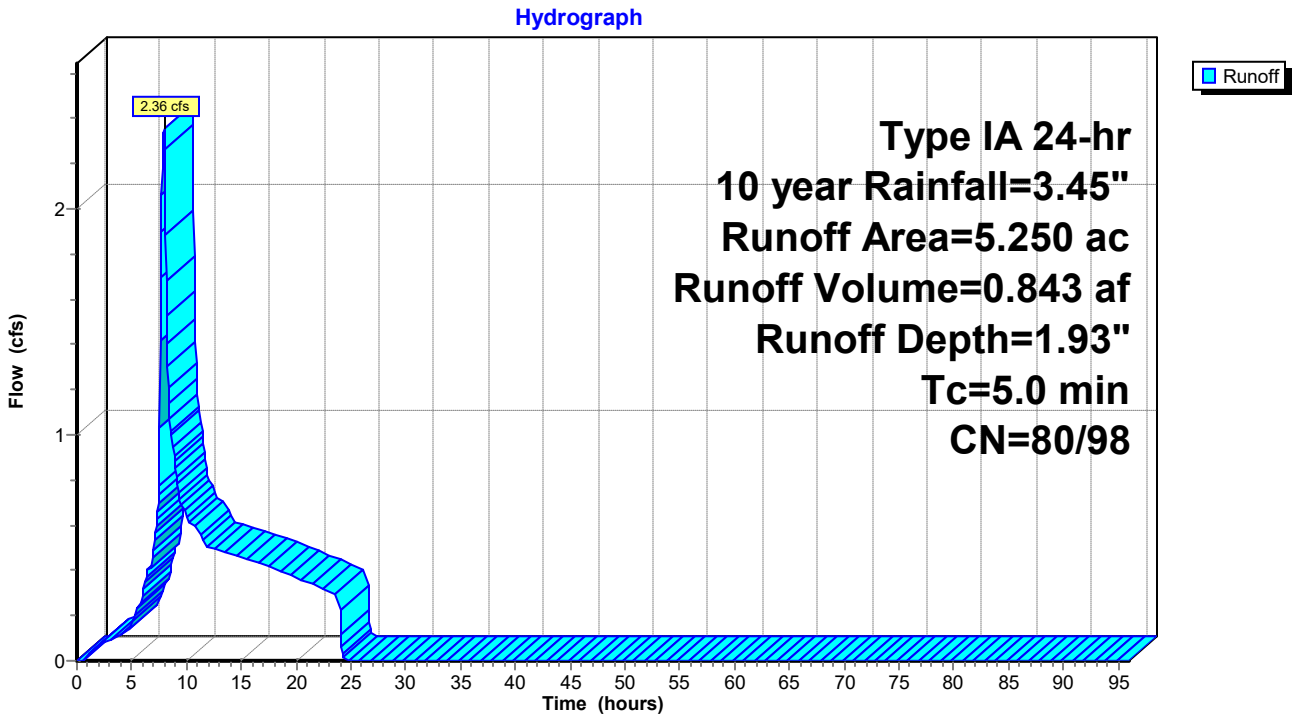
Runoff = 2.36 cfs @ 7.97 hrs, Volume= 0.843 af, Depth= 1.93"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
4.180	80	>75% Grass cover, Good, HSG D
1.070	98	Paved roads w/curbs & sewers, HSG D
5.250	84	Weighted Average
4.180	80	79.62% Pervious Area
1.070	98	20.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2: Post Developed - Basin 2



Summary for Subcatchment 2.1: NE West

[49] Hint: Tc<2dt may require smaller dt

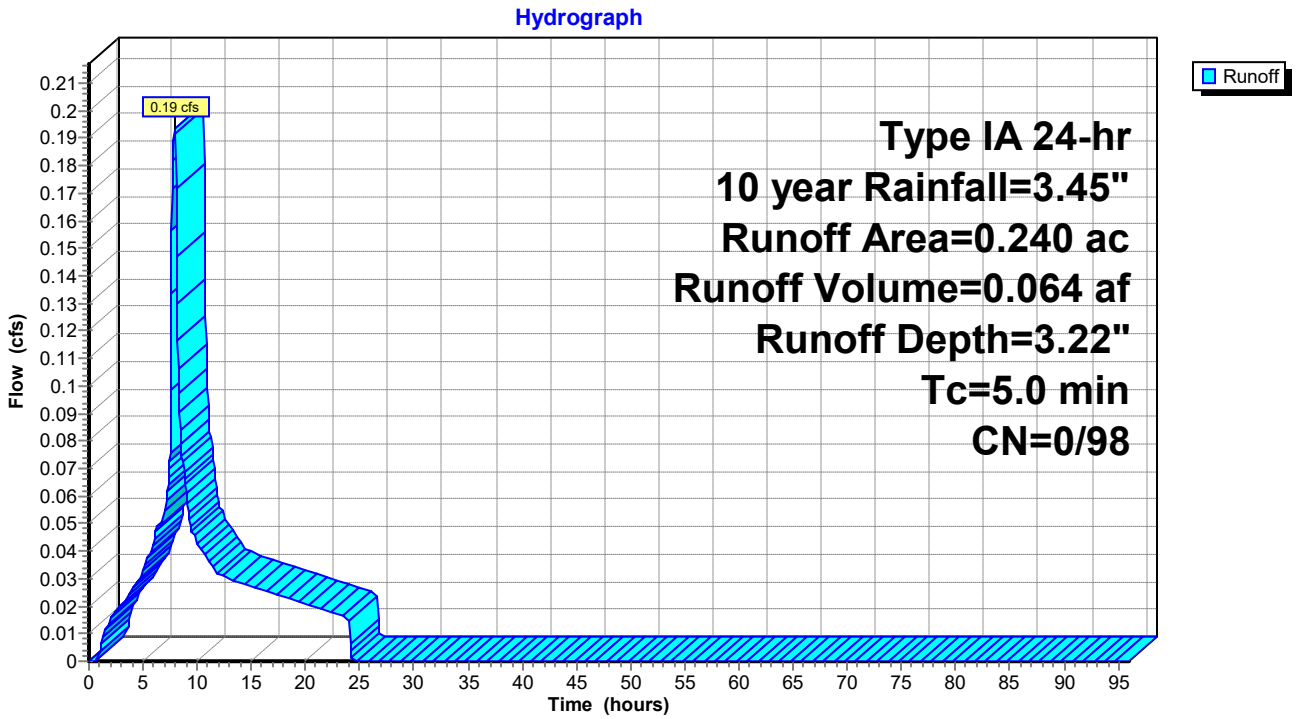
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.1: NE West



Summary for Subcatchment 2.2: S Hezzie

[49] Hint: Tc<2dt may require smaller dt

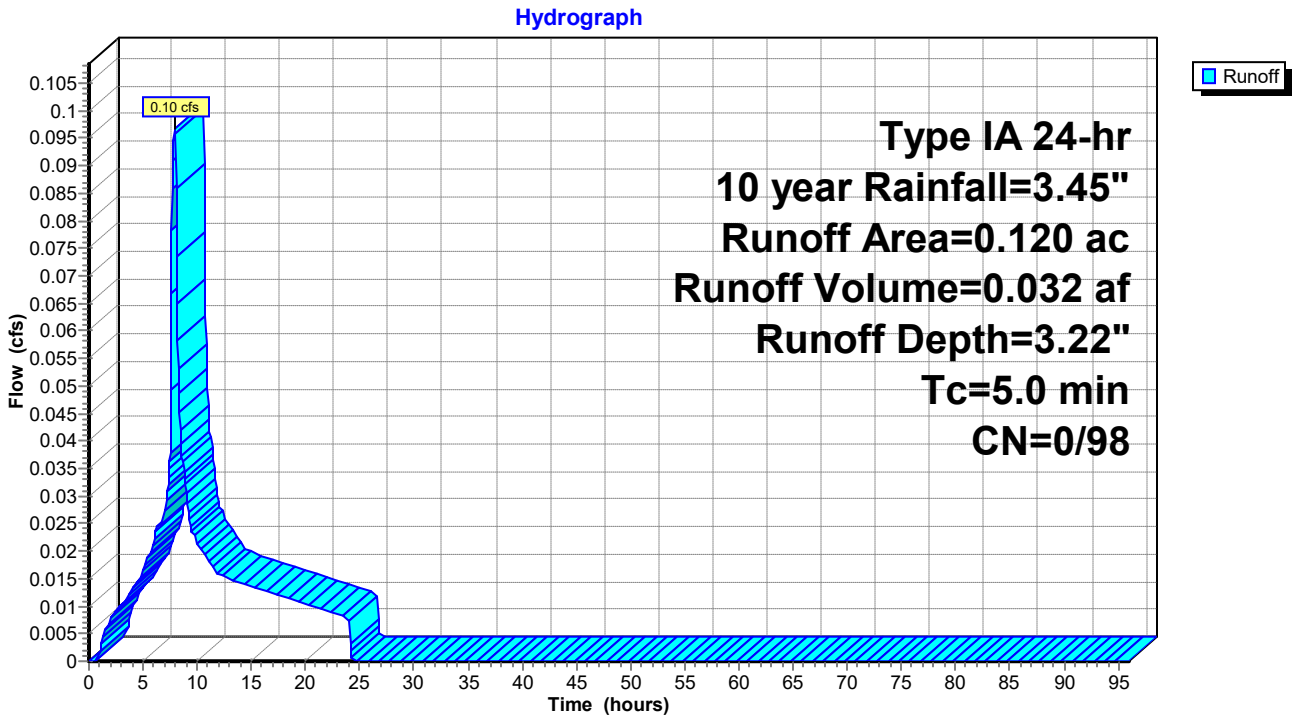
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 0.032 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.120	98	Paved roads w/curbs & sewers, HSG D
0.120	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.2: S Hezzie



Summary for Subcatchment 2.3: NW West

[49] Hint: Tc<2dt may require smaller dt

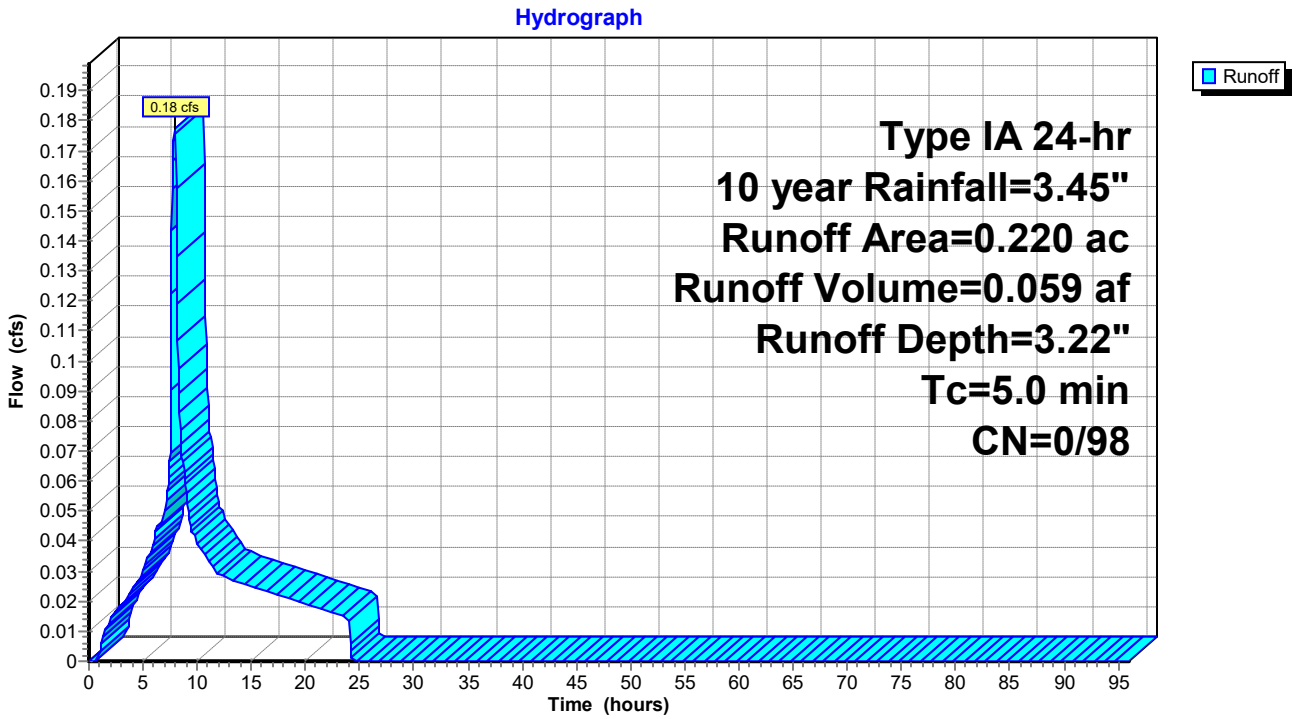
Runoff = 0.18 cfs @ 7.90 hrs, Volume= 0.059 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.220	98	Paved roads w/curbs & sewers, HSG D
0.220	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.3: NW West



Summary for Subcatchment 2.4: SW West

[49] Hint: Tc<2dt may require smaller dt

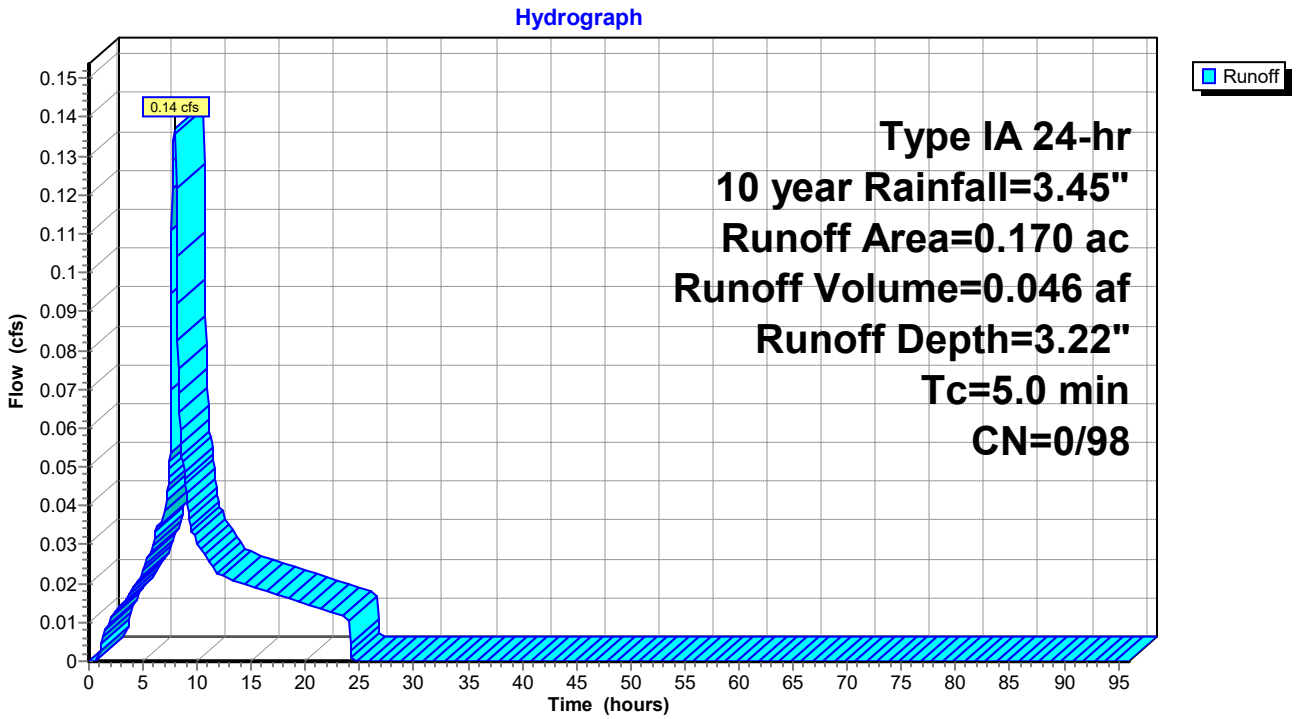
Runoff = 0.14 cfs @ 7.90 hrs, Volume= 0.046 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers, HSG D
0.170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.4: SW West



Summary for Subcatchment 2.5: SE West

[49] Hint: Tc<2dt may require smaller dt

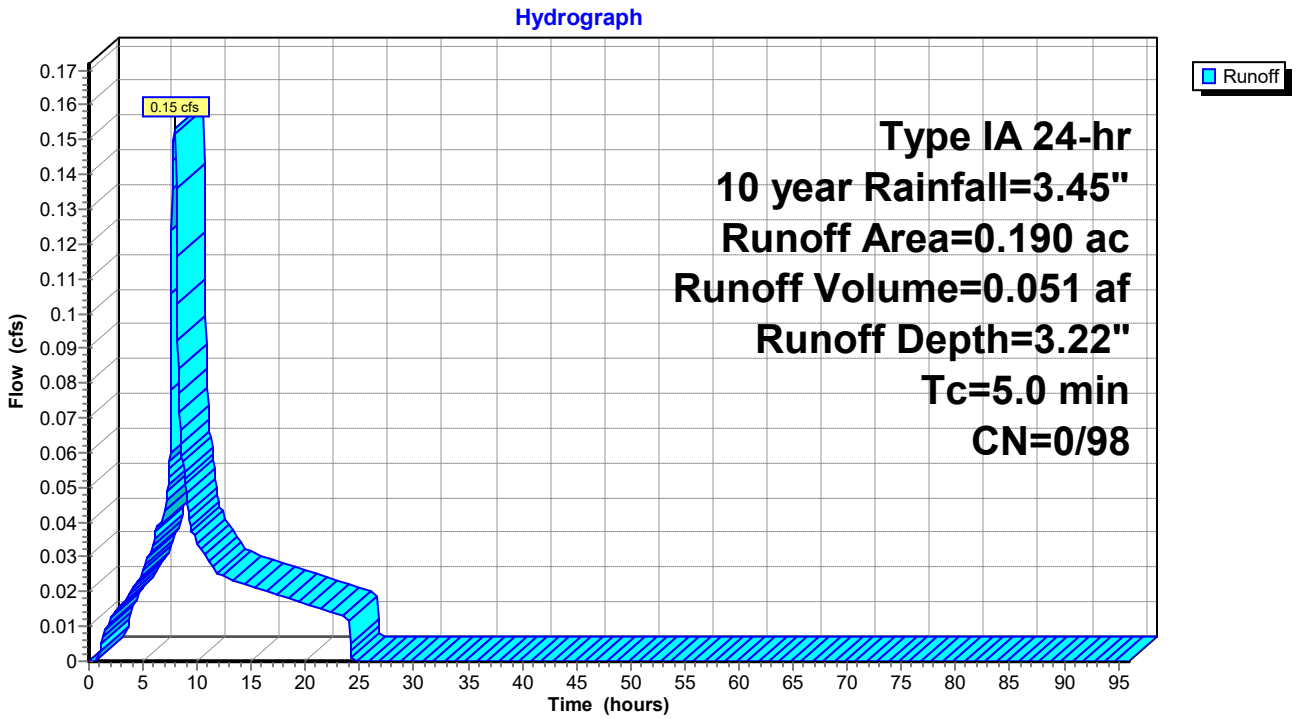
Runoff = 0.15 cfs @ 7.90 hrs, Volume= 0.051 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers, HSG D
0.190	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.5: SE West



Summary for Subcatchment 2.6: SE Leroy

[49] Hint: Tc<2dt may require smaller dt

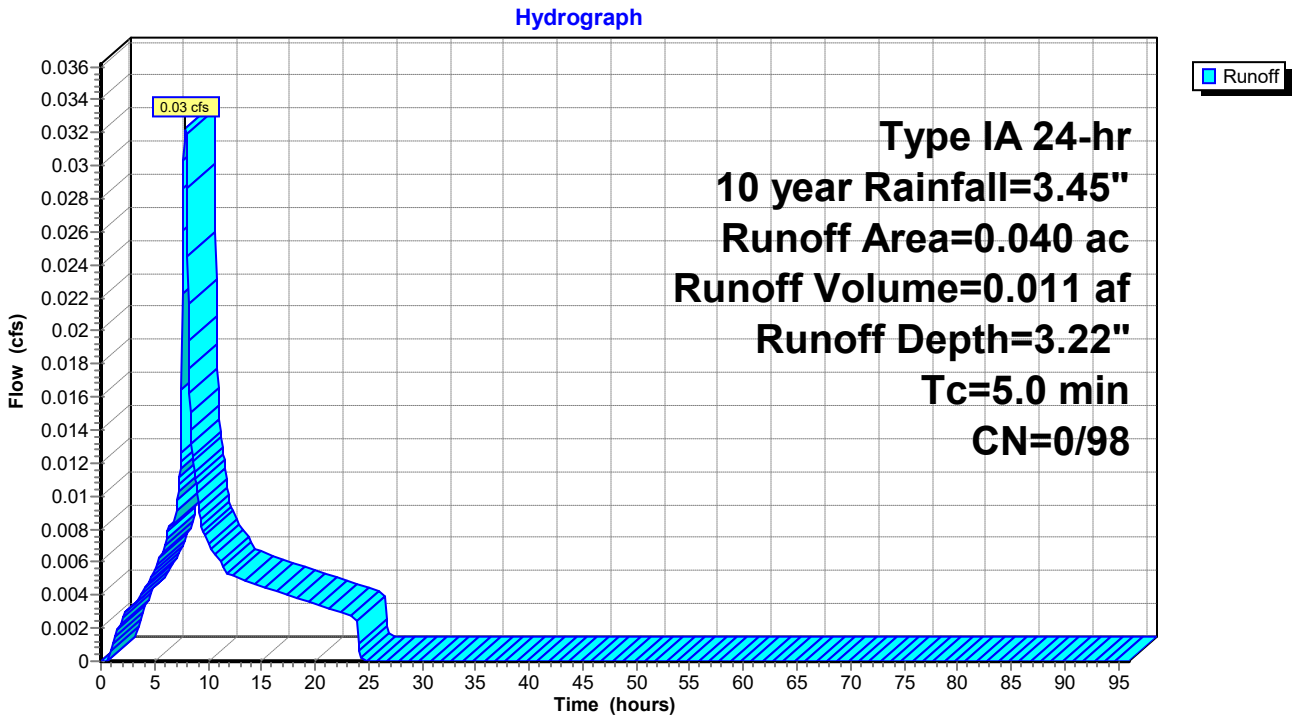
Runoff = 0.03 cfs @ 7.90 hrs, Volume= 0.011 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers, HSG D
0.040	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.6: SE Leroy



Summary for Subcatchment 2.7: SW Leroy

[49] Hint: Tc<2dt may require smaller dt

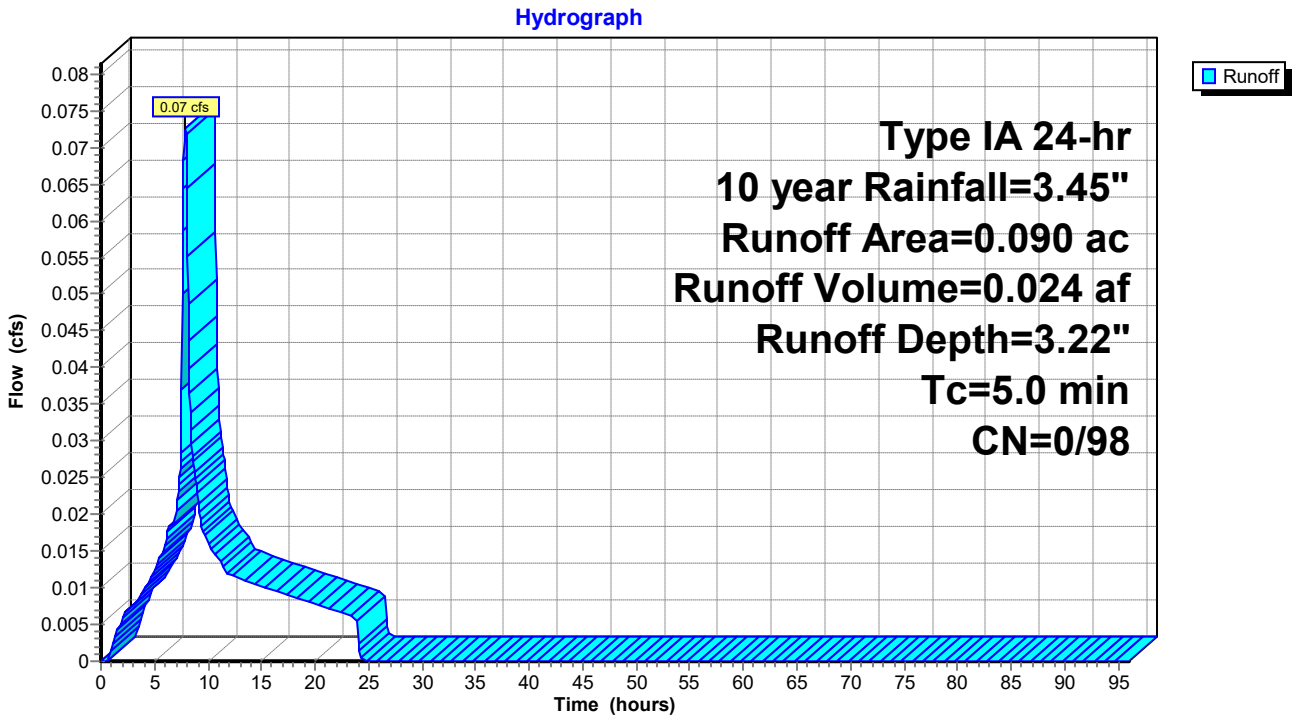
Runoff = 0.07 cfs @ 7.90 hrs, Volume= 0.024 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers, HSG D
0.090	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.7: SW Leroy



Summary for Subcatchment 2.8: Pervious West

[49] Hint: Tc<2dt may require smaller dt

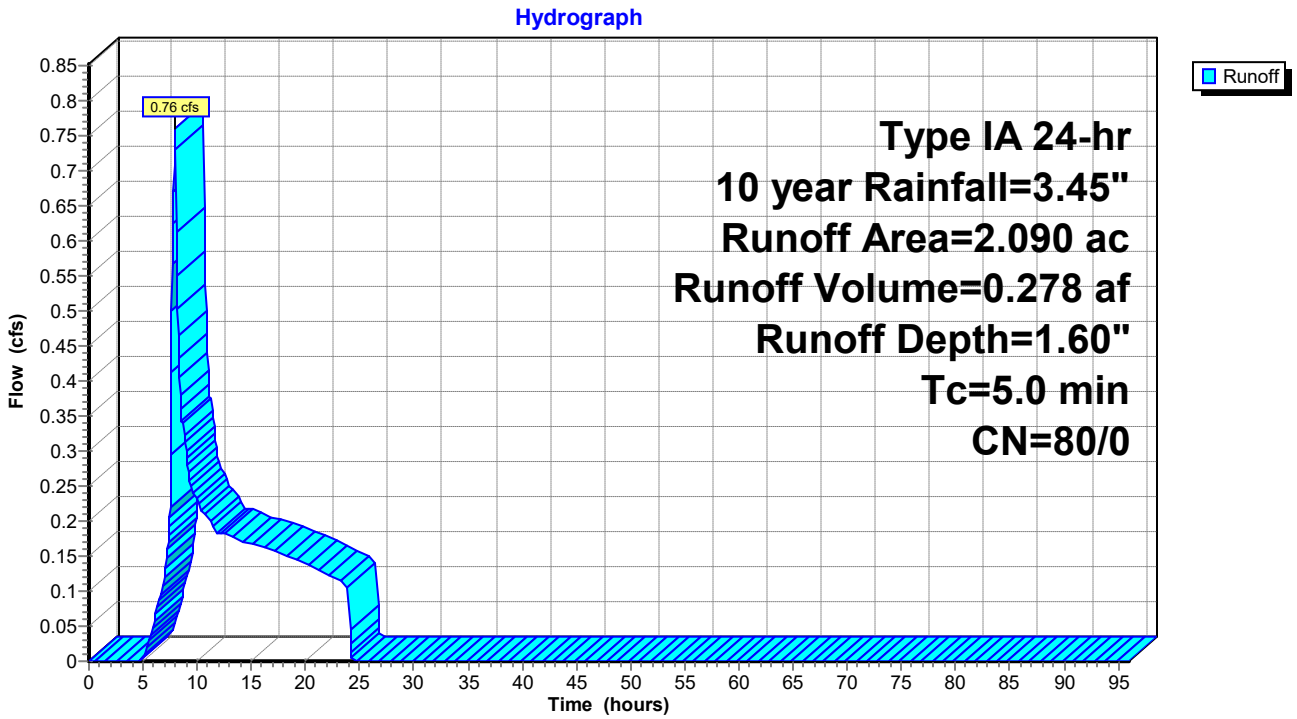
Runoff = 0.76 cfs @ 7.98 hrs, Volume= 0.278 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.8: Pervious West



Summary for Subcatchment 2.9: Pervious East

[49] Hint: Tc<2dt may require smaller dt

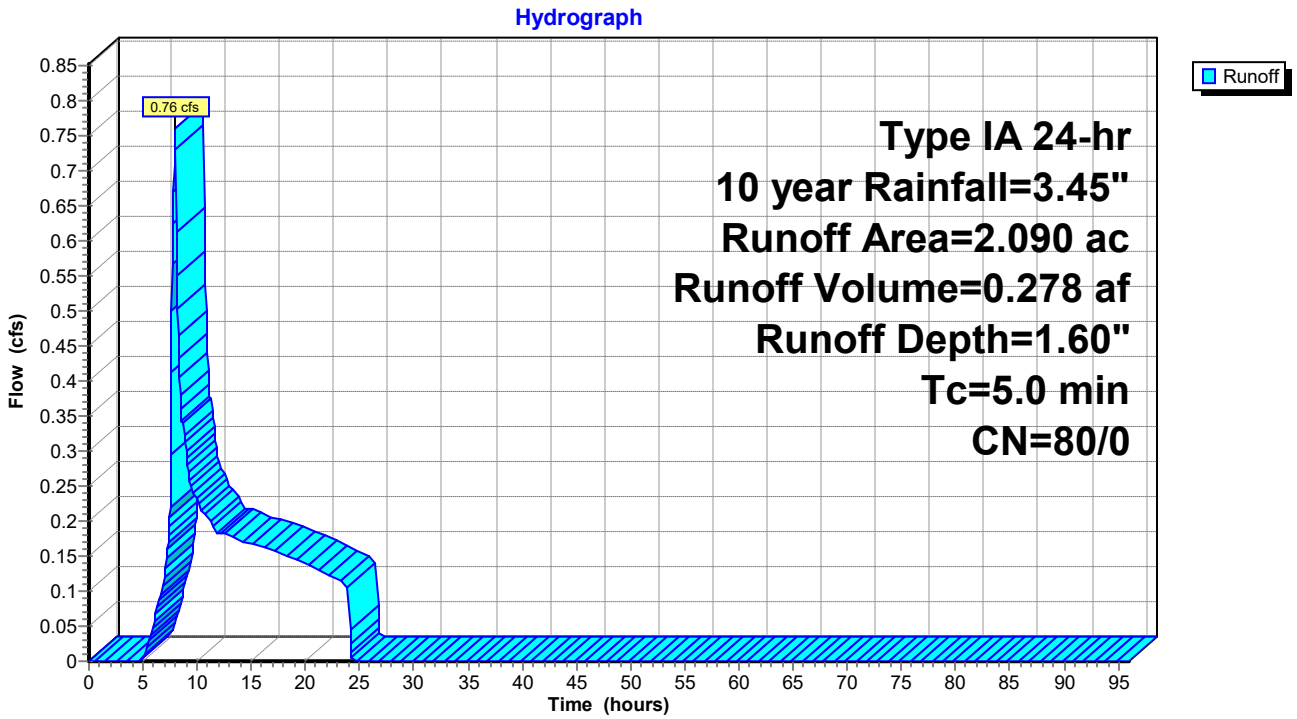
Runoff = 0.76 cfs @ 7.98 hrs, Volume= 0.278 af, Depth= 1.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.9: Pervious East



Summary for Subcatchment 3.1: SW Parking + Pervious - Basin 3

[49] Hint: Tc<2dt may require smaller dt

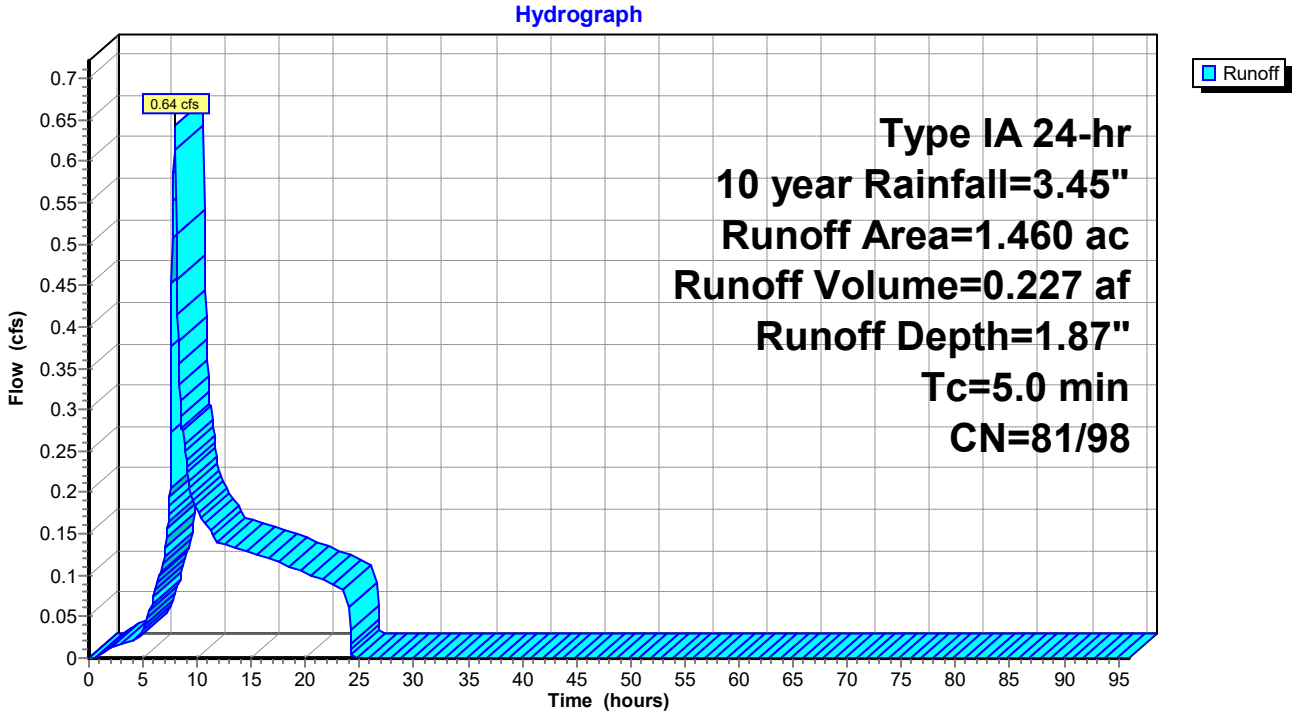
Runoff = 0.64 cfs @ 7.98 hrs, Volume= 0.227 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
1.190	80	>75% Grass cover, Good, HSG D
0.190	98	Paved parking, HSG D
0.080	98	Water Surface, 0% imp, HSG D
1.460	83	Weighted Average
1.270	81	86.99% Pervious Area
0.190	98	13.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.1: SW Parking + Pervious - Basin 3



Summary for Subcatchment 3.2: N Hezzie

[49] Hint: Tc<2dt may require smaller dt

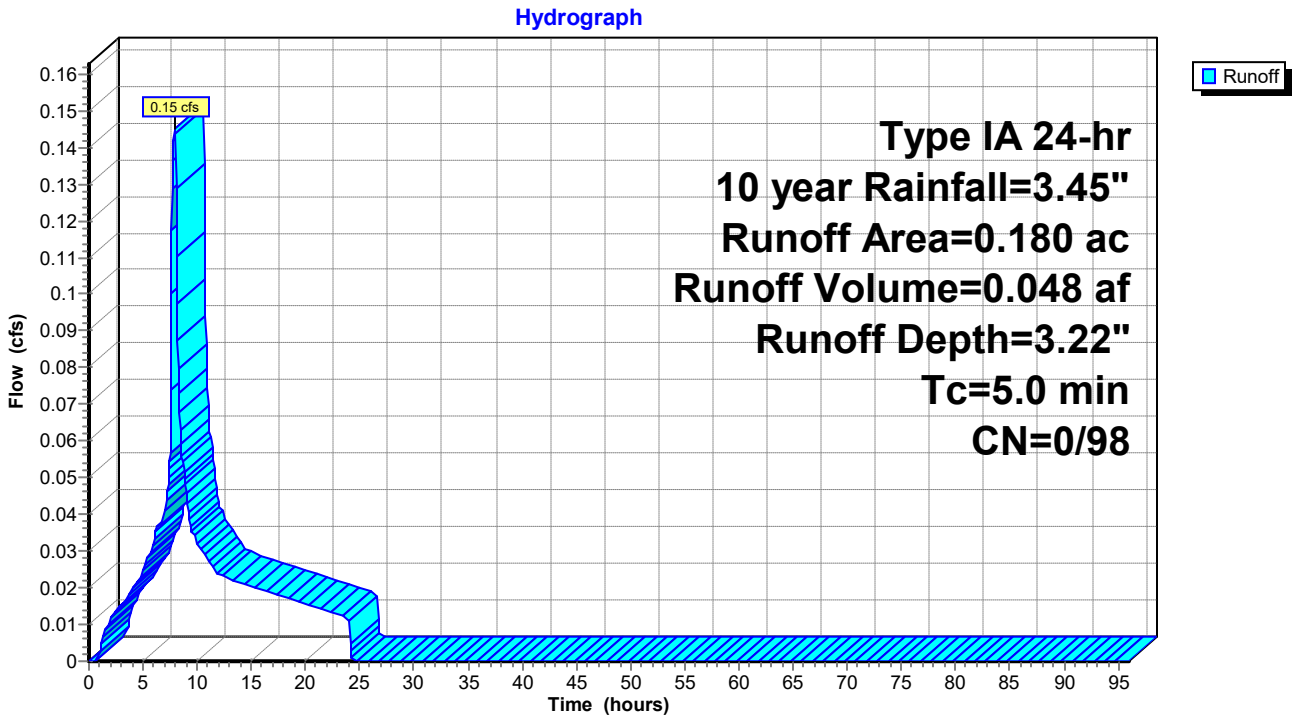
Runoff = 0.15 cfs @ 7.90 hrs, Volume= 0.048 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=3.45"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG D
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.2: N Hezzie



Summary for Reach 2.1R: 12" outfall (West)

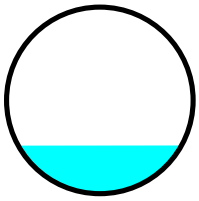
[52] Hint: Inlet/Outlet conditions not evaluated

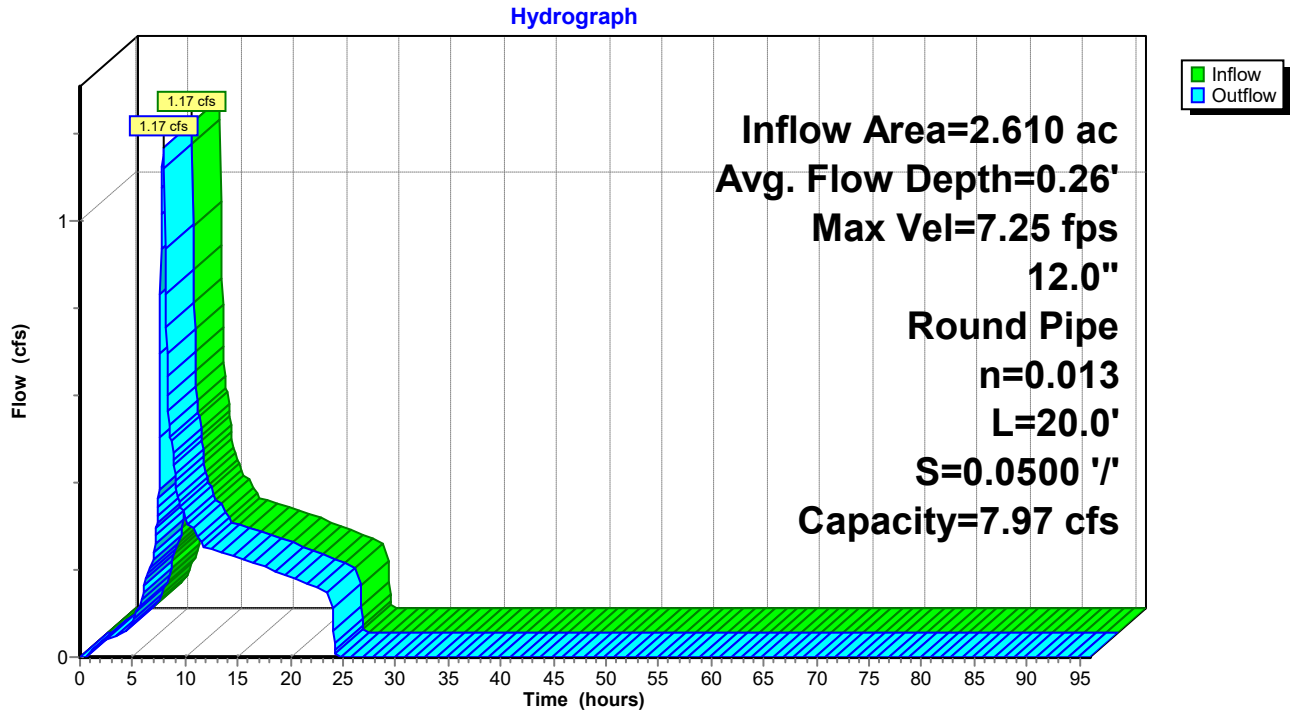
Inflow Area = 2.610 ac, 19.92% Impervious, Inflow Depth = 1.92" for 10 year event
Inflow = 1.17 cfs @ 7.97 hrs, Volume= 0.417 af
Outflow = 1.17 cfs @ 7.97 hrs, Volume= 0.417 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.25 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.09 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 7.97 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





Summary for Reach 2.2R: 12" outfall (Hezzie)

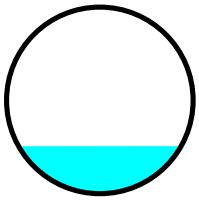
[52] Hint: Inlet/Outlet conditions not evaluated

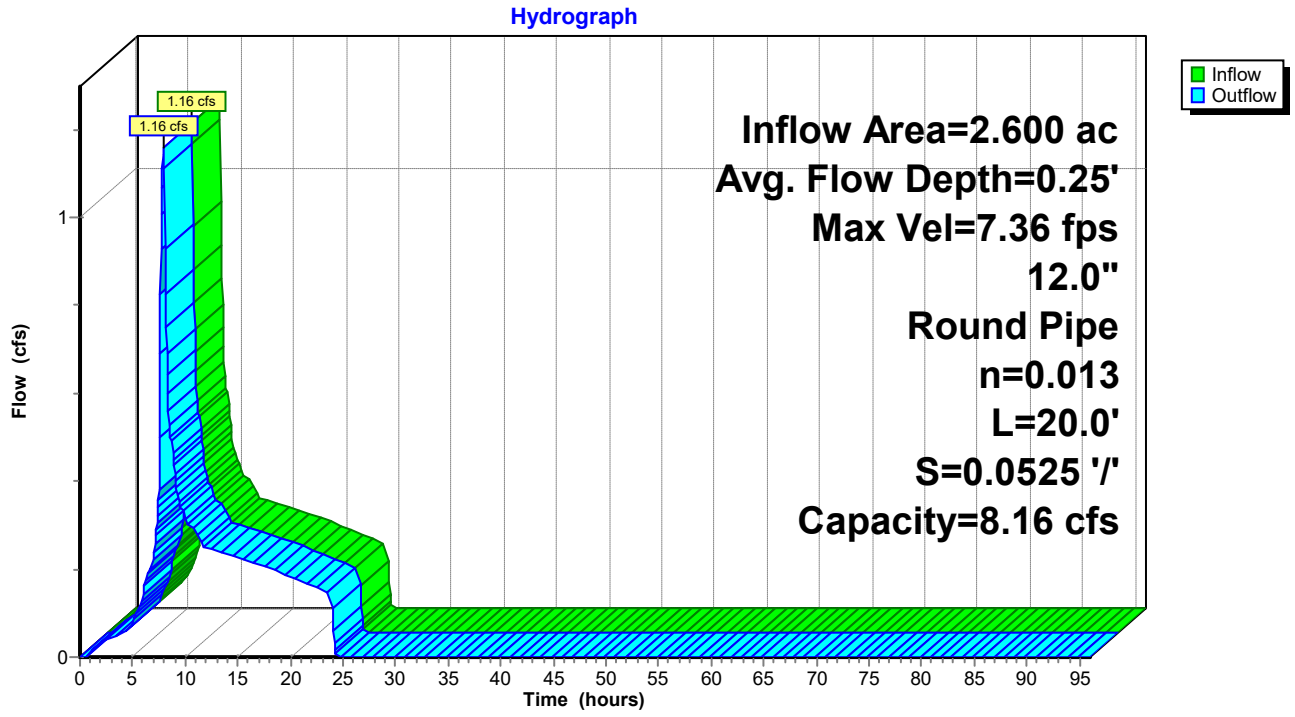
Inflow Area = 2.600 ac, 19.62% Impervious, Inflow Depth = 1.91" for 10 year event
Inflow = 1.16 cfs @ 7.97 hrs, Volume= 0.415 af
Outflow = 1.16 cfs @ 7.97 hrs, Volume= 0.415 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.36 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.15 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 7.97 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.16 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0525 '/'
Inlet Invert= 1.05', Outlet Invert= 0.00'





Summary for Reach 3R: To Ex. MH (Hezzie & North Valley)

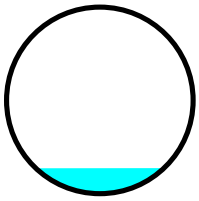
[52] Hint: Inlet/Outlet conditions not evaluated

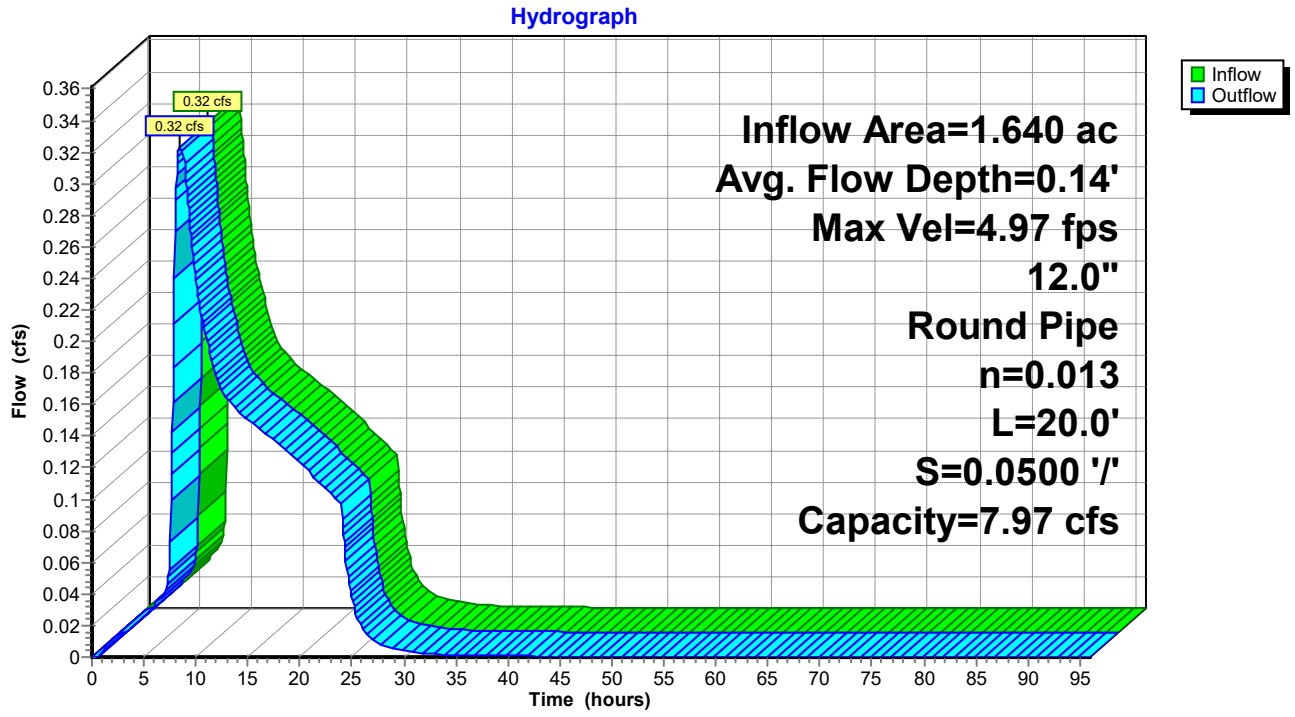
Inflow Area = 1.640 ac, 22.56% Impervious, Inflow Depth > 1.80" for 10 year event
Inflow = 0.32 cfs @ 8.38 hrs, Volume= 0.246 af
Outflow = 0.32 cfs @ 8.39 hrs, Volume= 0.246 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.97 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 8.39 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





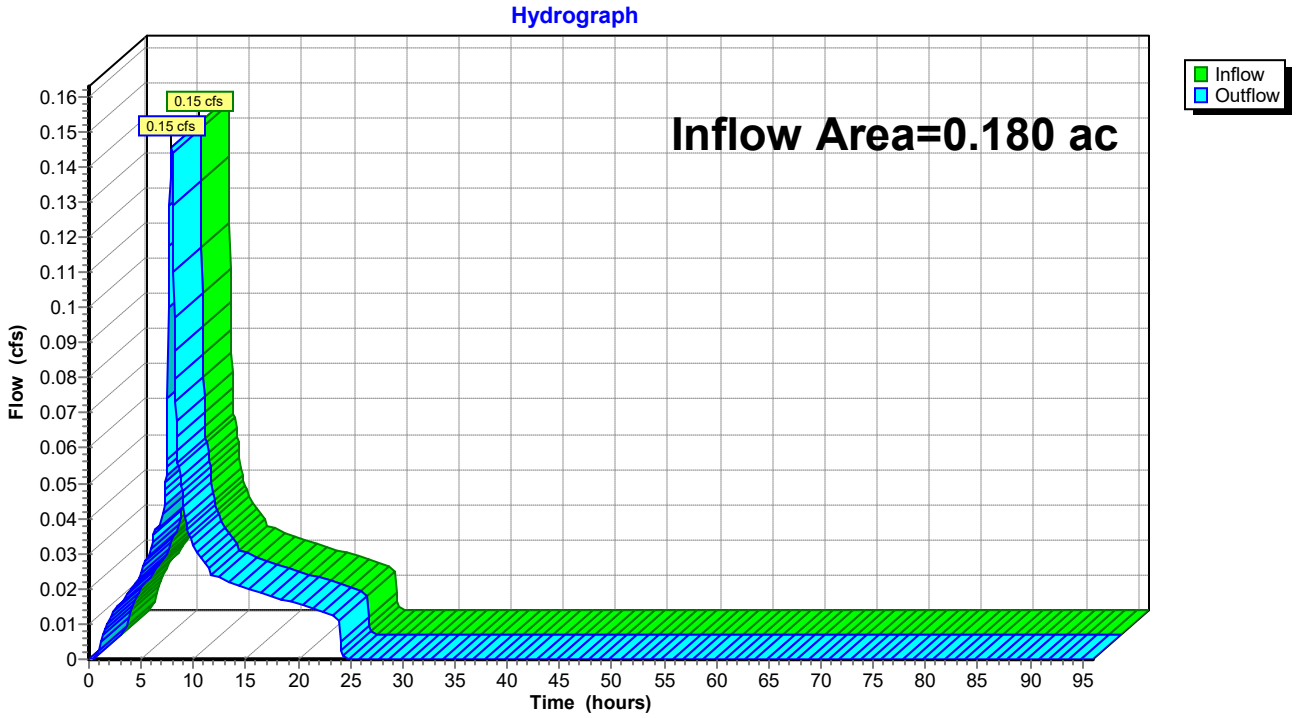
Summary for Reach C14: Filter CB 11

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.15 cfs @ 7.90 hrs, Volume= 0.048 af
Outflow = 0.15 cfs @ 7.90 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C14: Filter CB 11



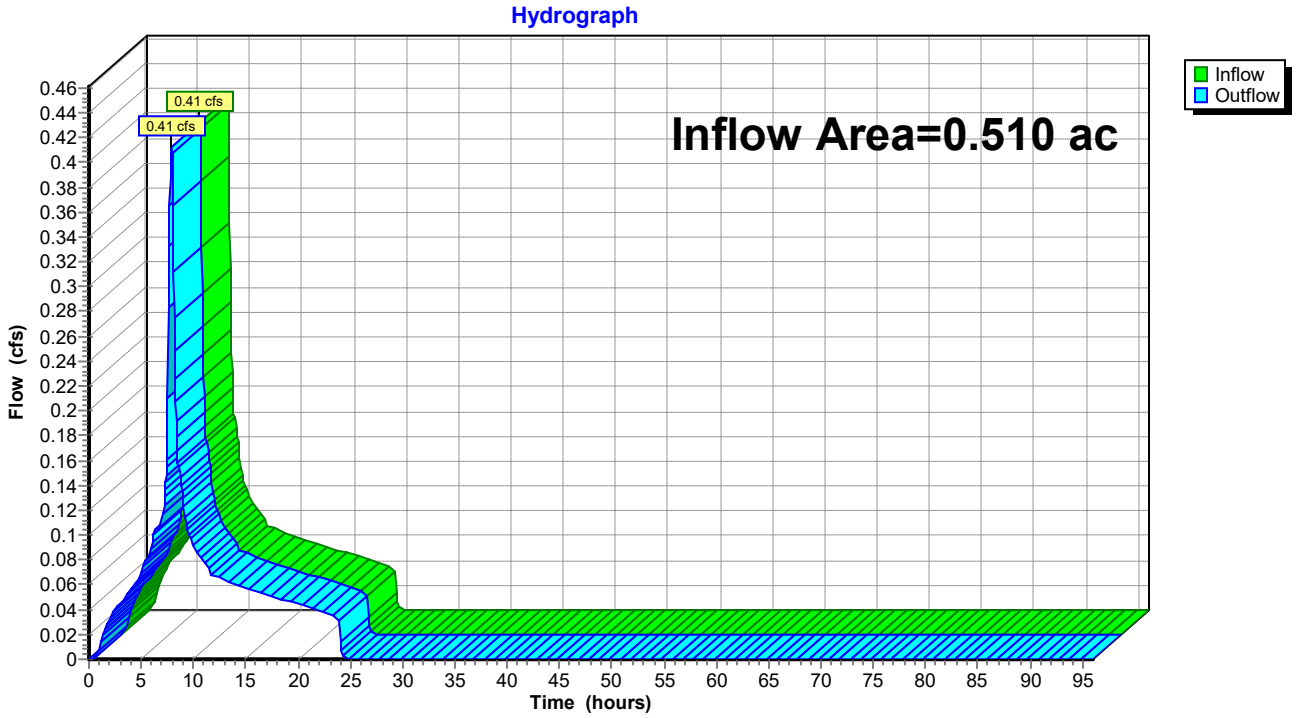
Summary for Reach C15: Filter CB 12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.510 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.41 cfs @ 7.90 hrs, Volume= 0.137 af
Outflow = 0.41 cfs @ 7.90 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C15: Filter CB 12



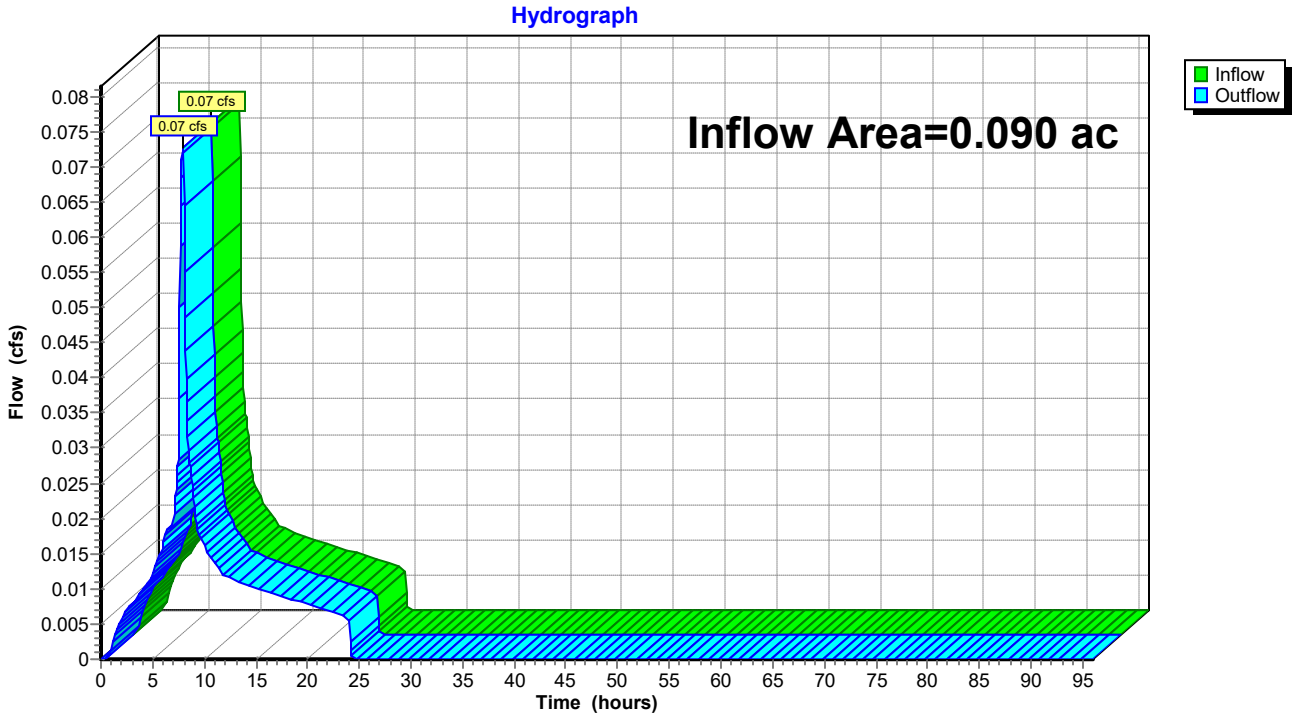
Summary for Reach C16: Filter CB 14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.07 cfs @ 7.90 hrs, Volume= 0.024 af
Outflow = 0.07 cfs @ 7.90 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C16: Filter CB 14



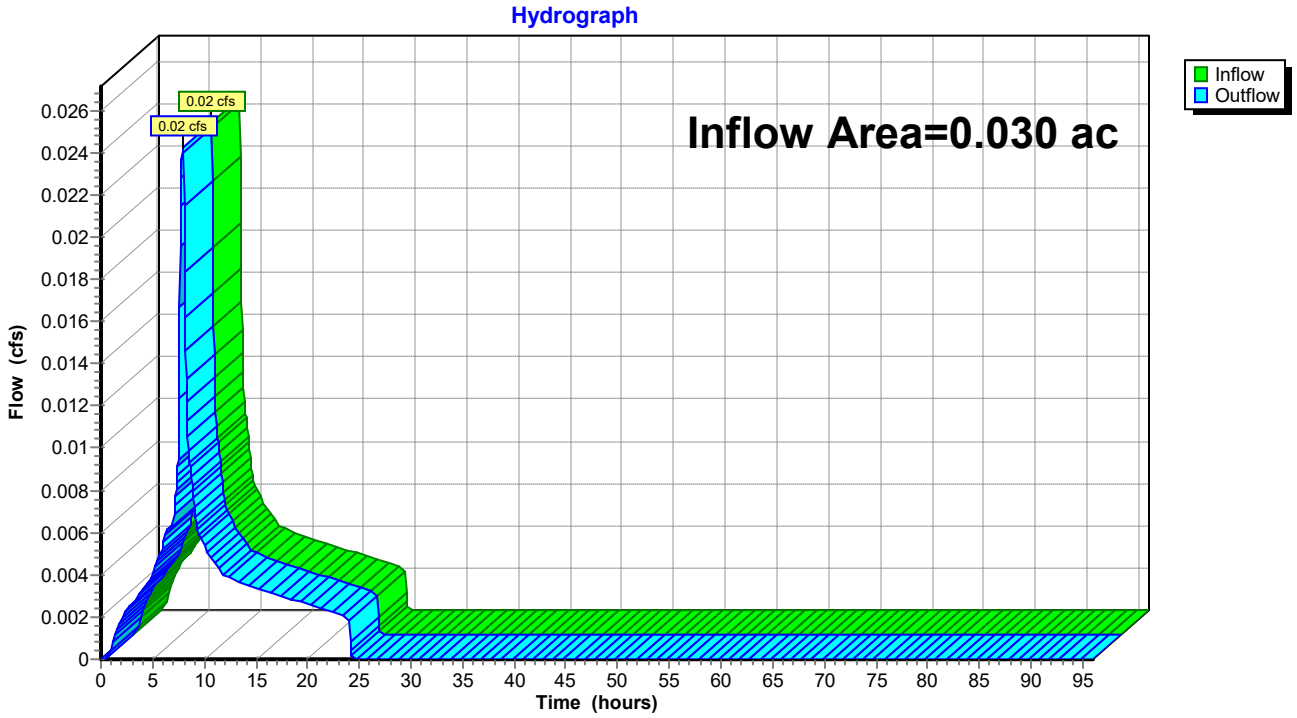
Summary for Reach C17: Filter CB 15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.030 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.02 cfs @ 7.90 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 7.90 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C17: Filter CB 15



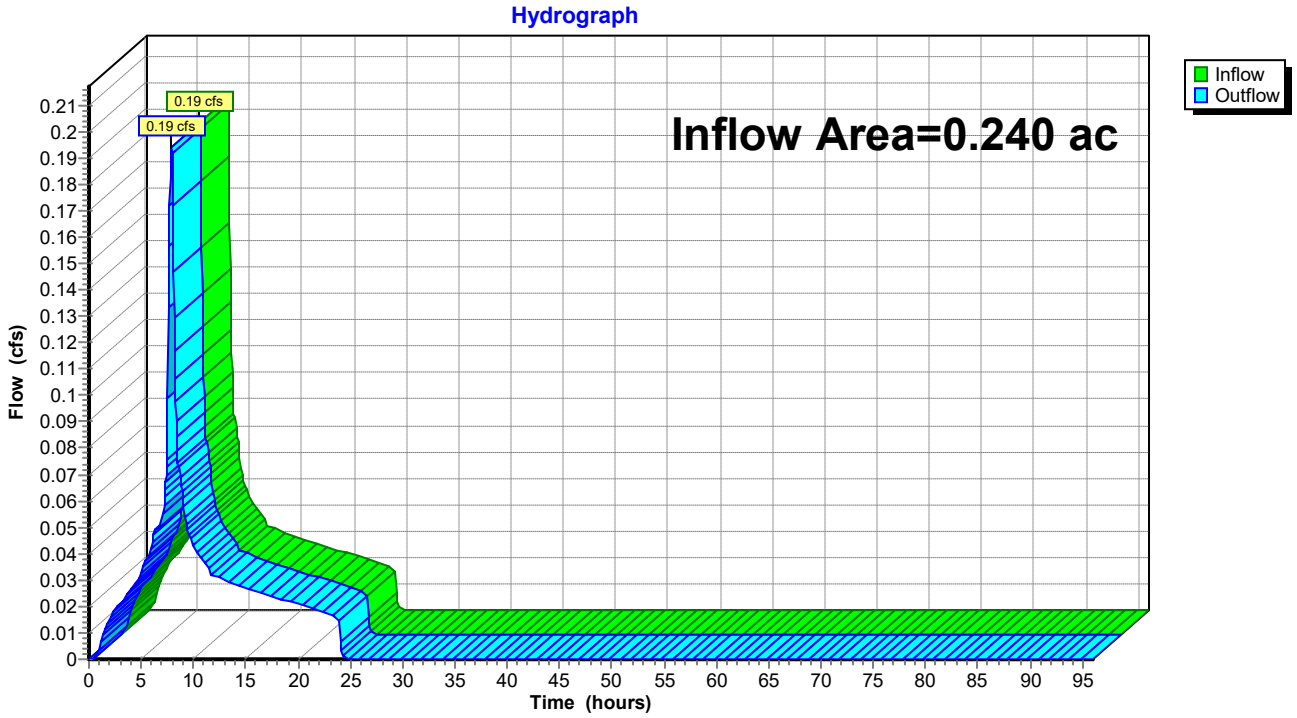
Summary for Reach C18: Filter CB 16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.240 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af
Outflow = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C18: Filter CB 16



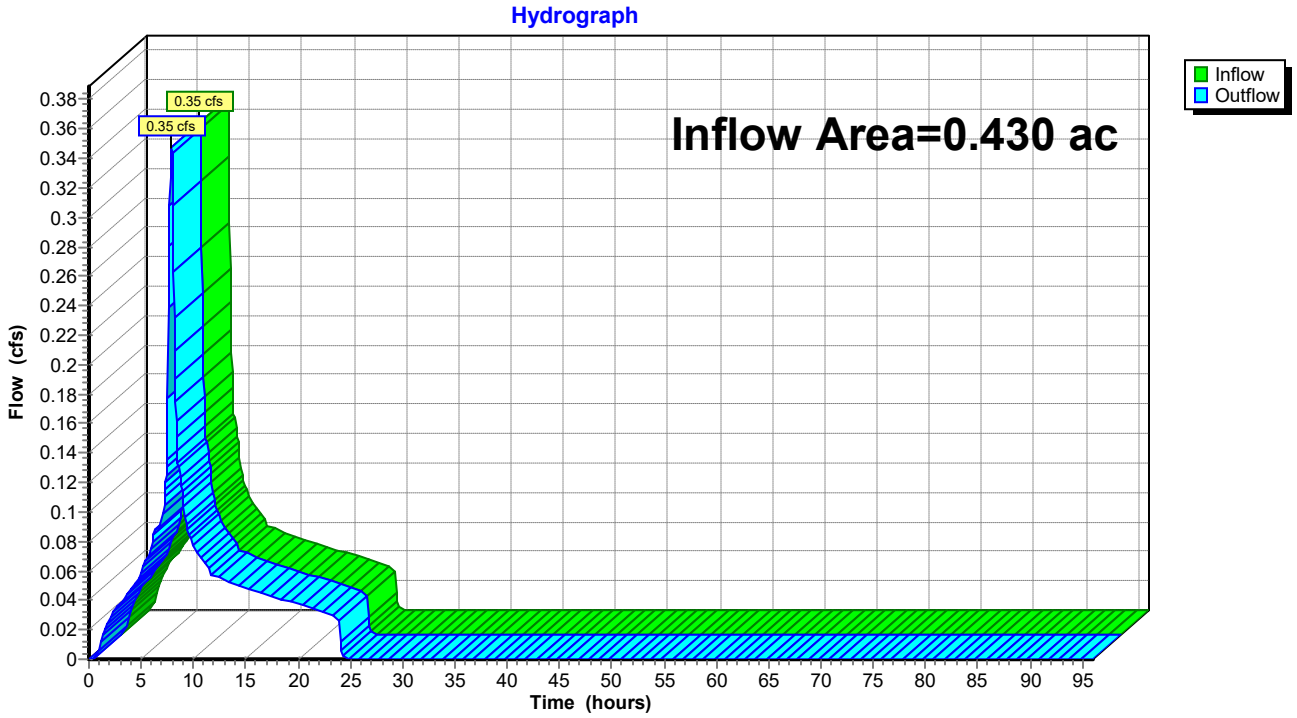
Summary for Reach C19: Filter CB 17

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.430 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.35 cfs @ 7.90 hrs, Volume= 0.115 af
Outflow = 0.35 cfs @ 7.90 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C19: Filter CB 17



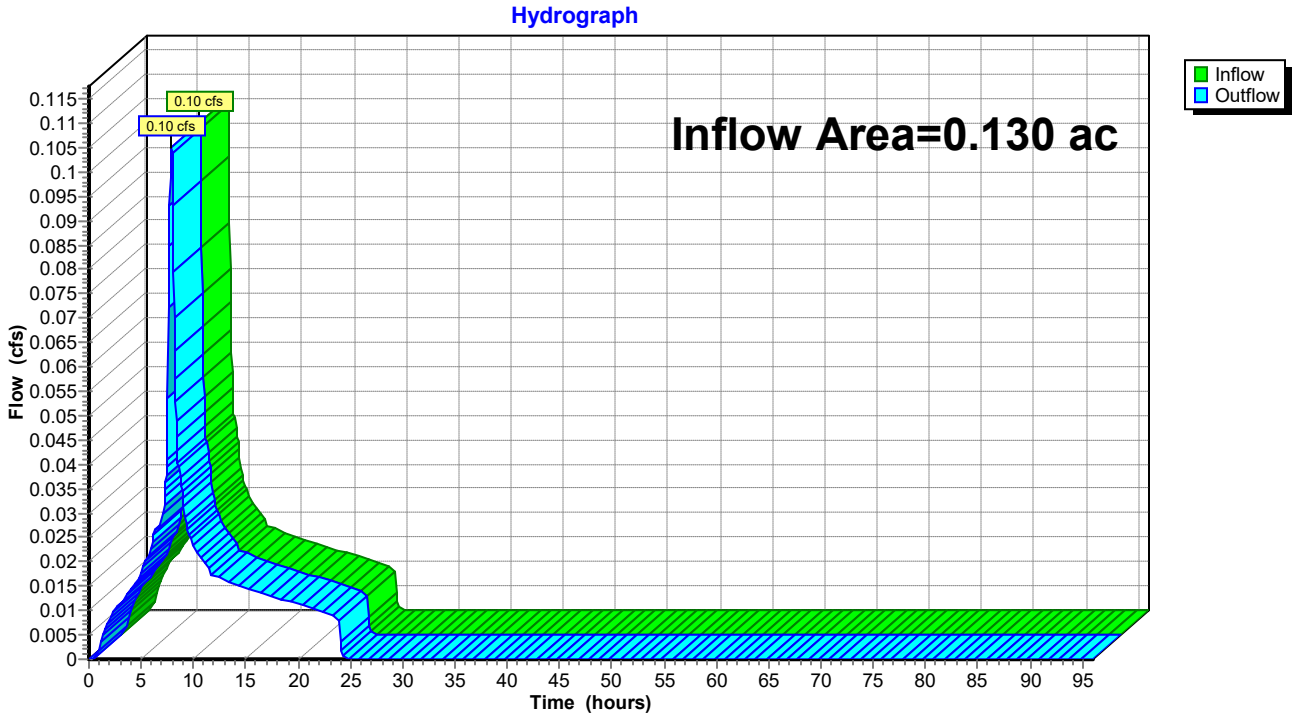
Summary for Reach C20: Filter CB 18

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.130 ac,100.00% Impervious, Inflow Depth = 3.22" for 10 year event
Inflow = 0.10 cfs @ 7.90 hrs, Volume= 0.035 af
Outflow = 0.10 cfs @ 7.90 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C20: Filter CB 18



Summary for Pond 6P: Wet Pond- Basin 1

Inflow Area = 13.140 ac, 46.04% Impervious, Inflow Depth = 2.38" for 10 year event
Inflow = 7.55 cfs @ 7.93 hrs, Volume= 2.610 af
Outflow = 2.30 cfs @ 9.18 hrs, Volume= 2.609 af, Atten= 69%, Lag= 74.9 min
Primary = 2.30 cfs @ 9.18 hrs, Volume= 2.609 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Starting Elev= 340.66' Surf.Area= 0.163 ac Storage= 0.100 af
Peak Elev= 343.61' @ 9.18 hrs Surf.Area= 0.280 ac Storage= 0.747 af (0.647 af above start)

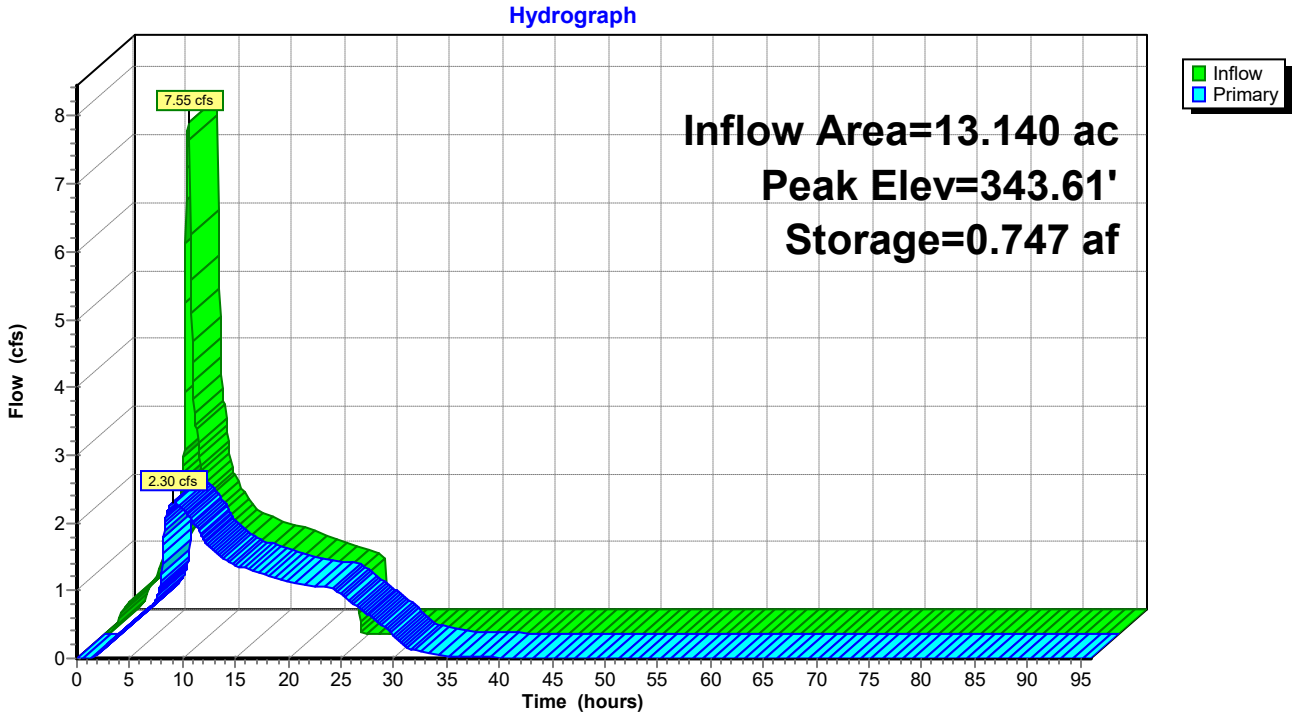
Plug-Flow detention time= 305.8 min calculated for 2.509 af (96% of inflow)
Center-of-Mass det. time= 249.9 min (965.8 - 715.9)

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	1.179 af	**45.00'W x 136.00'L x 5.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices		
#1	Primary	340.66'	**5.4" Vert. Orifice/Grate**	C= 0.600	
#2	Primary	342.88'	**7.9" Vert. Orifice/Grate**	C= 0.600	
#3	Primary	343.62'	**4.9" Vert. Orifice/Grate**	C= 0.600	
#4	Primary	344.00'	**8.0" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=2.30 cfs @ 9.18 hrs HW=343.61' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.26 cfs @ 7.95 fps)
- **2=Orifice/Grate** (Orifice Controls 1.04 cfs @ 3.05 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Wet Pond- Basin 1



Summary for Pond P1: Planter 1

Inflow Area = 1.480 ac, 58.11% Impervious, Inflow Depth = 2.73" for 10 year event
Inflow = 1.01 cfs @ 7.92 hrs, Volume= 0.337 af
Outflow = 0.28 cfs @ 9.28 hrs, Volume= 0.265 af, Atten= 72%, Lag= 81.4 min
Primary = 0.28 cfs @ 9.28 hrs, Volume= 0.265 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 347.34' @ 9.28 hrs Surf.Area= 0.171 ac Storage= 0.126 af

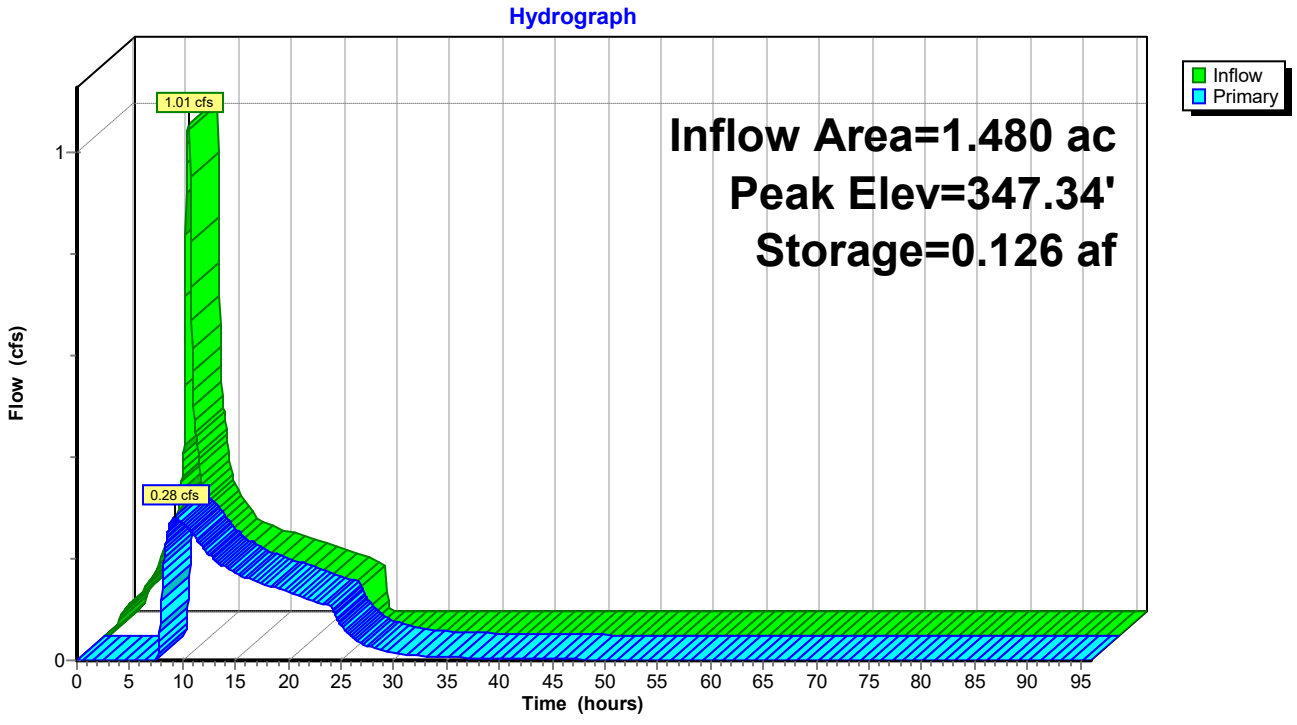
Plug-Flow detention time= 436.8 min calculated for 0.265 af (79% of inflow)
Center-of-Mass det. time= 298.4 min (996.9 - 698.5)

Volume	Invert	Avail.Storage	Storage Description
#1	346.50'	0.154 af	**16.00'W x 350.00'L x 1.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	347.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.28 cfs @ 9.28 hrs HW=347.34' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.28 cfs @ 1.98 fps)

Pond P1: Planter 1



Summary for Pond P2: Planter 2

Inflow Area = 1.460 ac, 13.01% Impervious, Inflow Depth = 1.87" for 10 year event
Inflow = 0.64 cfs @ 7.98 hrs, Volume= 0.227 af
Outflow = 0.27 cfs @ 8.75 hrs, Volume= 0.198 af, Atten= 58%, Lag= 46.6 min
Primary = 0.27 cfs @ 8.75 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 344.83' @ 8.75 hrs Surf.Area= 0.071 ac Storage= 0.052 af

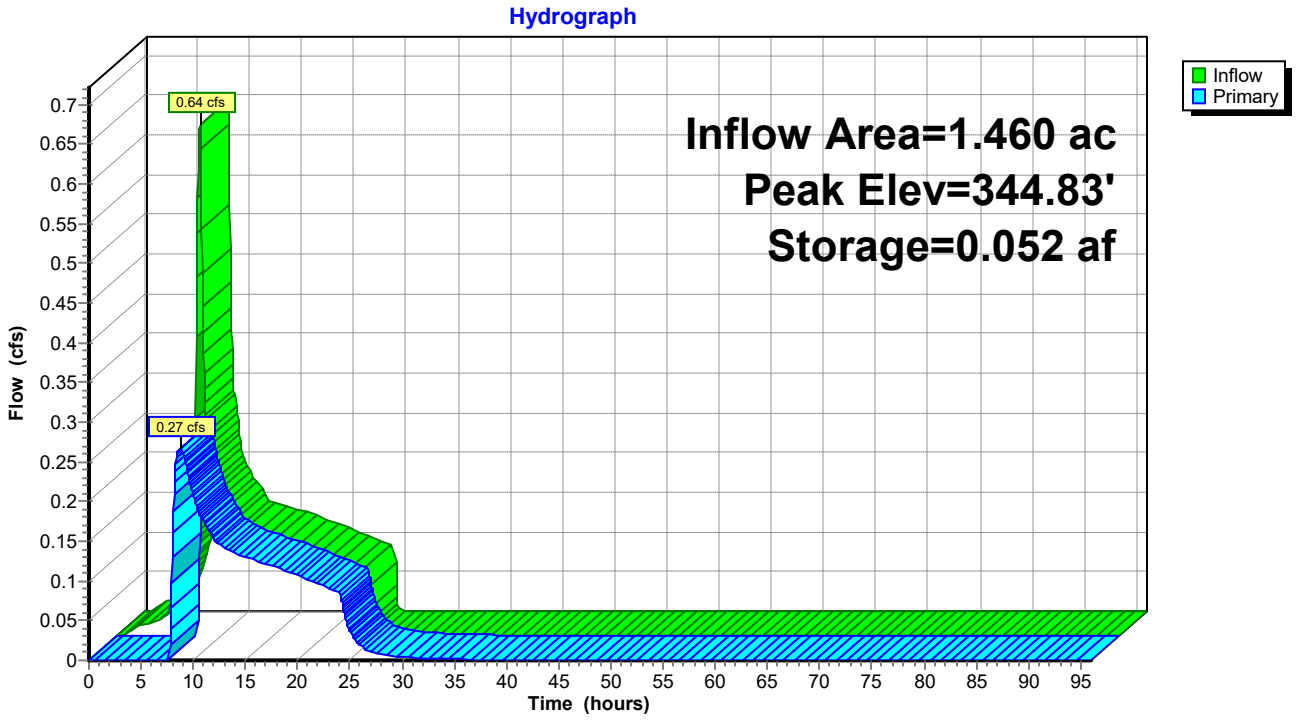
Plug-Flow detention time= 233.8 min calculated for 0.198 af (87% of inflow)
Center-of-Mass det. time= 150.9 min (926.1 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	344.00'	0.065 af	**50.00'W x 48.00'L x 1.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.27 cfs @ 8.75 hrs HW=344.83' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.27 cfs @ 1.95 fps)

Pond P2: Planter 2



Summary for Subcatchment 1.1: Fire Lane

[49] Hint: Tc<2dt may require smaller dt

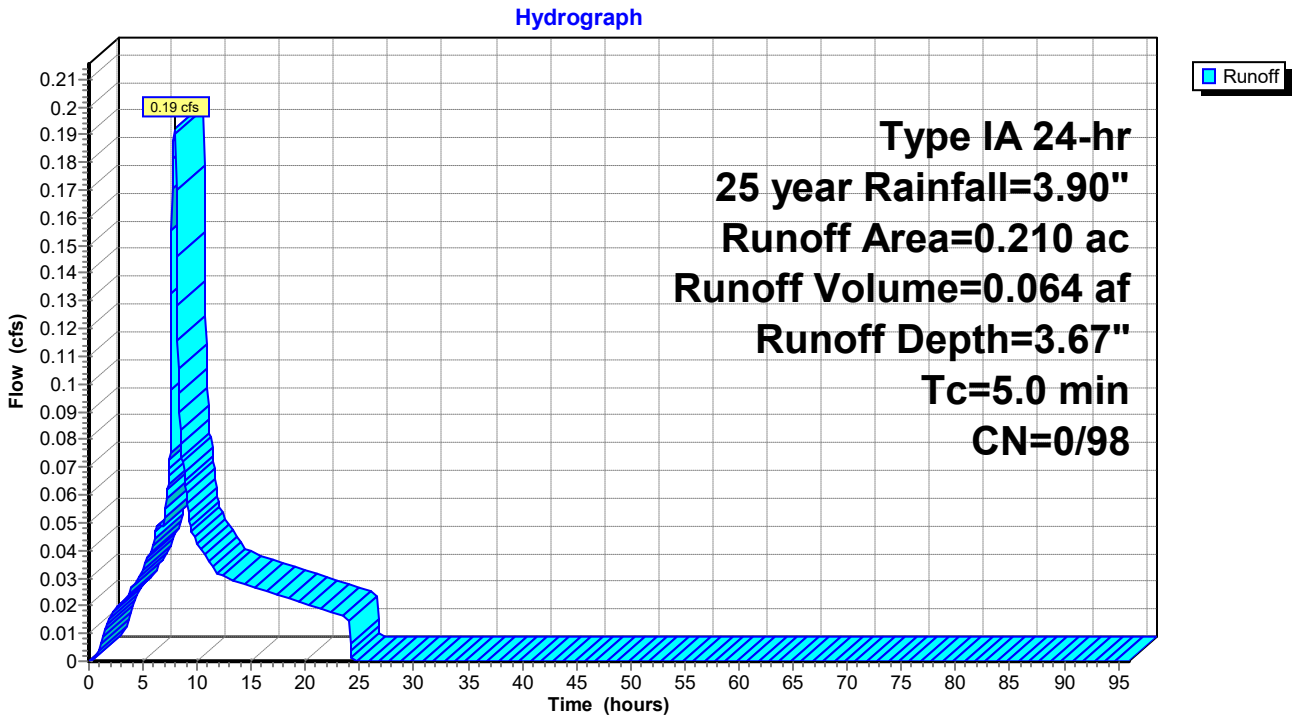
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.210	98	Paved parking, HSG D
0.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.1: Fire Lane



Summary for Subcatchment 1.10: School

[49] Hint: Tc<2dt may require smaller dt

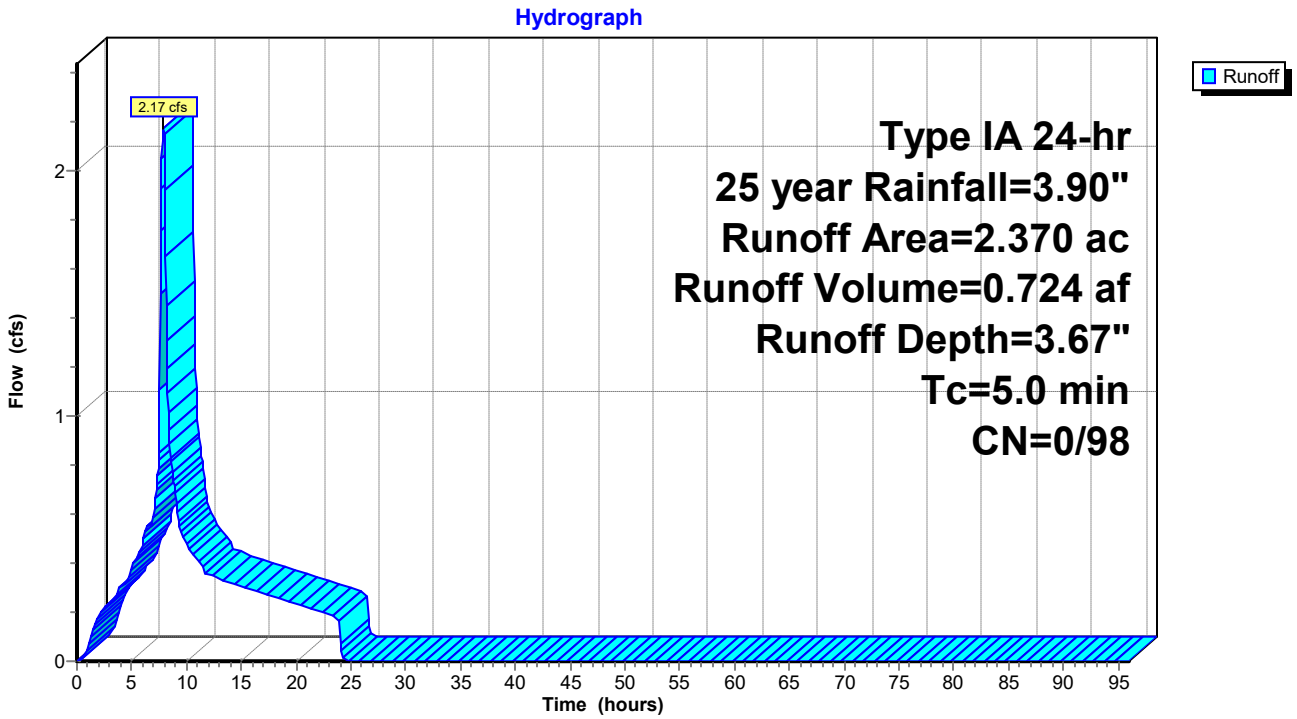
Runoff = 2.17 cfs @ 7.90 hrs, Volume= 0.724 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
2.370	98	Roofs, HSG D
2.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.10: School



Summary for Subcatchment 1.11: Lawn/Landscaping

Impervious Leroy

[49] Hint: Tc<2dt may require smaller dt

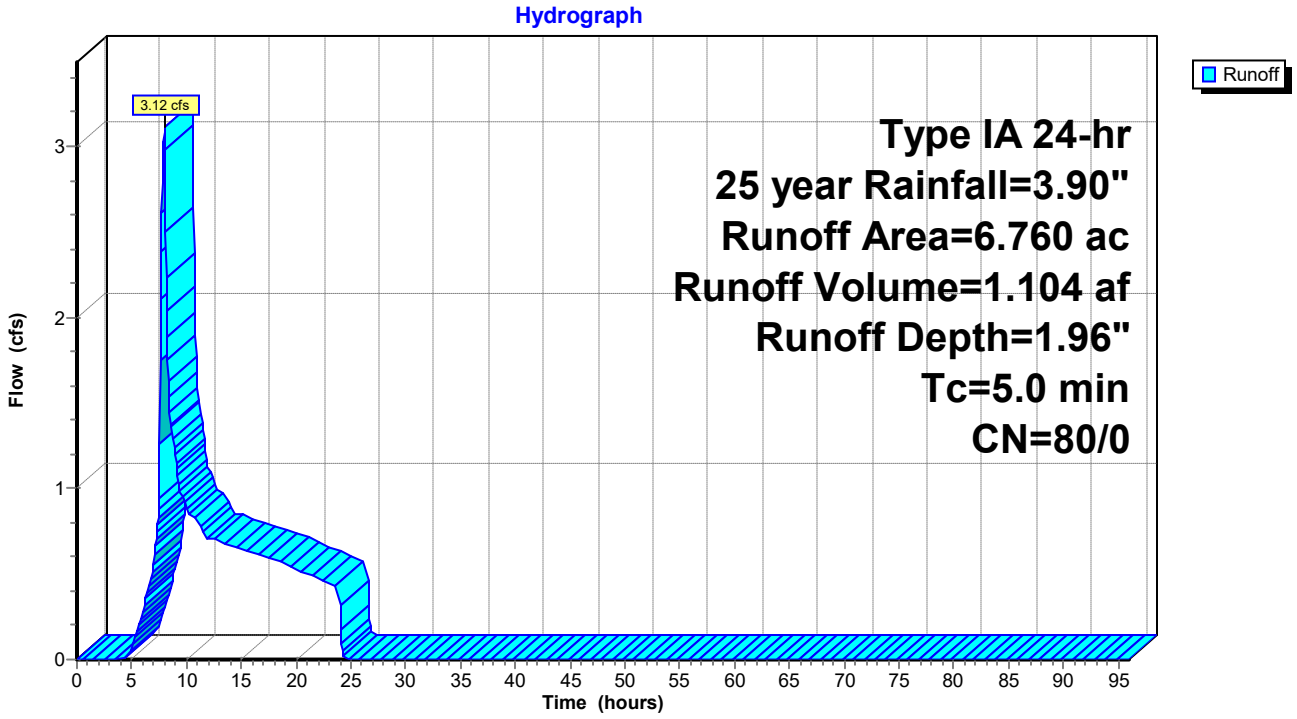
Runoff = 3.12 cfs @ 7.98 hrs, Volume= 1.104 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
6.760	80	>75% Grass cover, Good, HSG D
6.760	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.11: Lawn/Landscaping



Summary for Subcatchment 1.12: Wet Pond

[49] Hint: Tc<2dt may require smaller dt

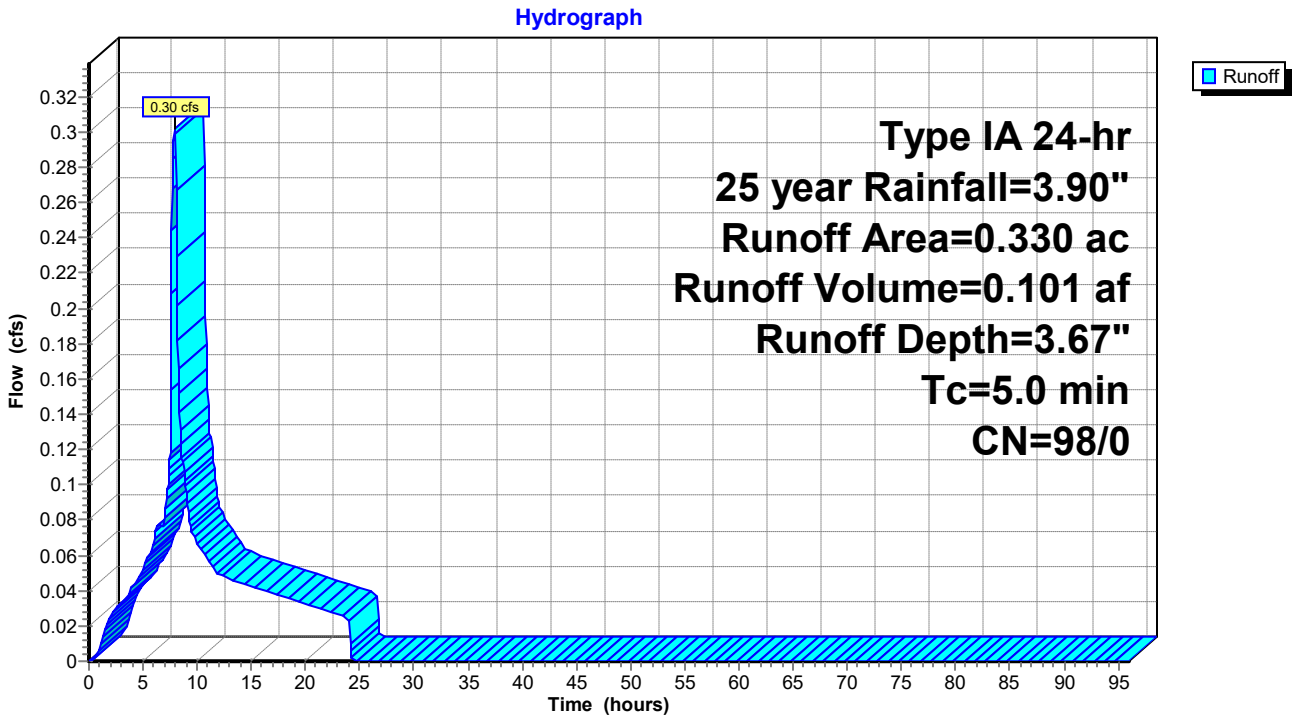
Runoff = 0.30 cfs @ 7.90 hrs, Volume= 0.101 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.330	98	Water Surface, 0% imp, HSG D
0.330	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.12: Wet Pond



Summary for Subcatchment 1.2: Lynn

[49] Hint: Tc<2dt may require smaller dt

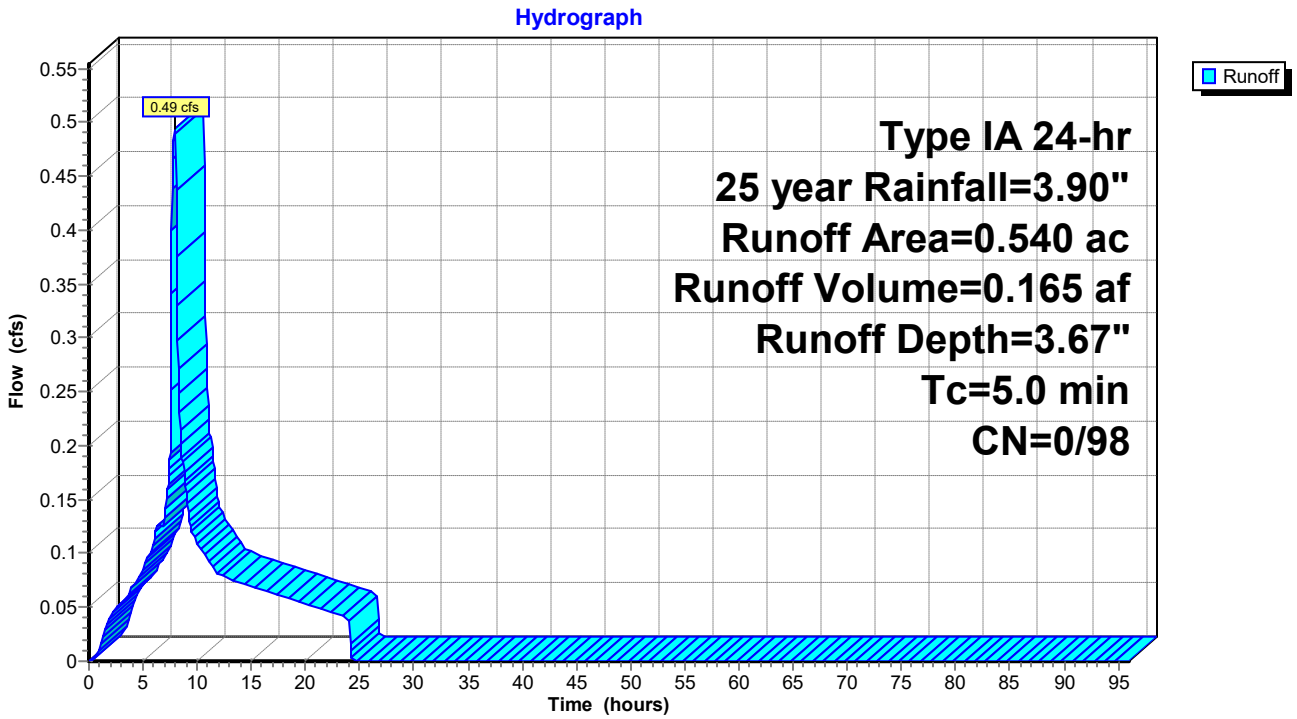
Runoff = 0.49 cfs @ 7.90 hrs, Volume= 0.165 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.540	98	Paved roads w/curbs & sewers, HSG D
0.540	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.2: Lynn



Summary for Subcatchment 1.3: E Parking + Pervious

[49] Hint: Tc<2dt may require smaller dt

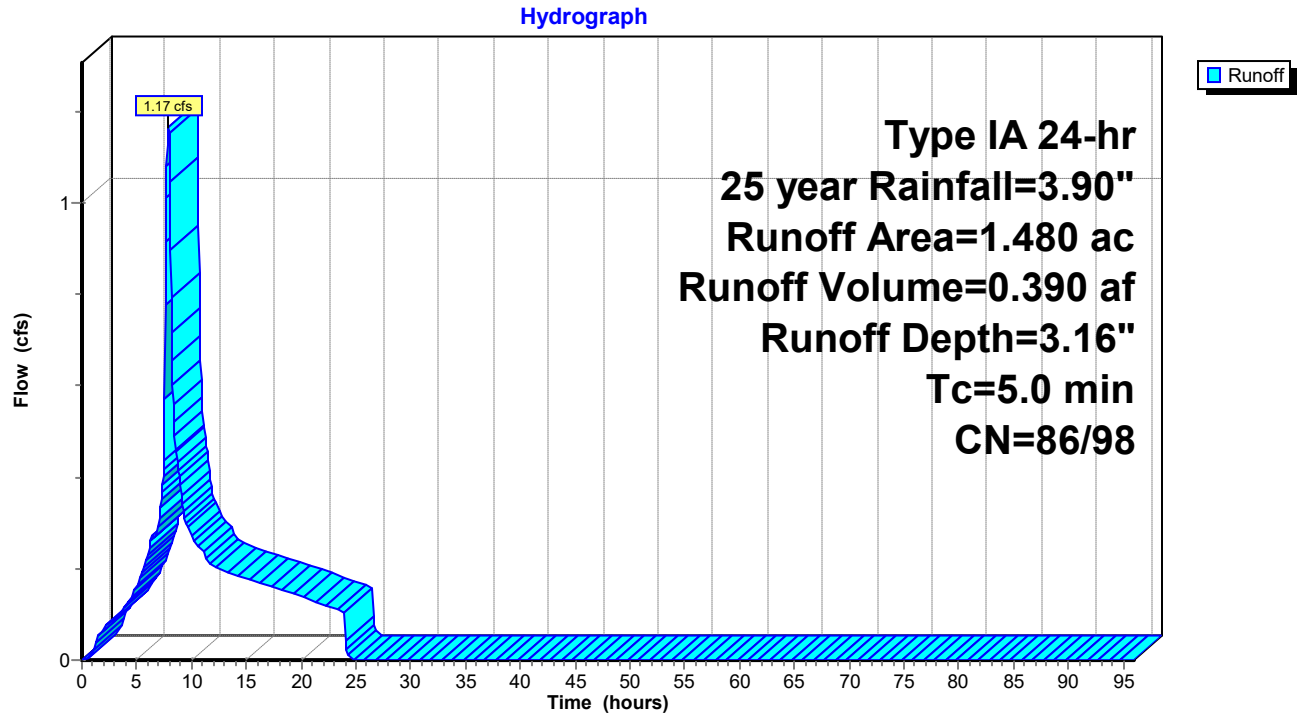
Runoff = 1.17 cfs @ 7.92 hrs, Volume= 0.390 af, Depth= 3.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG D
0.410	80	>75% Grass cover, Good, HSG D
0.210	98	Water Surface, 0% imp, HSG D
1.480	93	Weighted Average
0.620	86	41.89% Pervious Area
0.860	98	58.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.3: E Parking + Pervious



Summary for Subcatchment 1.4: N Parking

[49] Hint: Tc<2dt may require smaller dt

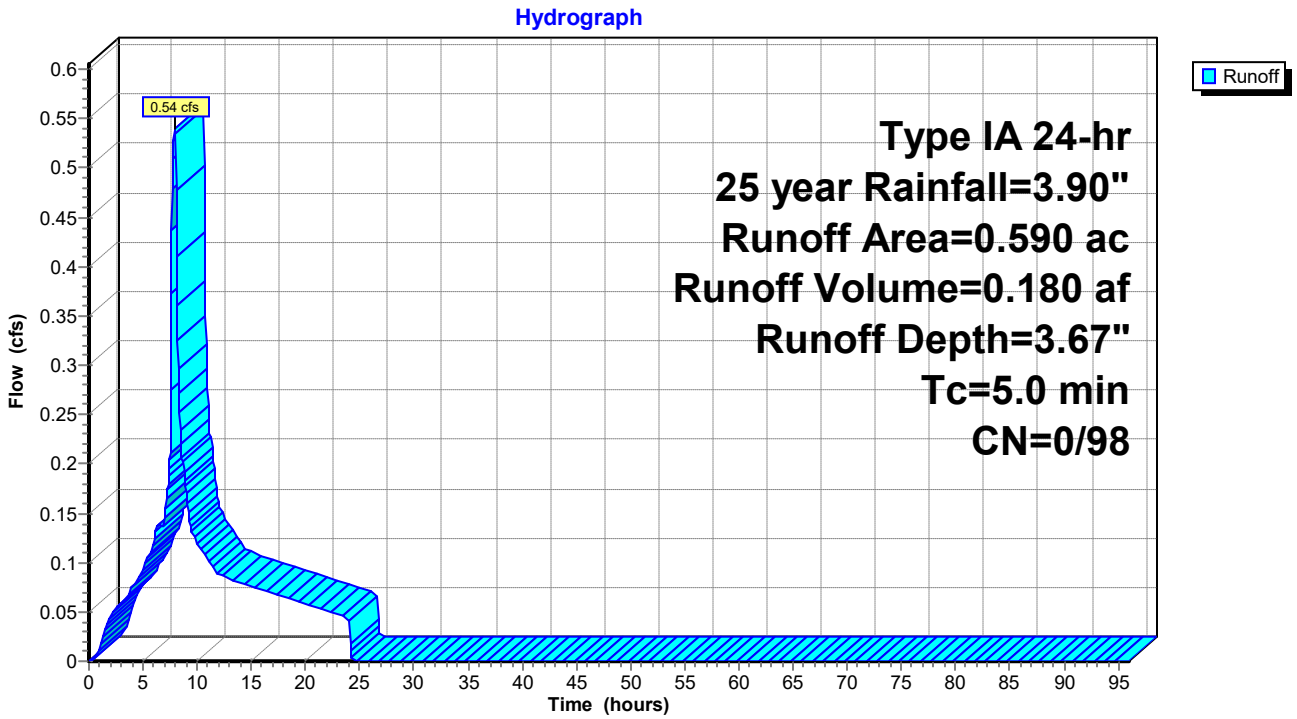
Runoff = 0.54 cfs @ 7.90 hrs, Volume= 0.180 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.590	98	Paved parking, HSG D
0.590	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.4: N Parking



Summary for Subcatchment 1.5: E Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

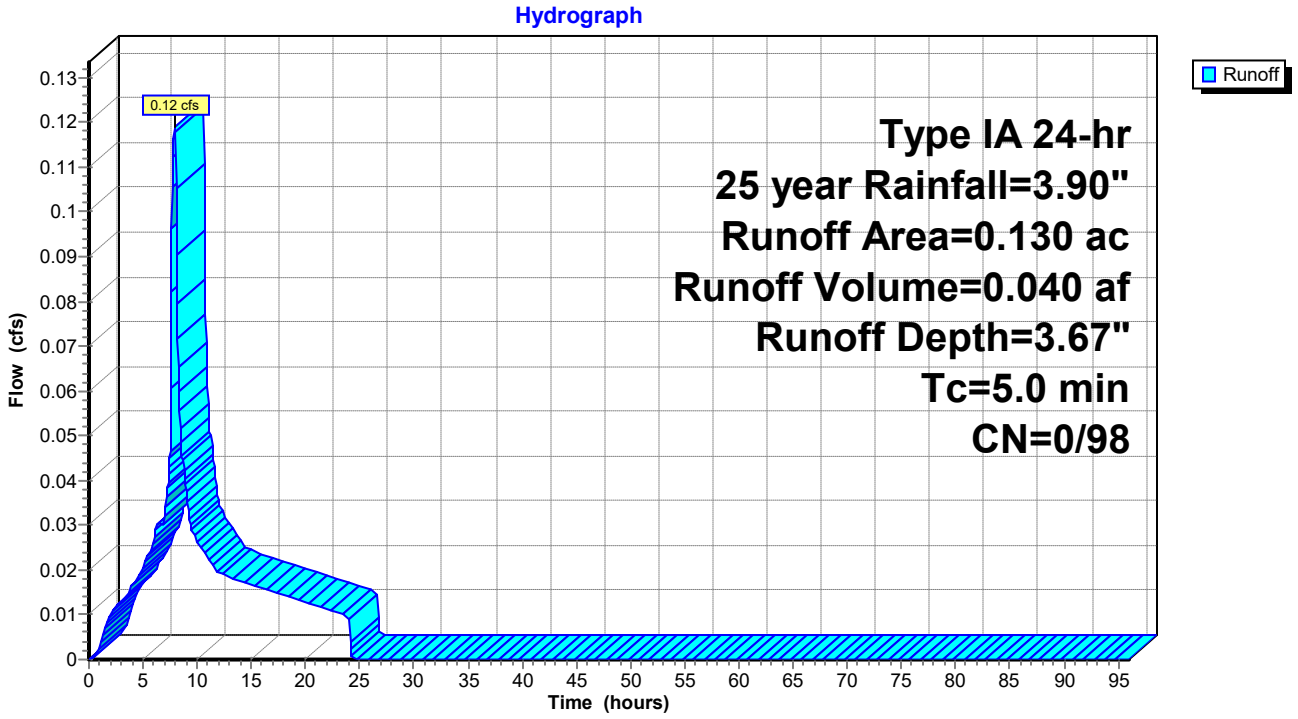
Runoff = 0.12 cfs @ 7.90 hrs, Volume= 0.040 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG D
0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.5: E Leroy



Summary for Subcatchment 1.6: NE Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

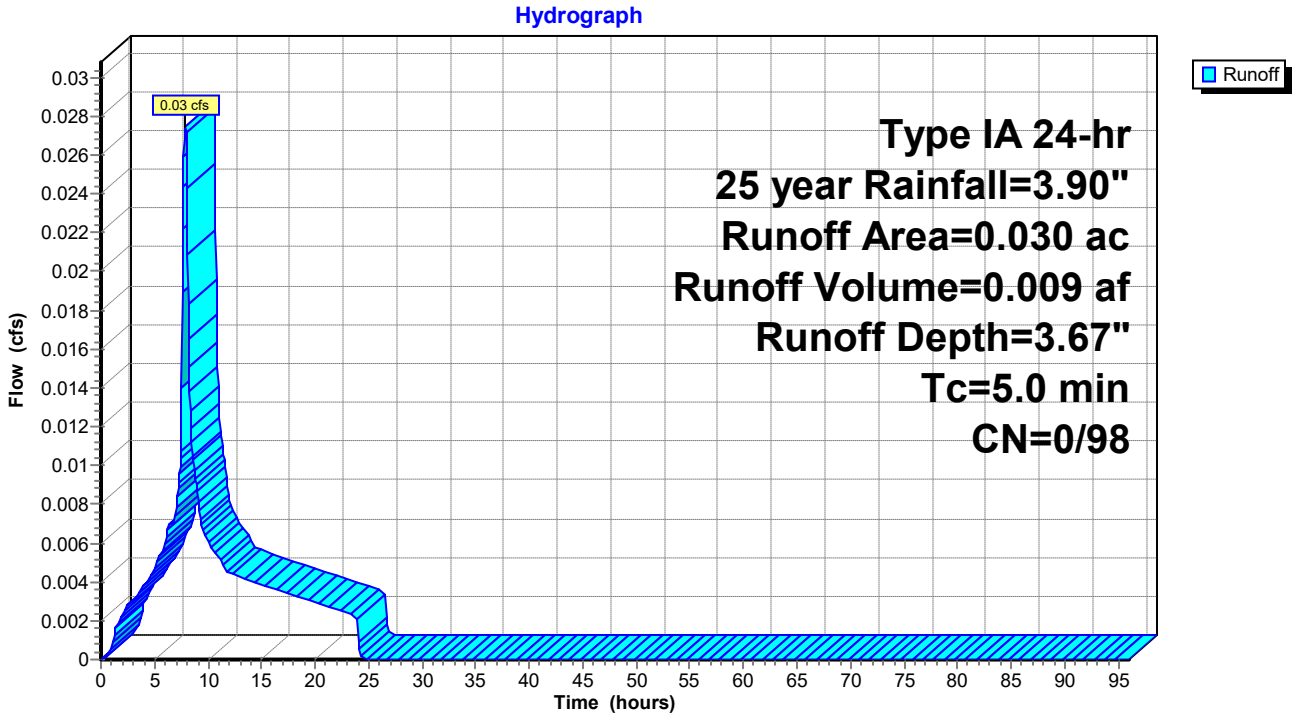
Runoff = 0.03 cfs @ 7.90 hrs, Volume= 0.009 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.6: NE Leroy



Summary for Subcatchment 1.7: NW Leroy

[49] Hint: Tc<2dt may require smaller dt

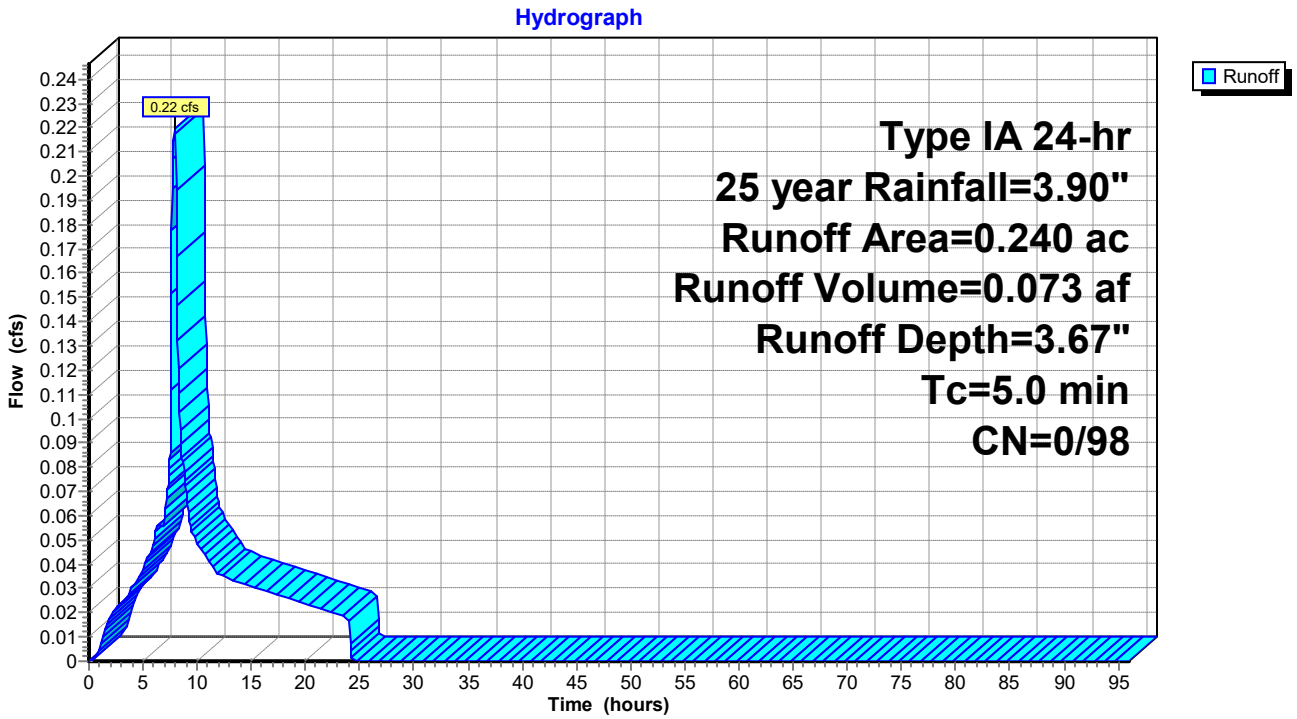
Runoff = 0.22 cfs @ 7.90 hrs, Volume= 0.073 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.7: NW Leroy



Summary for Subcatchment 1.8: S Parking

[49] Hint: Tc<2dt may require smaller dt

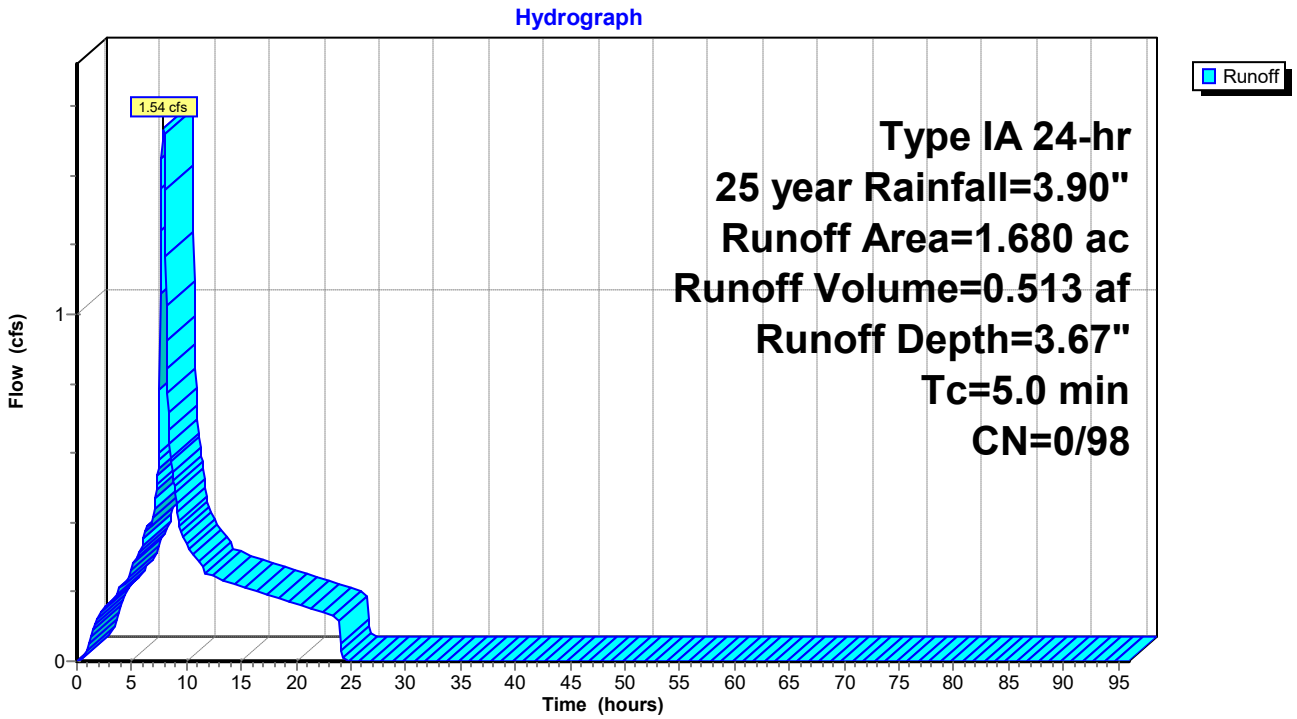
Runoff = 1.54 cfs @ 7.90 hrs, Volume= 0.513 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
1.680	98	Paved parking, HSG D
1.680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.8: S Parking



Summary for Subcatchment 1.9: Rec. Area

[49] Hint: Tc<2dt may require smaller dt

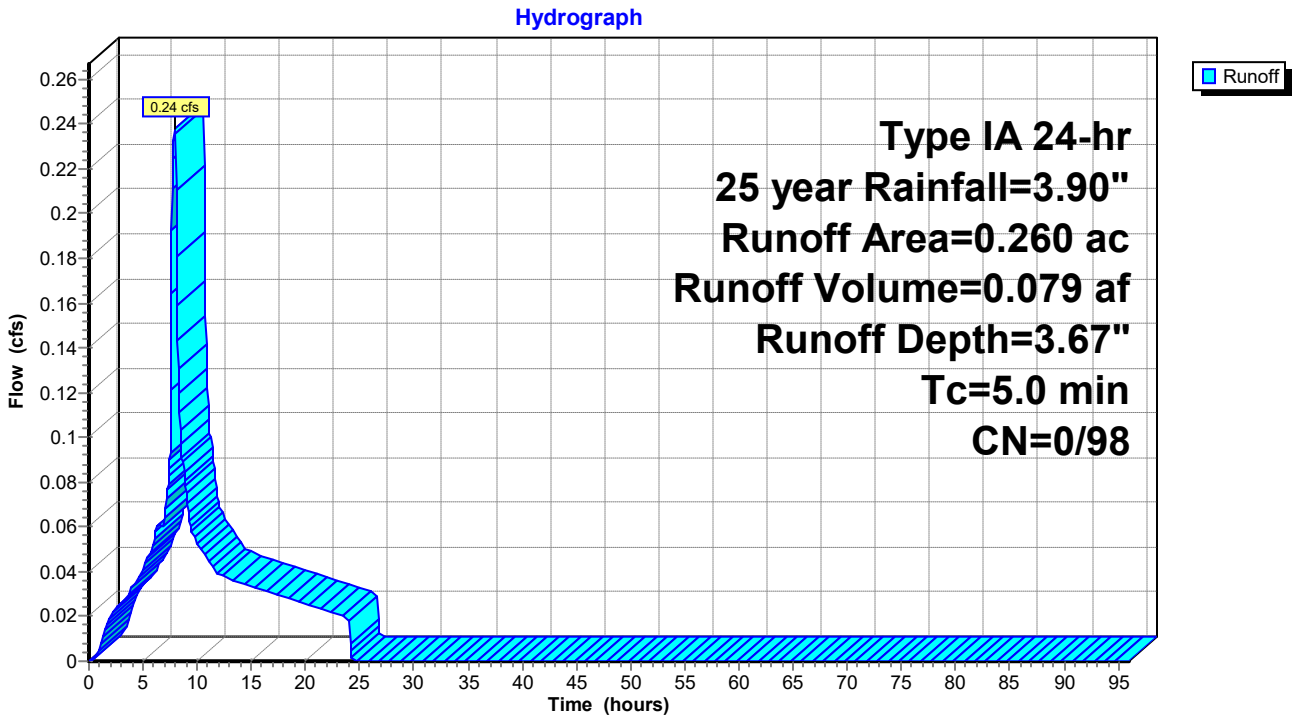
Runoff = 0.24 cfs @ 7.90 hrs, Volume= 0.079 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers, HSG D
0.260	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.9: Rec. Area



Summary for Subcatchment 2: Post Developed - Basin 2

[49] Hint: Tc<2dt may require smaller dt

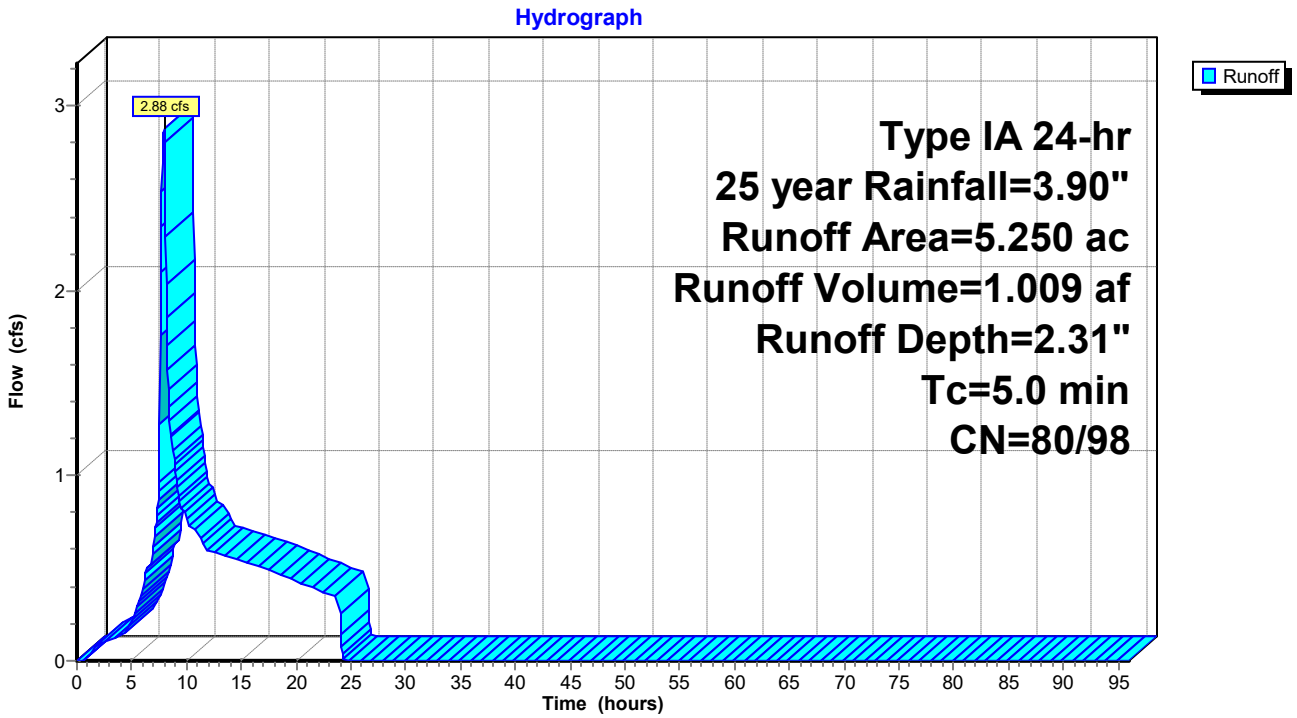
Runoff = 2.88 cfs @ 7.96 hrs, Volume= 1.009 af, Depth= 2.31"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
4.180	80	>75% Grass cover, Good, HSG D
1.070	98	Paved roads w/curbs & sewers, HSG D
5.250	84	Weighted Average
4.180	80	79.62% Pervious Area
1.070	98	20.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2: Post Developed - Basin 2



Summary for Subcatchment 2.1: NE West

[49] Hint: Tc<2dt may require smaller dt

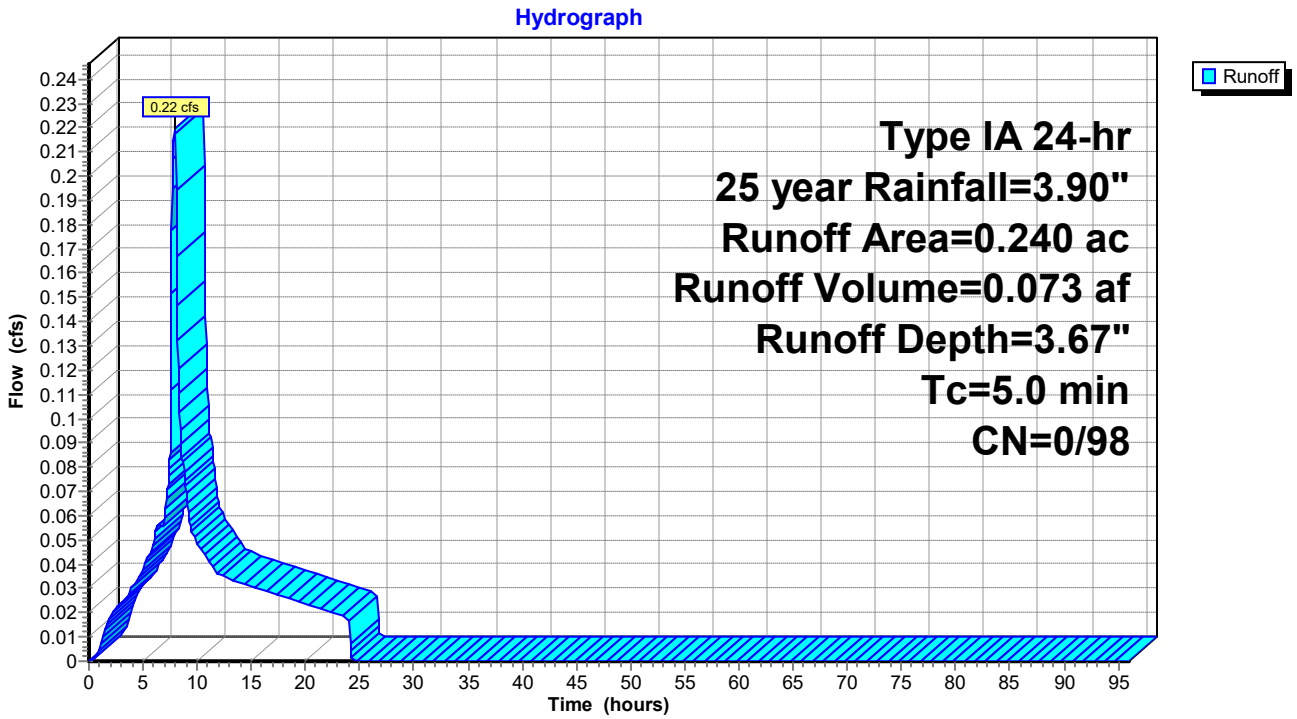
Runoff = 0.22 cfs @ 7.90 hrs, Volume= 0.073 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.1: NE West



Summary for Subcatchment 2.2: S Hezzie

[49] Hint: Tc<2dt may require smaller dt

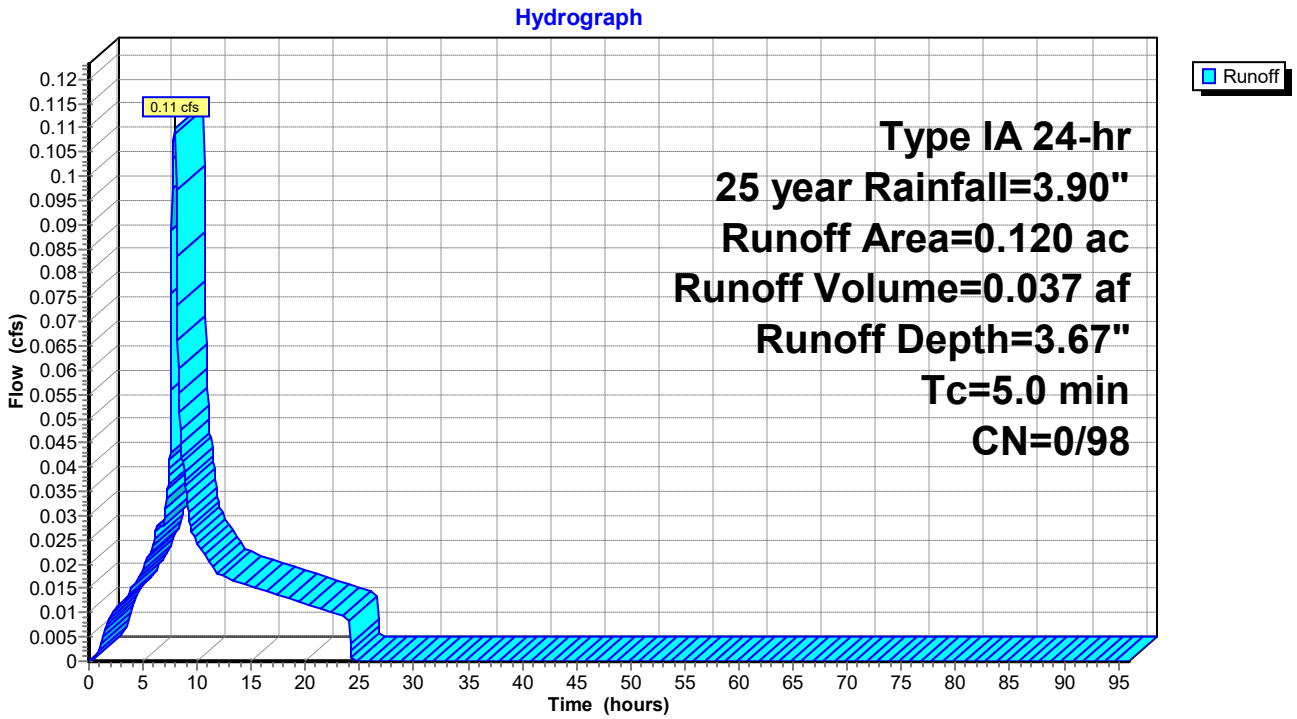
Runoff = 0.11 cfs @ 7.90 hrs, Volume= 0.037 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.120	98	Paved roads w/curbs & sewers, HSG D
0.120	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.2: S Hezzie



Summary for Subcatchment 2.3: NW West

[49] Hint: Tc<2dt may require smaller dt

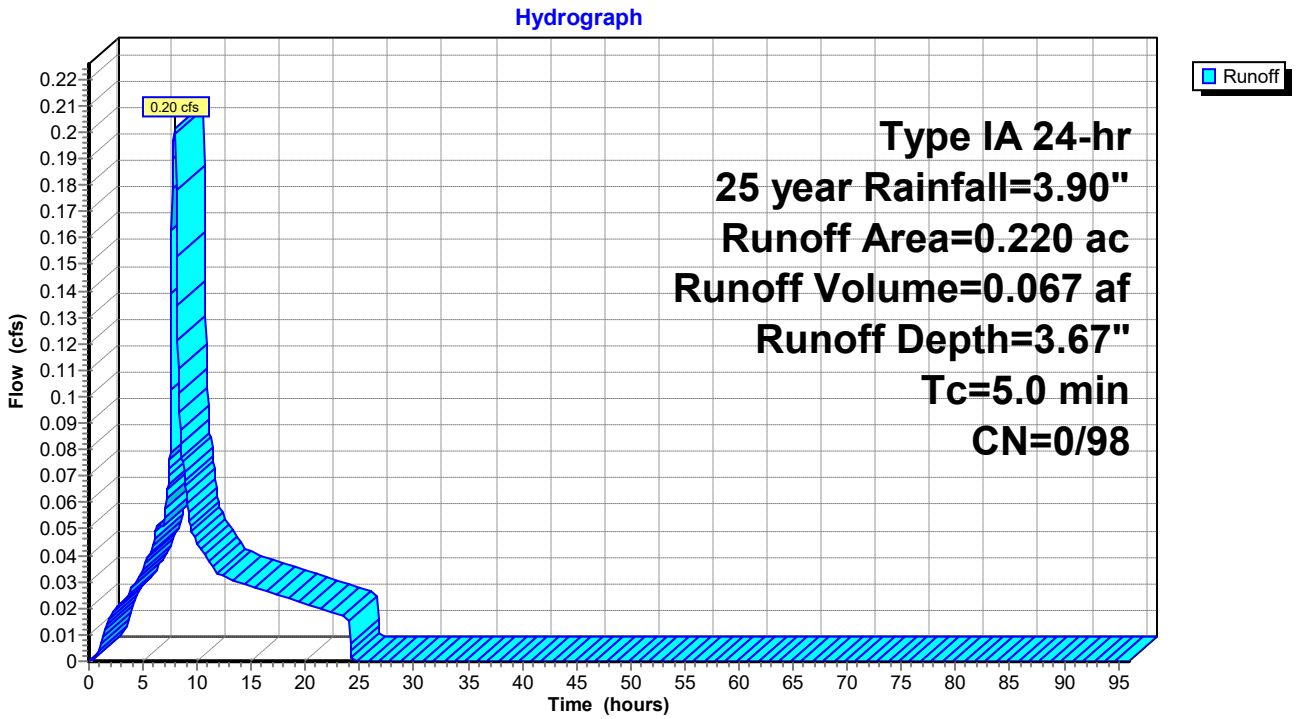
Runoff = 0.20 cfs @ 7.90 hrs, Volume= 0.067 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.220	98	Paved roads w/curbs & sewers, HSG D
0.220	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.3: NW West



Summary for Subcatchment 2.4: SW West

[49] Hint: Tc<2dt may require smaller dt

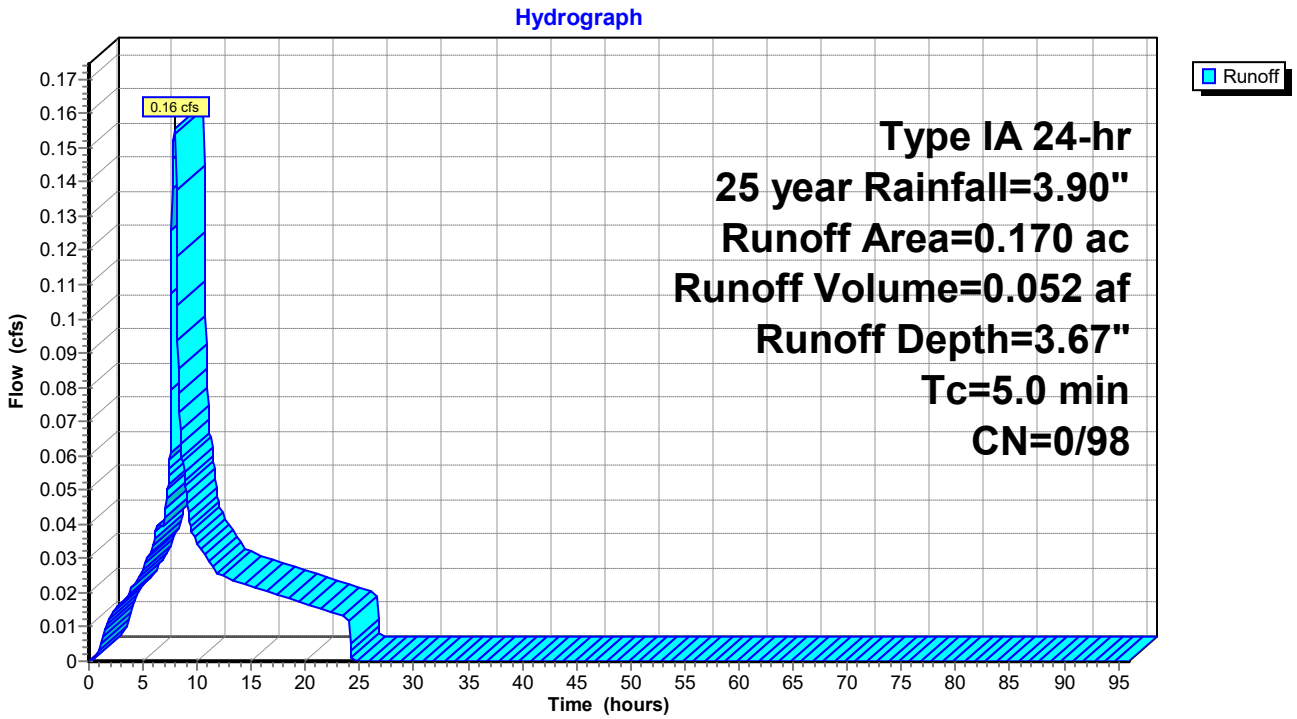
Runoff = 0.16 cfs @ 7.90 hrs, Volume= 0.052 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers, HSG D
0.170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.4: SW West



Summary for Subcatchment 2.5: SE West

[49] Hint: Tc<2dt may require smaller dt

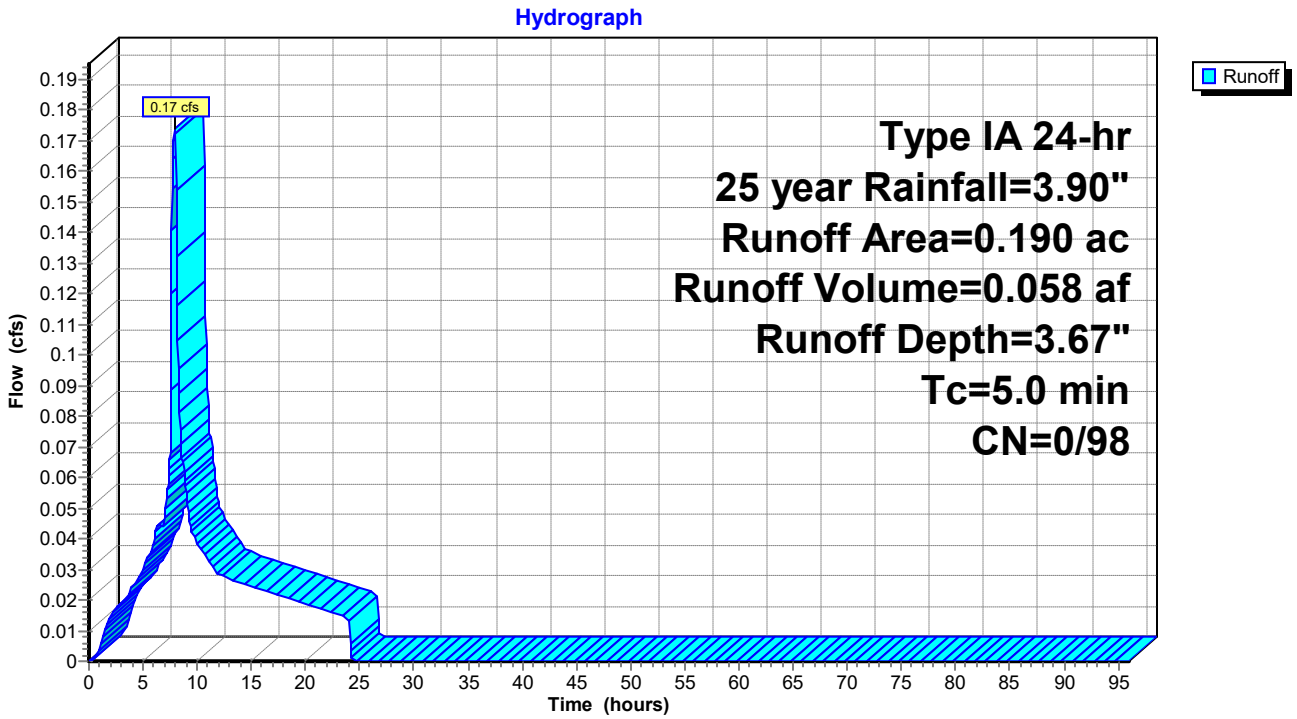
Runoff = 0.17 cfs @ 7.90 hrs, Volume= 0.058 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers, HSG D
0.190	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.5: SE West



Summary for Subcatchment 2.6: SE Leroy

[49] Hint: Tc<2dt may require smaller dt

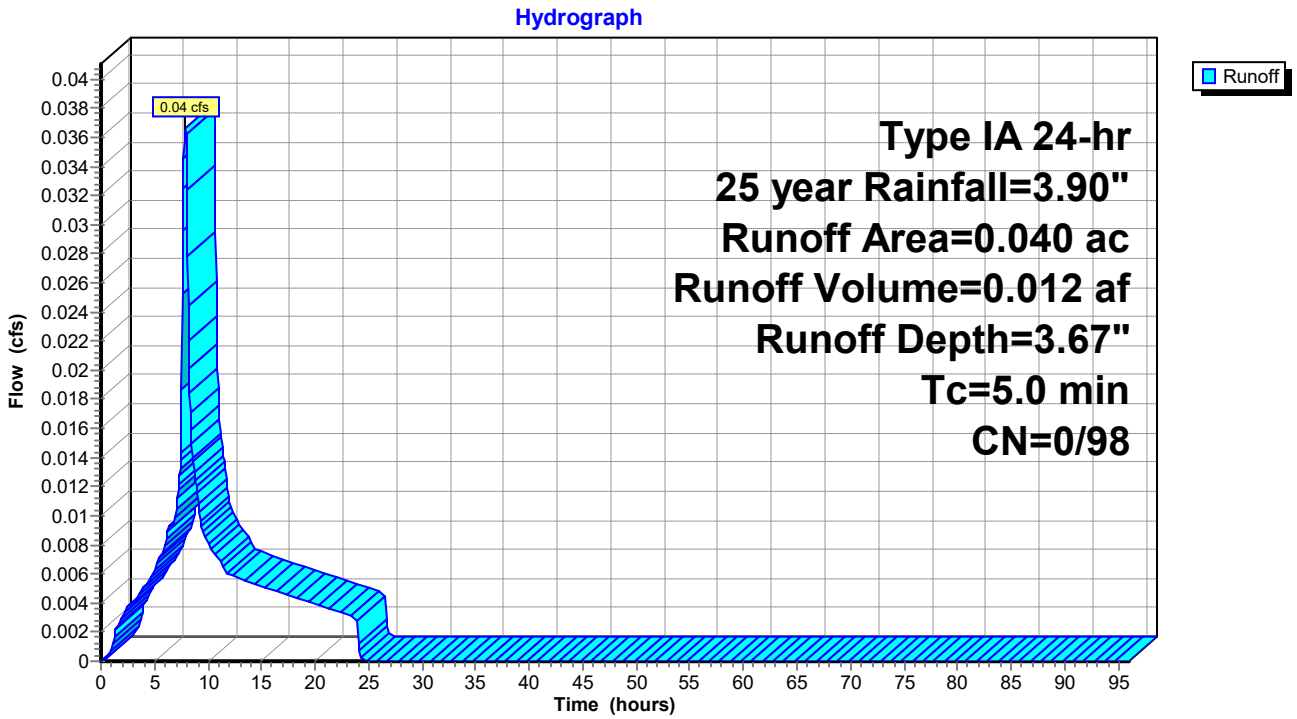
Runoff = 0.04 cfs @ 7.90 hrs, Volume= 0.012 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers, HSG D
0.040	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.6: SE Leroy



Summary for Subcatchment 2.7: SW Leroy

[49] Hint: Tc<2dt may require smaller dt

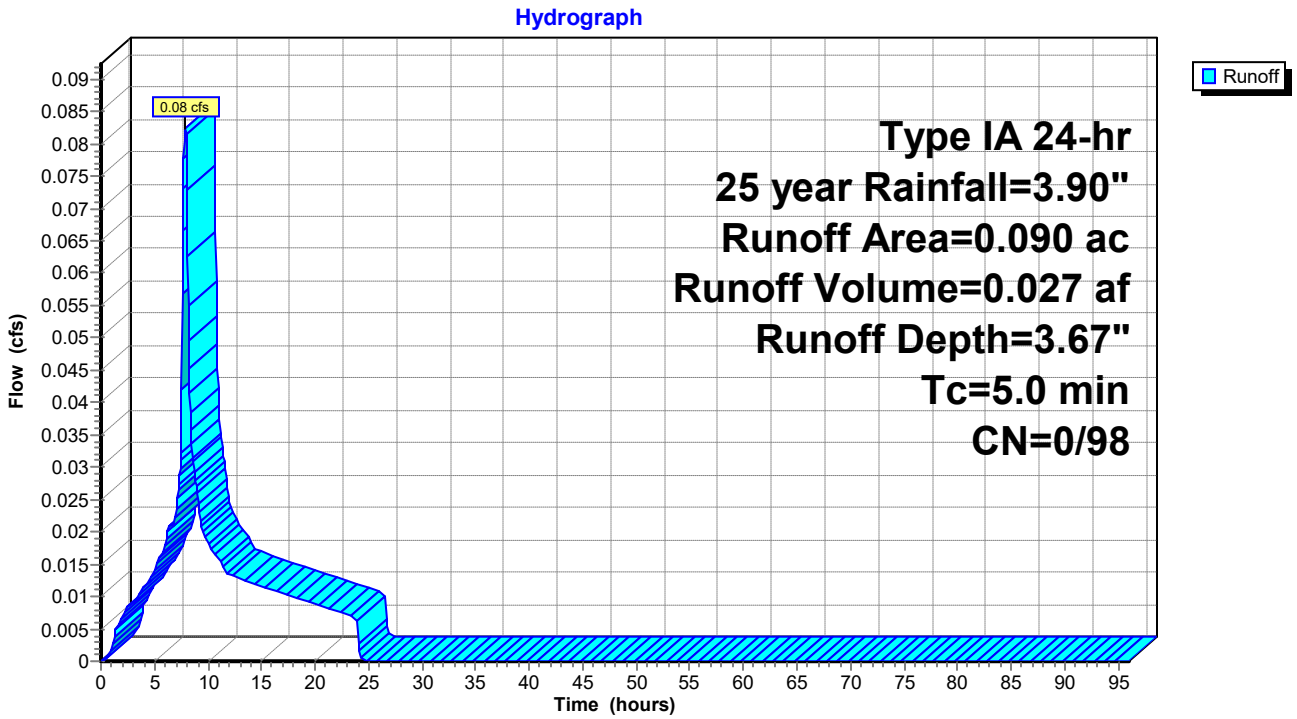
Runoff = 0.08 cfs @ 7.90 hrs, Volume= 0.027 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers, HSG D
0.090	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.7: SW Leroy



Summary for Subcatchment 2.8: Pervious West

[49] Hint: Tc<2dt may require smaller dt

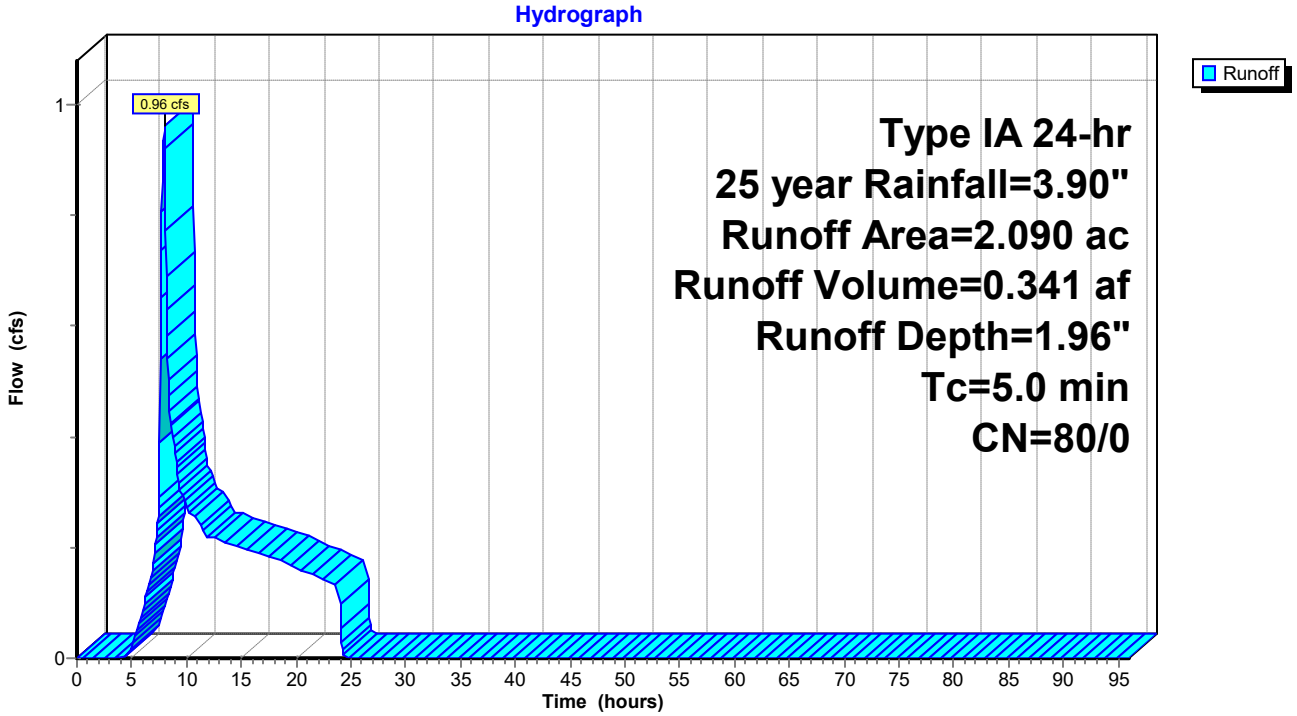
Runoff = 0.96 cfs @ 7.98 hrs, Volume= 0.341 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.8: Pervious West



Summary for Subcatchment 2.9: Pervious East

[49] Hint: Tc<2dt may require smaller dt

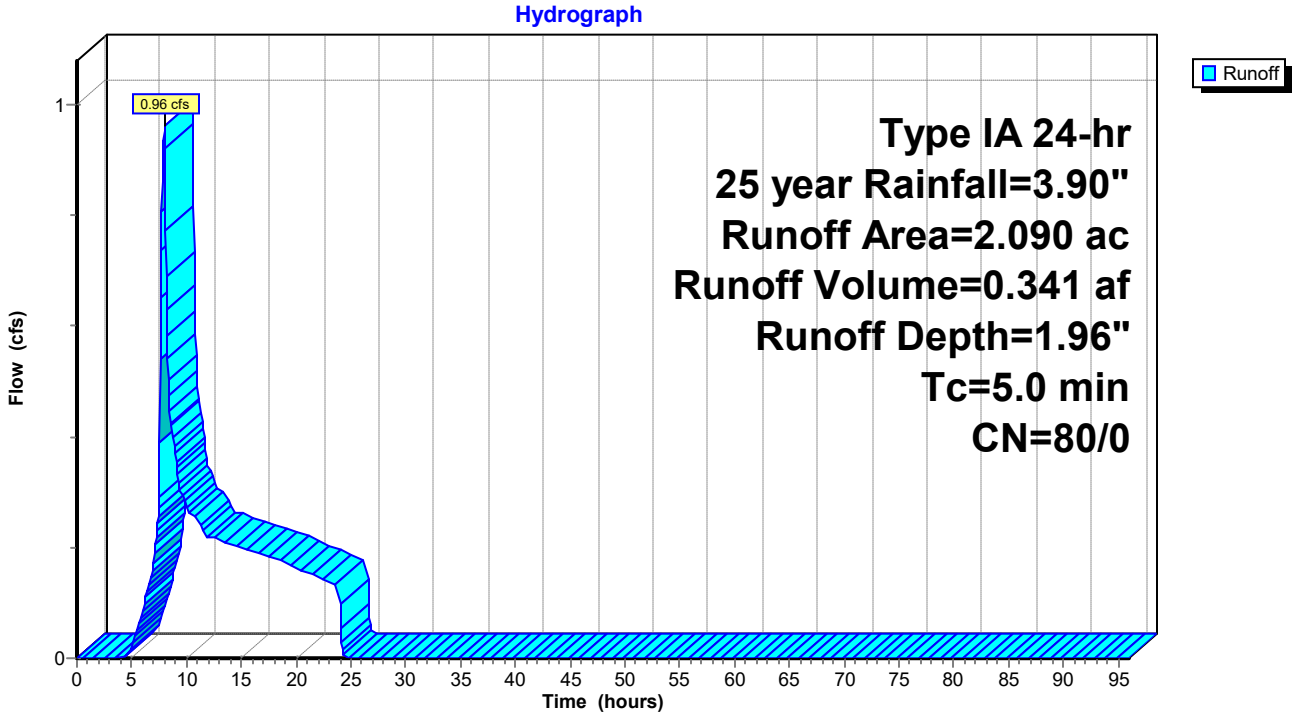
Runoff = 0.96 cfs @ 7.98 hrs, Volume= 0.341 af, Depth= 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.9: Pervious East



Summary for Subcatchment 3.1: SW Parking + Pervious - Basin 3

[49] Hint: Tc<2dt may require smaller dt

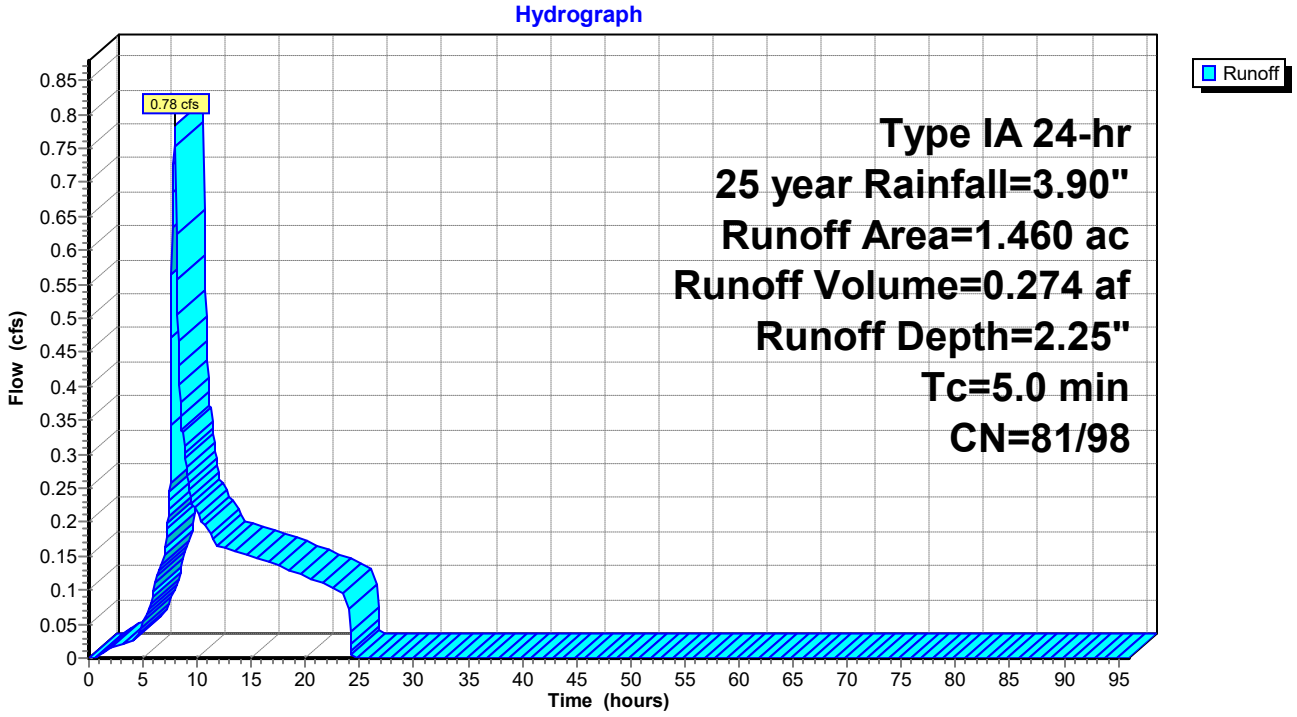
Runoff = 0.78 cfs @ 7.97 hrs, Volume= 0.274 af, Depth= 2.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
1.190	80	>75% Grass cover, Good, HSG D
0.190	98	Paved parking, HSG D
0.080	98	Water Surface, 0% imp, HSG D
1.460	83	Weighted Average
1.270	81	86.99% Pervious Area
0.190	98	13.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.1: SW Parking + Pervious - Basin 3



Summary for Subcatchment 3.2: N Hezzie

[49] Hint: Tc<2dt may require smaller dt

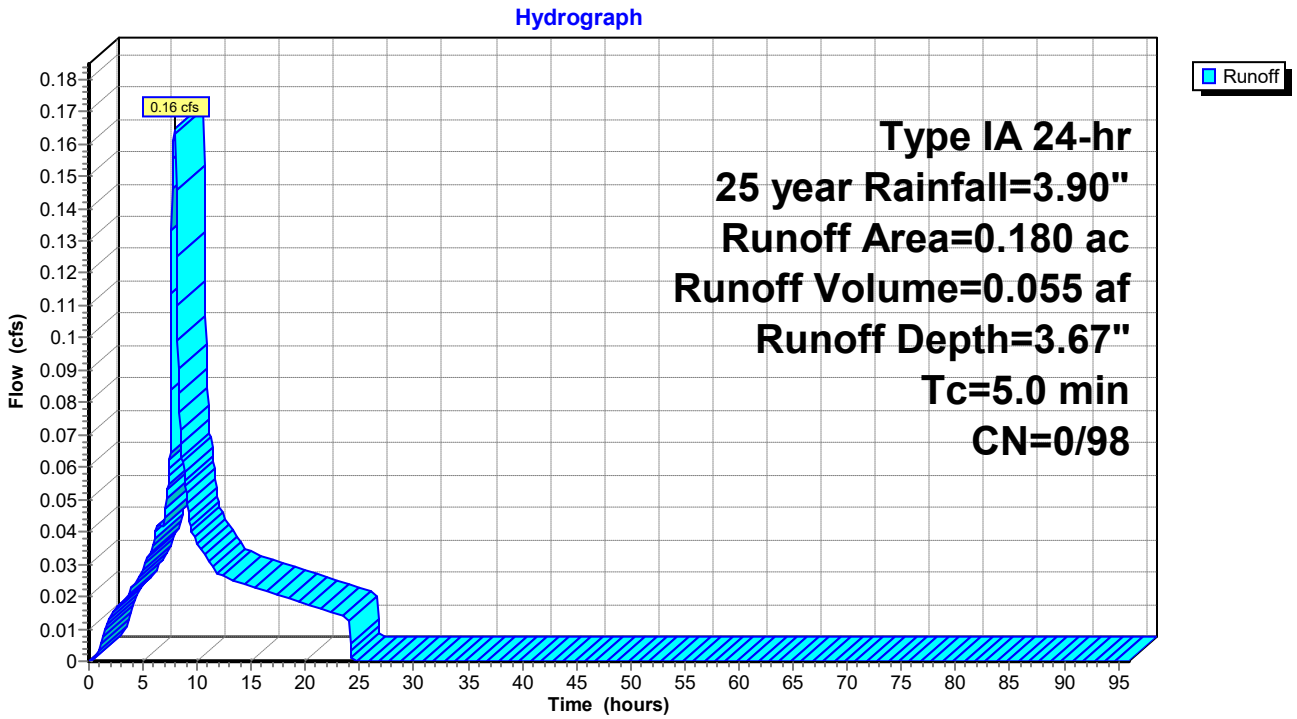
Runoff = 0.16 cfs @ 7.90 hrs, Volume= 0.055 af, Depth= 3.67"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG D
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.2: N Hezzie



Summary for Reach 2.1R: 12" outfall (West)

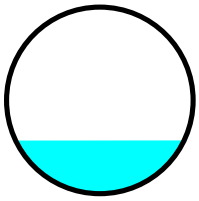
[52] Hint: Inlet/Outlet conditions not evaluated

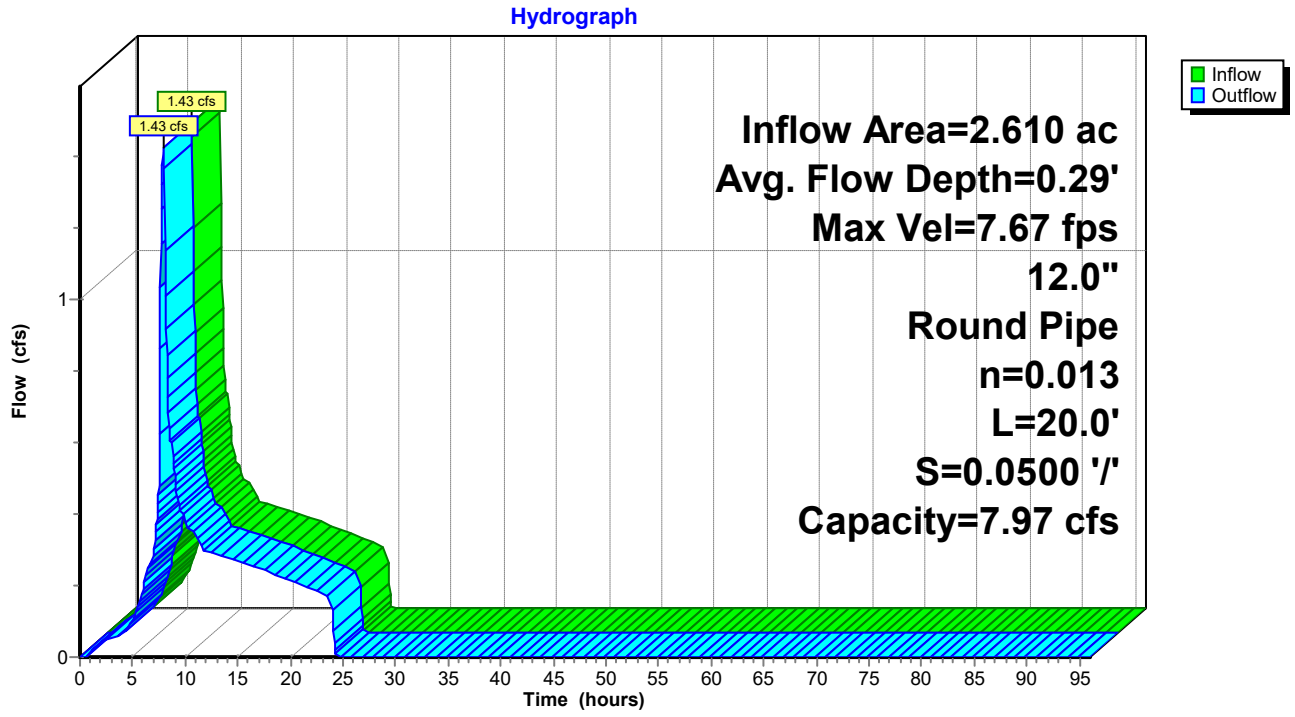
Inflow Area = 2.610 ac, 19.92% Impervious, Inflow Depth = 2.30" for 25 year event
Inflow = 1.43 cfs @ 7.96 hrs, Volume= 0.500 af
Outflow = 1.43 cfs @ 7.96 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.67 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.31 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 7.96 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





Summary for Reach 2.2R: 12" outfall (Hezzie)

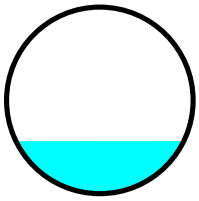
[52] Hint: Inlet/Outlet conditions not evaluated

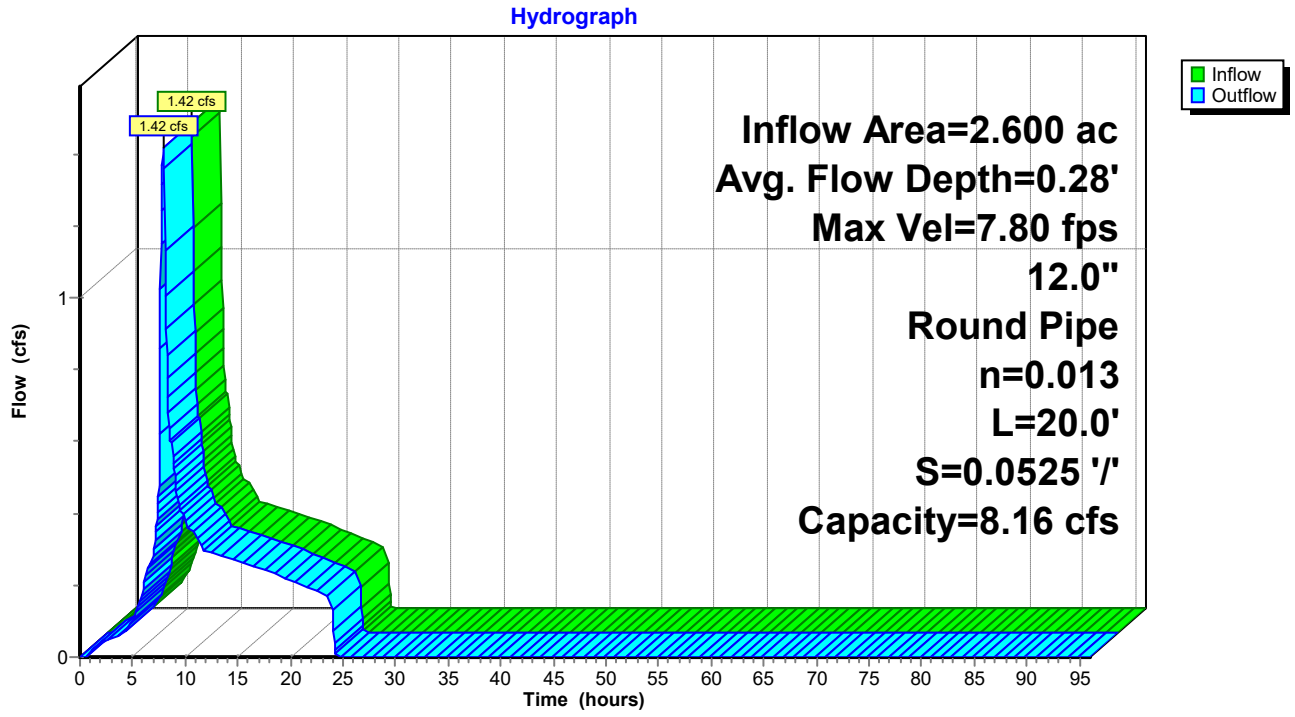
Inflow Area = 2.600 ac, 19.62% Impervious, Inflow Depth = 2.29" for 25 year event
Inflow = 1.42 cfs @ 7.96 hrs, Volume= 0.497 af
Outflow = 1.42 cfs @ 7.96 hrs, Volume= 0.497 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.80 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.37 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 7.96 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.16 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0525 '/'
Inlet Invert= 1.05', Outlet Invert= 0.00'





Summary for Reach 3R: To Ex. MH (Hezzie & North Valley)

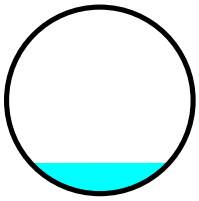
[52] Hint: Inlet/Outlet conditions not evaluated

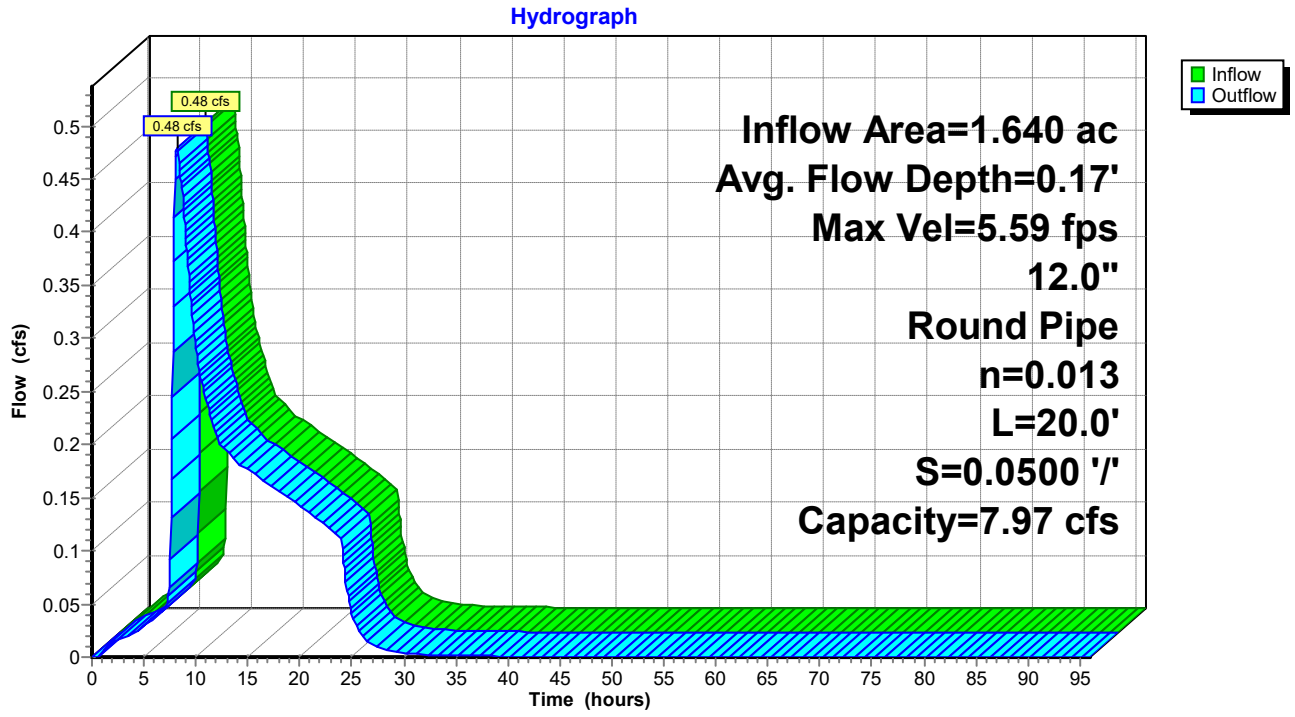
Inflow Area = 1.640 ac, 22.56% Impervious, Inflow Depth = 2.19" for 25 year event
Inflow = 0.48 cfs @ 8.19 hrs, Volume= 0.299 af
Outflow = 0.48 cfs @ 8.19 hrs, Volume= 0.299 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.59 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 8.19 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





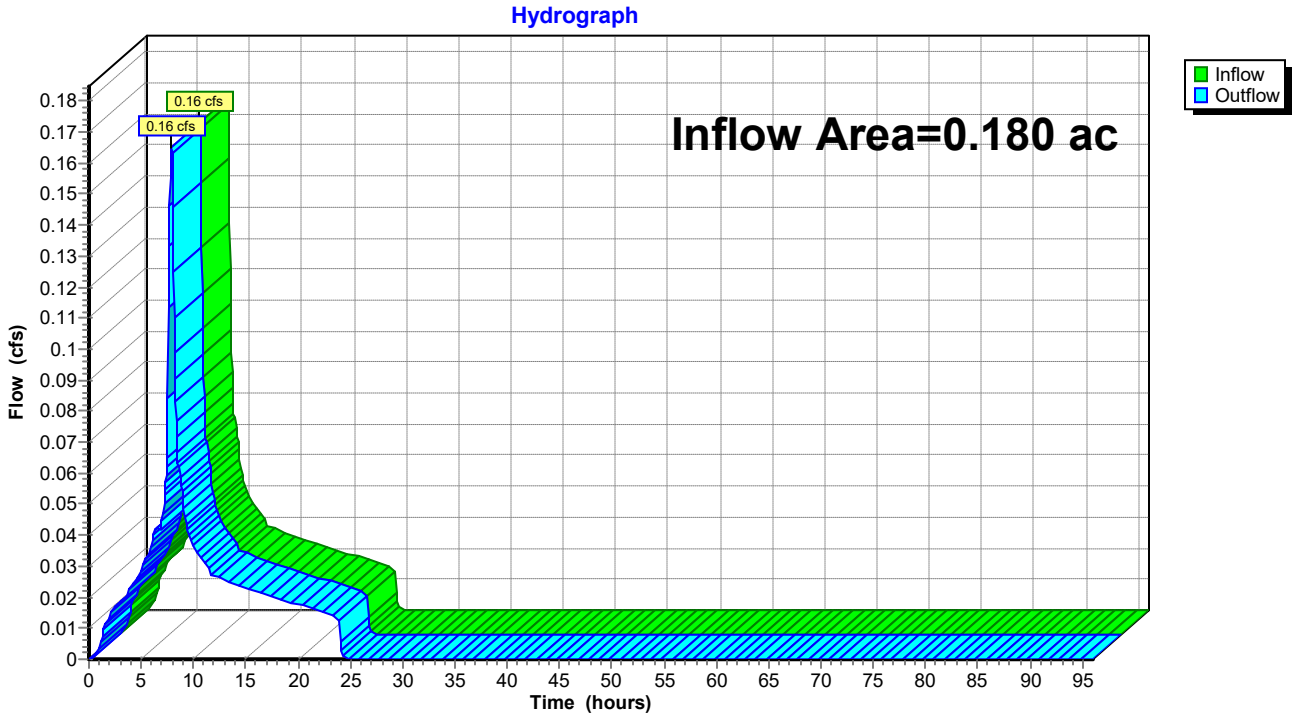
Summary for Reach C14: Filter CB 11

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.16 cfs @ 7.90 hrs, Volume= 0.055 af
Outflow = 0.16 cfs @ 7.90 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C14: Filter CB 11



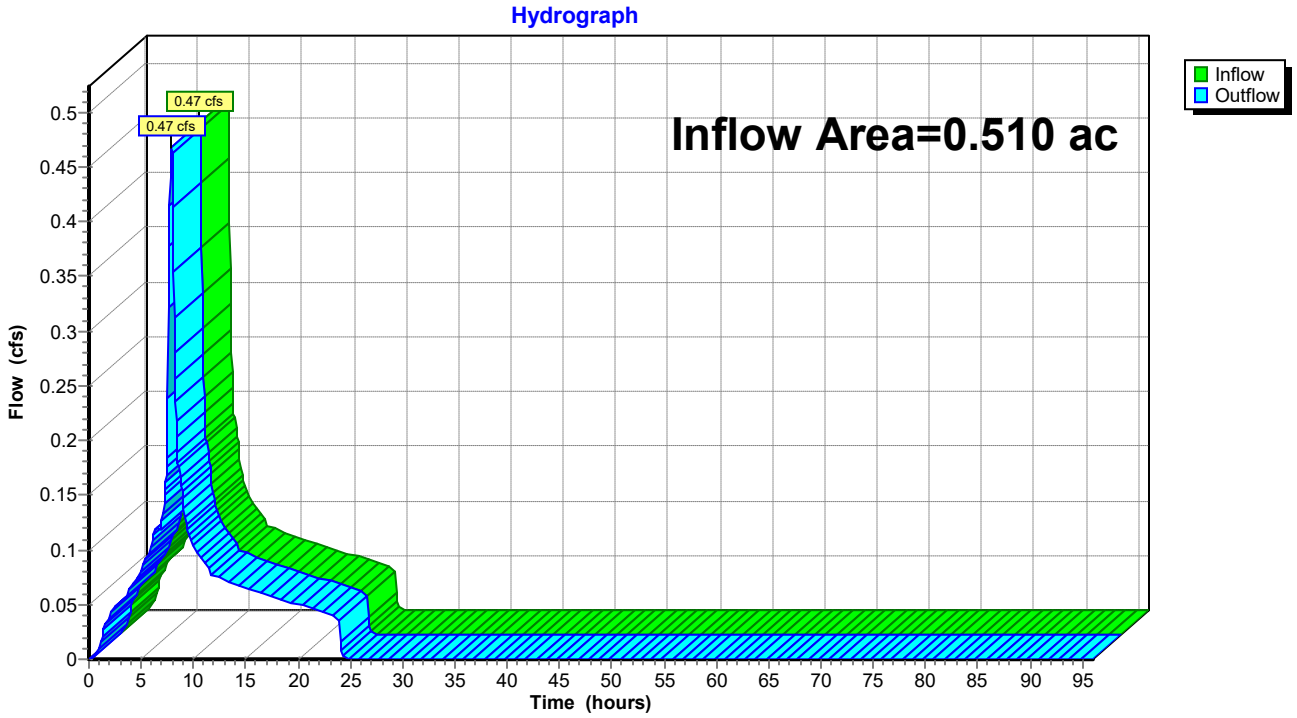
Summary for Reach C15: Filter CB 12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.510 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.47 cfs @ 7.90 hrs, Volume= 0.156 af
Outflow = 0.47 cfs @ 7.90 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C15: Filter CB 12



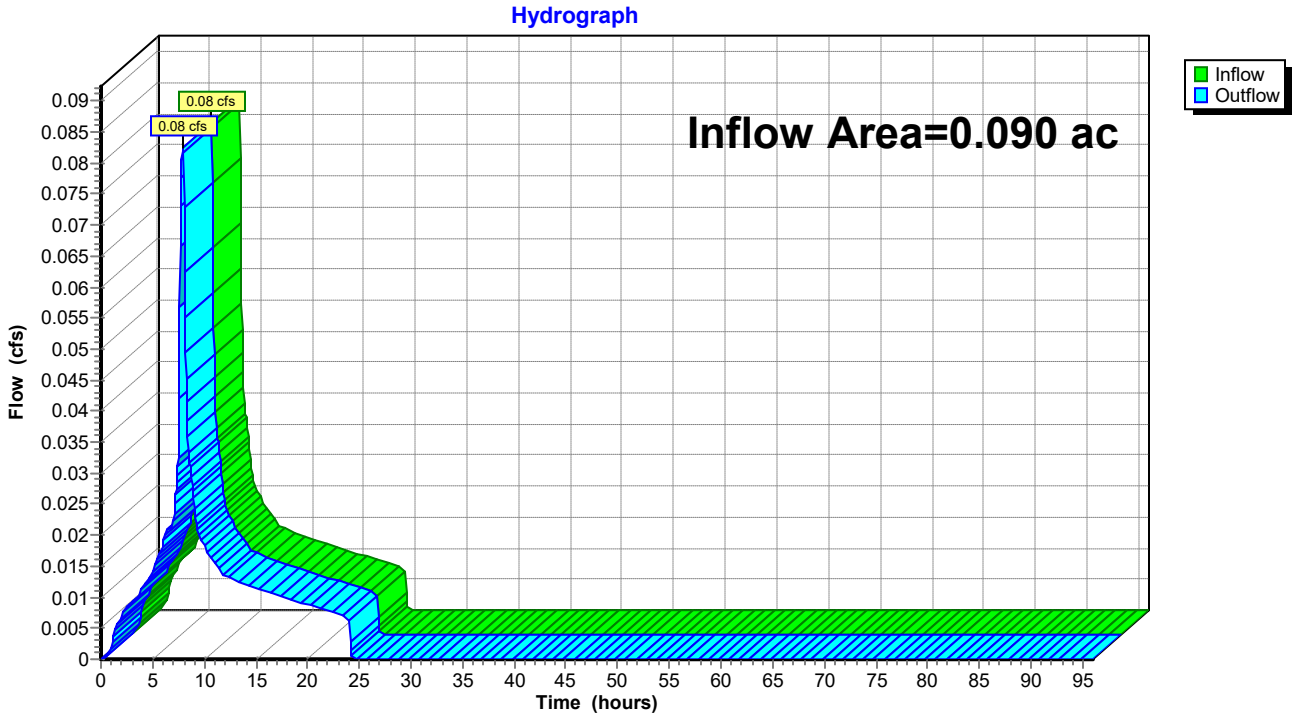
Summary for Reach C16: Filter CB 14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.08 cfs @ 7.90 hrs, Volume= 0.027 af
Outflow = 0.08 cfs @ 7.90 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C16: Filter CB 14



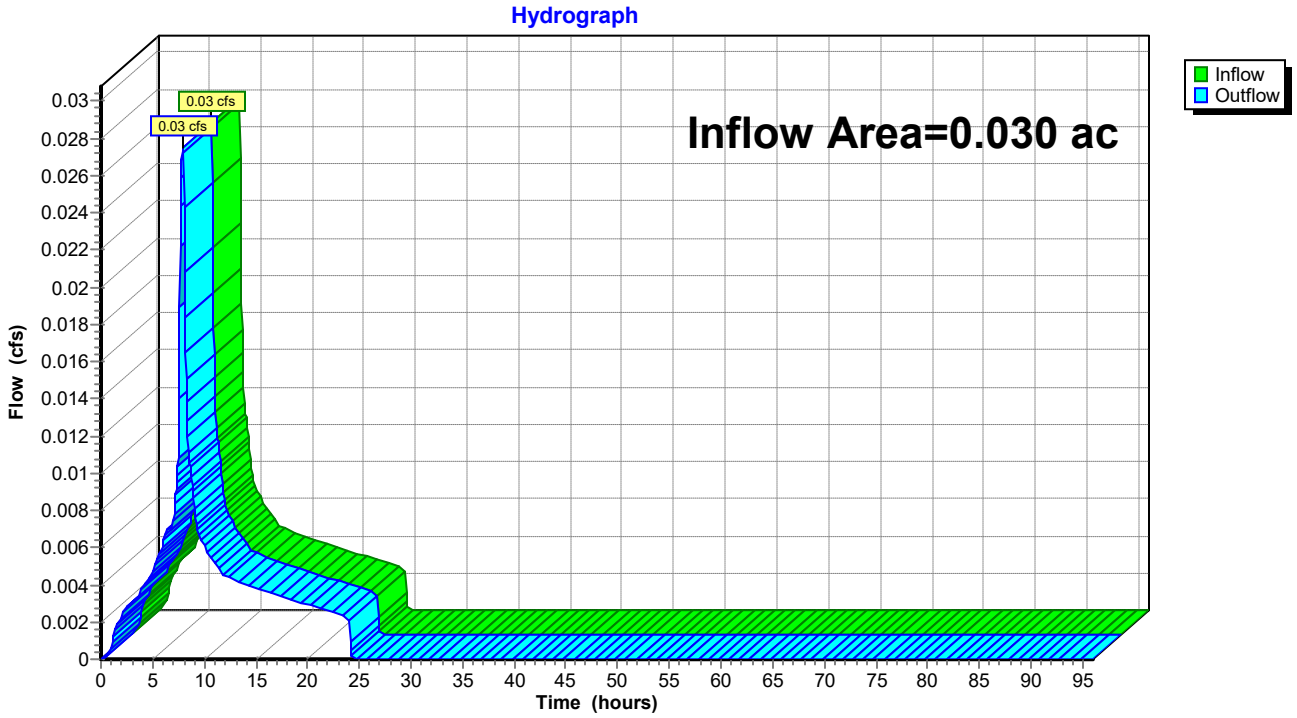
Summary for Reach C17: Filter CB 15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.030 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.03 cfs @ 7.90 hrs, Volume= 0.009 af
Outflow = 0.03 cfs @ 7.90 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C17: Filter CB 15



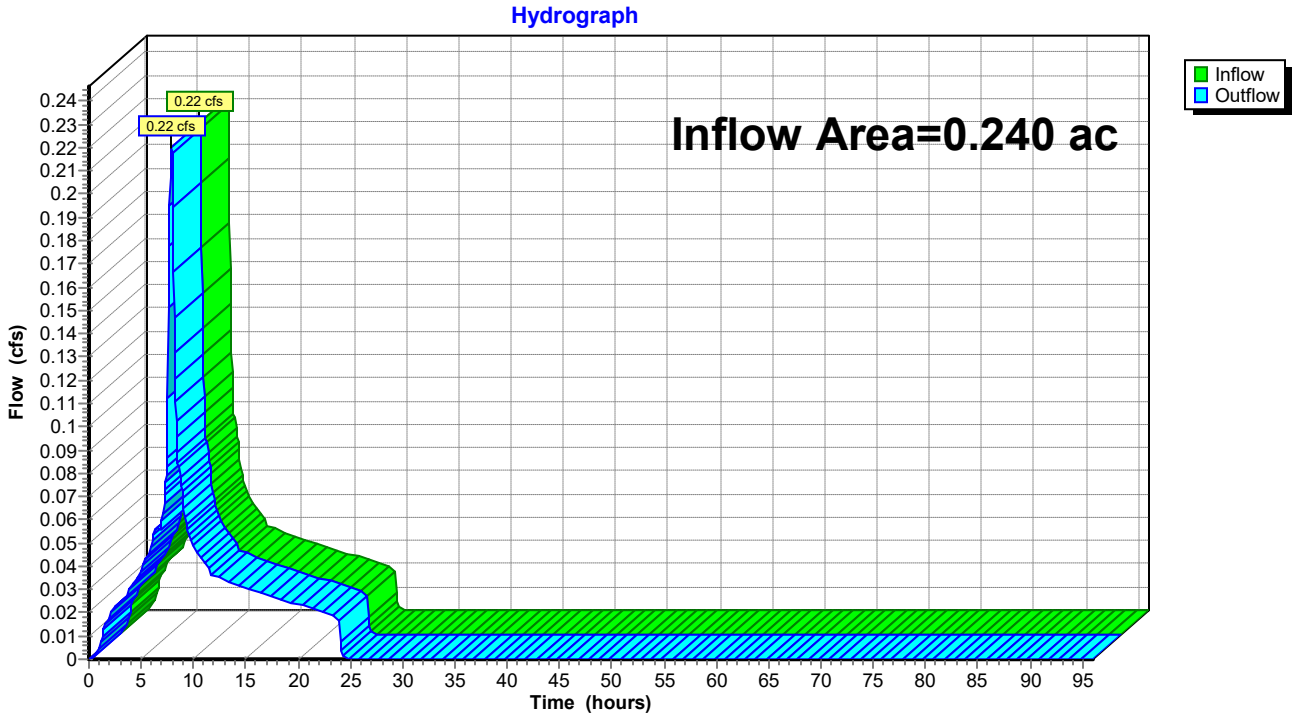
Summary for Reach C18: Filter CB 16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.240 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.22 cfs @ 7.90 hrs, Volume= 0.073 af
Outflow = 0.22 cfs @ 7.90 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C18: Filter CB 16



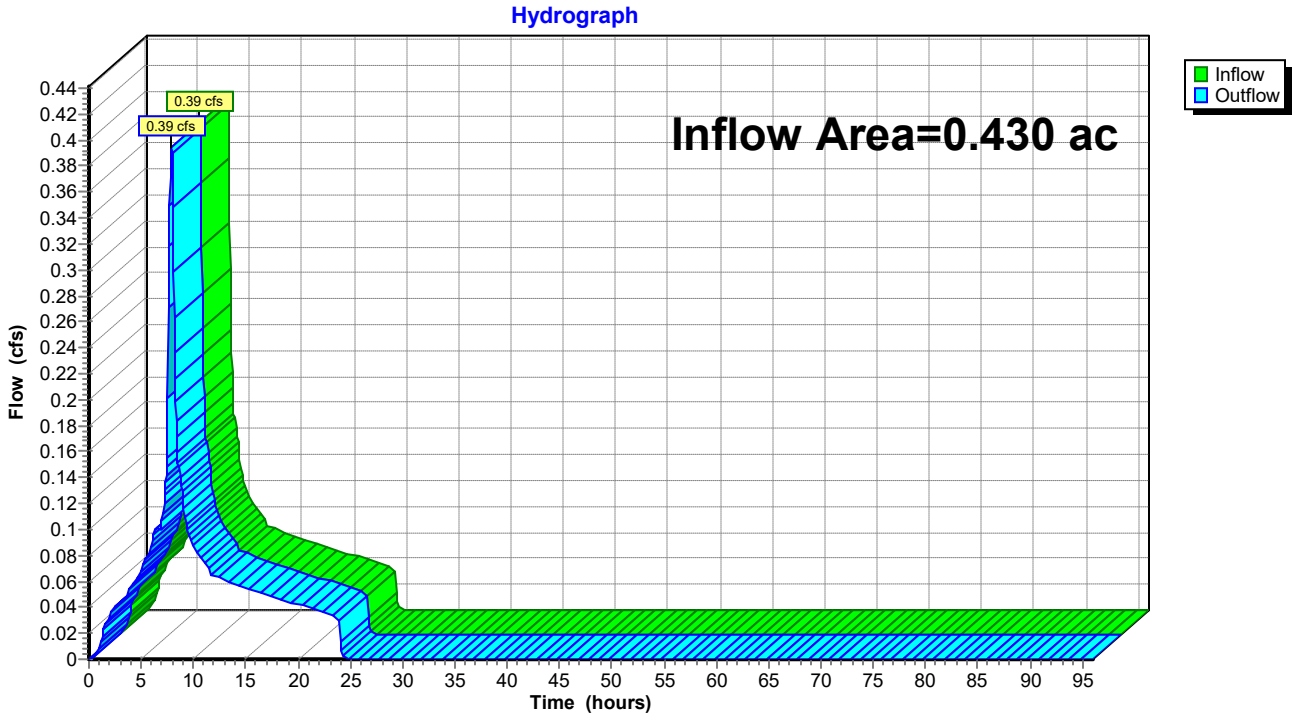
Summary for Reach C19: Filter CB 17

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.430 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.39 cfs @ 7.90 hrs, Volume= 0.131 af
Outflow = 0.39 cfs @ 7.90 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C19: Filter CB 17



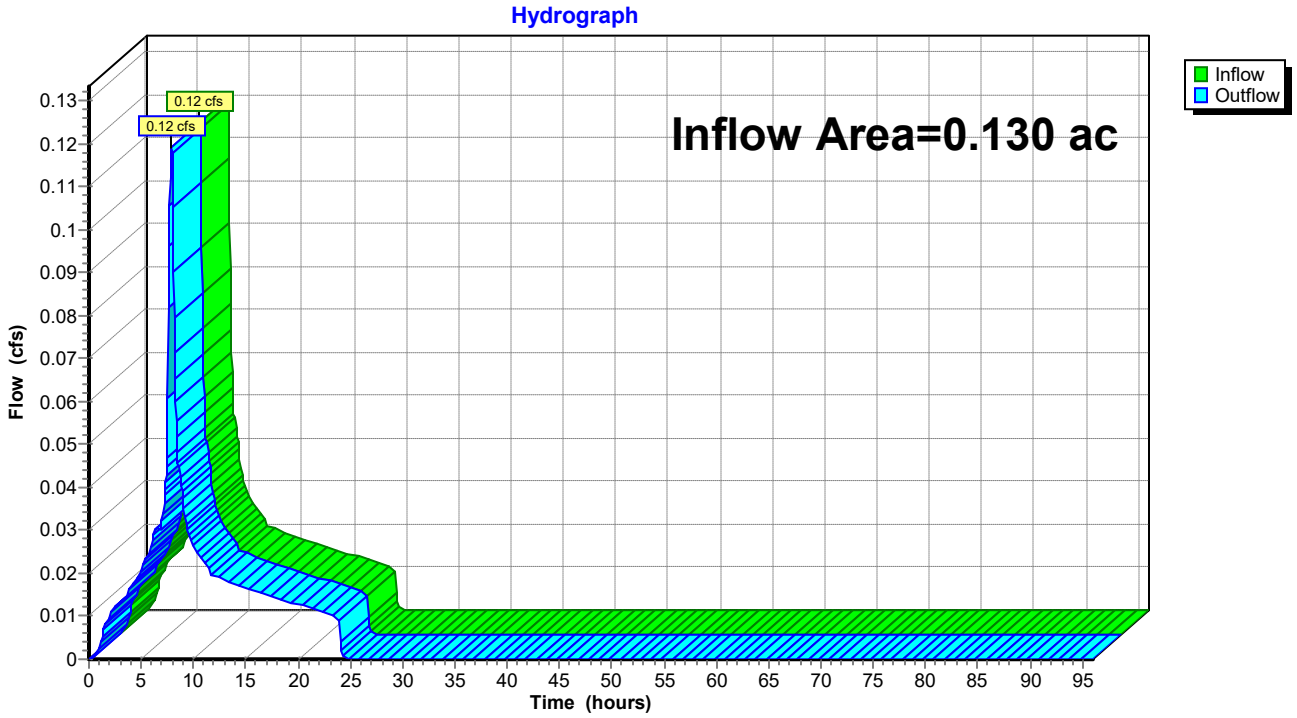
Summary for Reach C20: Filter CB 18

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.130 ac,100.00% Impervious, Inflow Depth = 3.67" for 25 year event
Inflow = 0.12 cfs @ 7.90 hrs, Volume= 0.040 af
Outflow = 0.12 cfs @ 7.90 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C20: Filter CB 18



Summary for Pond 6P: Wet Pond- Basin 1

Inflow Area = 13.140 ac, 46.04% Impervious, Inflow Depth = 2.79" for 25 year event
Inflow = 8.89 cfs @ 7.93 hrs, Volume= 3.052 af
Outflow = 2.97 cfs @ 9.02 hrs, Volume= 3.052 af, Atten= 67%, Lag= 65.2 min
Primary = 2.97 cfs @ 9.02 hrs, Volume= 3.052 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Starting Elev= 340.66' Surf.Area= 0.163 ac Storage= 0.100 af
Peak Elev= 343.95' @ 9.02 hrs Surf.Area= 0.295 ac Storage= 0.843 af (0.743 af above start)

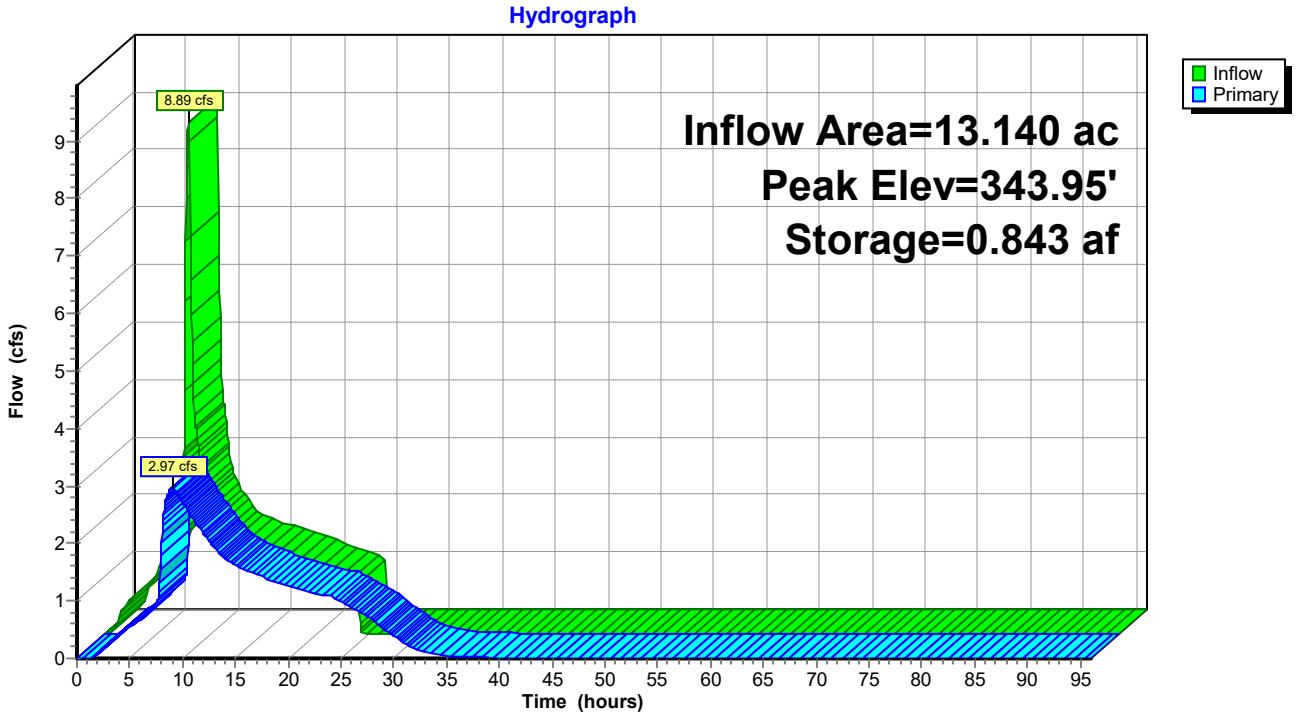
Plug-Flow detention time= 281.8 min calculated for 2.951 af (97% of inflow)
Center-of-Mass det. time= 235.6 min (947.5 - 711.9)

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	1.179 af	**45.00'W x 136.00'L x 5.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices		
#1	Primary	340.66'	**5.4" Vert. Orifice/Grate**	C= 0.600	
#2	Primary	342.88'	**7.9" Vert. Orifice/Grate**	C= 0.600	
#3	Primary	343.62'	**4.9" Vert. Orifice/Grate**	C= 0.600	
#4	Primary	344.00'	**8.0" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=2.97 cfs @ 9.02 hrs HW=343.95' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.34 cfs @ 8.42 fps)
- **2=Orifice/Grate** (Orifice Controls 1.41 cfs @ 4.13 fps)
- **3=Orifice/Grate** (Orifice Controls 0.22 cfs @ 1.94 fps)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Wet Pond- Basin 1



Summary for Pond P1: Planter 1

Inflow Area = 1.480 ac, 58.11% Impervious, Inflow Depth = 3.16" for 25 year event
Inflow = 1.17 cfs @ 7.92 hrs, Volume= 0.390 af
Outflow = 0.38 cfs @ 9.02 hrs, Volume= 0.318 af, Atten= 68%, Lag= 66.0 min
Primary = 0.38 cfs @ 9.02 hrs, Volume= 0.318 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 347.41' @ 9.02 hrs Surf.Area= 0.175 ac Storage= 0.138 af

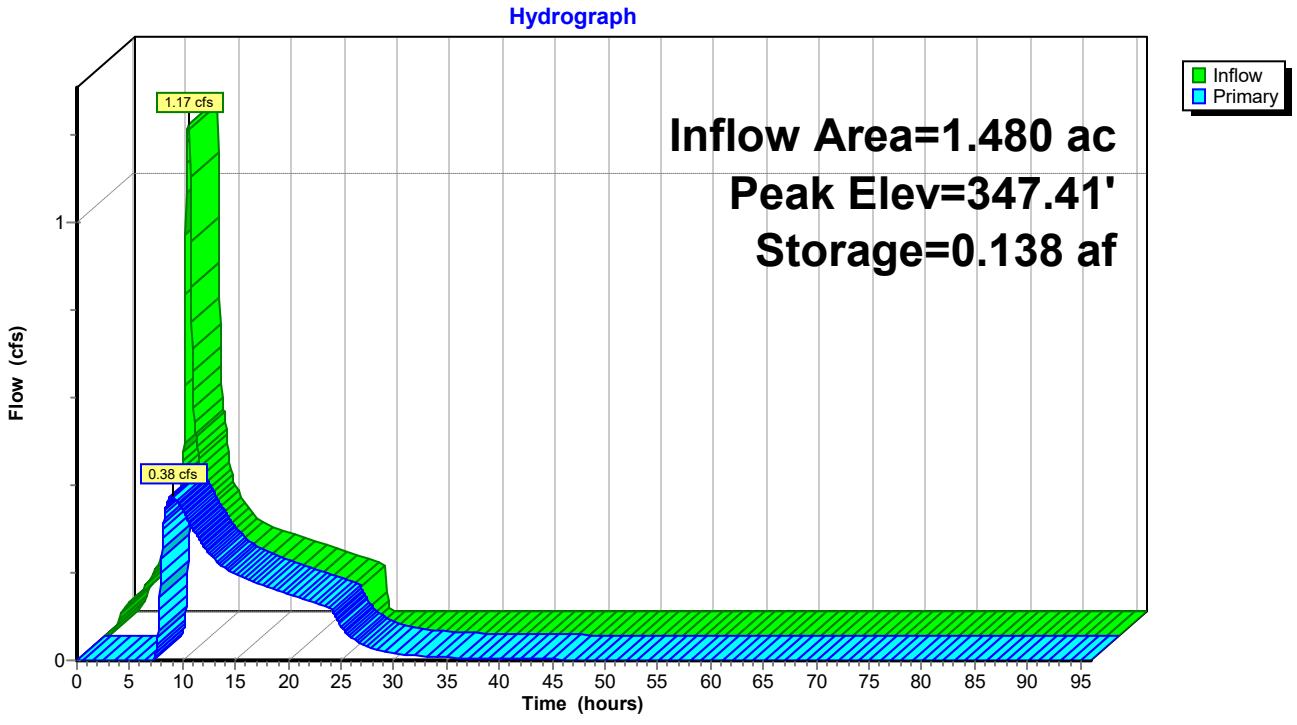
Plug-Flow detention time= 391.0 min calculated for 0.318 af (82% of inflow)
Center-of-Mass det. time= 271.0 min (965.3 - 694.3)

Volume	Invert	Avail.Storage	Storage Description
#1	346.50'	0.154 af	**16.00'W x 350.00'L x 1.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	347.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.38 cfs @ 9.02 hrs HW=347.41' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.38 cfs @ 2.18 fps)

Pond P1: Planter 1



Summary for Pond P2: Planter 2

Inflow Area = 1.460 ac, 13.01% Impervious, Inflow Depth = 2.25" for 25 year event
Inflow = 0.78 cfs @ 7.97 hrs, Volume= 0.274 af
Outflow = 0.39 cfs @ 8.37 hrs, Volume= 0.244 af, Atten= 50%, Lag= 24.1 min
Primary = 0.39 cfs @ 8.37 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 344.92' @ 8.37 hrs Surf.Area= 0.073 ac Storage= 0.059 af

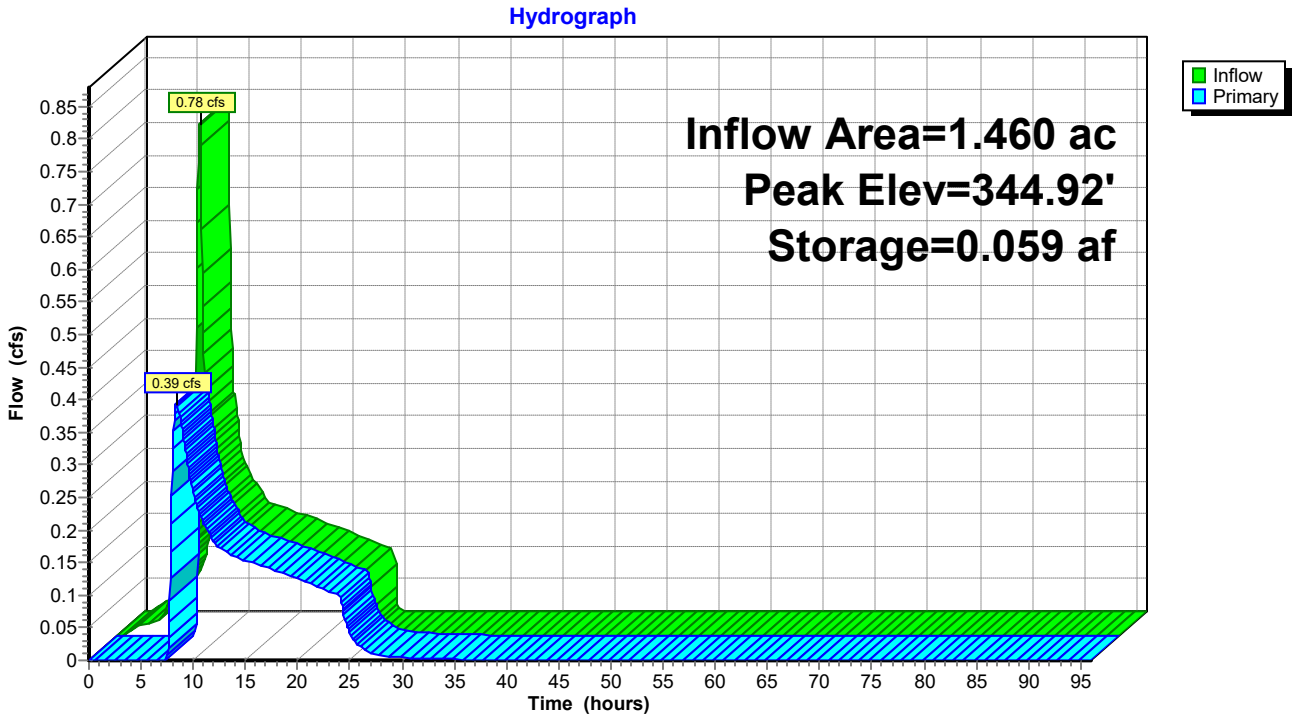
Plug-Flow detention time= 203.3 min calculated for 0.244 af (89% of inflow)
Center-of-Mass det. time= 133.0 min (899.5 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1	344.00'	0.065 af	**50.00'W x 48.00'L x 1.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.39 cfs @ 8.37 hrs HW=344.92' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.39 cfs @ 2.22 fps)

Pond P2: Planter 2



Summary for Subcatchment 1.1: Fire Lane

[49] Hint: Tc<2dt may require smaller dt

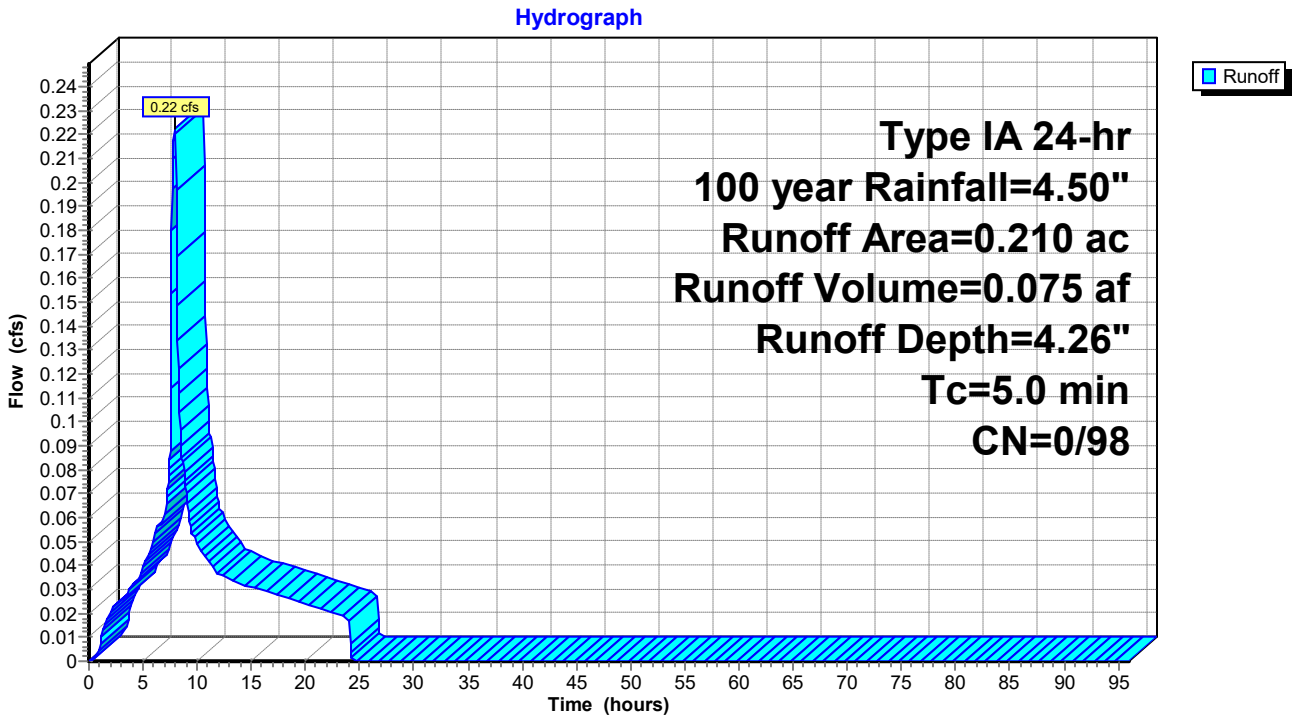
Runoff = 0.22 cfs @ 7.90 hrs, Volume= 0.075 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.210	98	Paved parking, HSG D
0.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.1: Fire Lane



Summary for Subcatchment 1.10: School

[49] Hint: Tc<2dt may require smaller dt

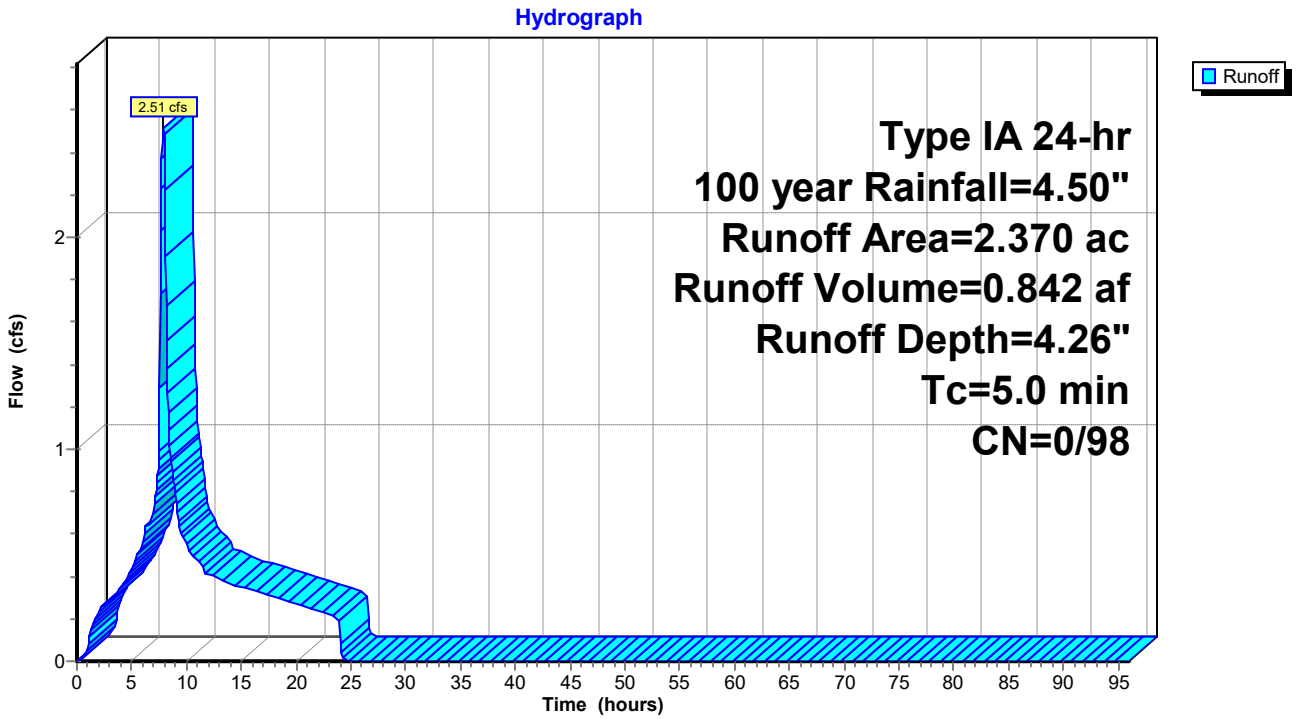
Runoff = 2.51 cfs @ 7.90 hrs, Volume= 0.842 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
2.370	98	Roofs, HSG D
2.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.10: School



Summary for Subcatchment 1.11: Lawn/Landscaping

Impervious Leroy

[49] Hint: Tc<2dt may require smaller dt

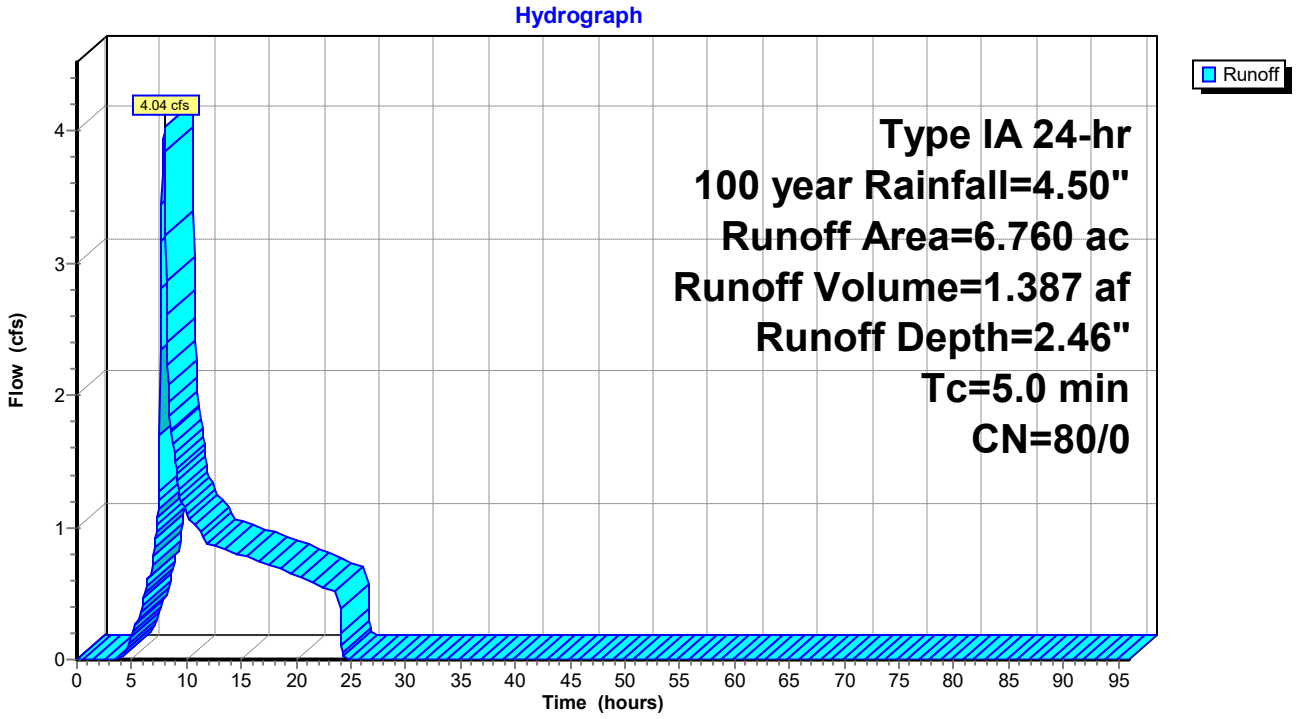
Runoff = 4.04 cfs @ 7.98 hrs, Volume= 1.387 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
6.760	80	>75% Grass cover, Good, HSG D
6.760	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.11: Lawn/Landscaping



Summary for Subcatchment 1.12: Wet Pond

[49] Hint: Tc<2dt may require smaller dt

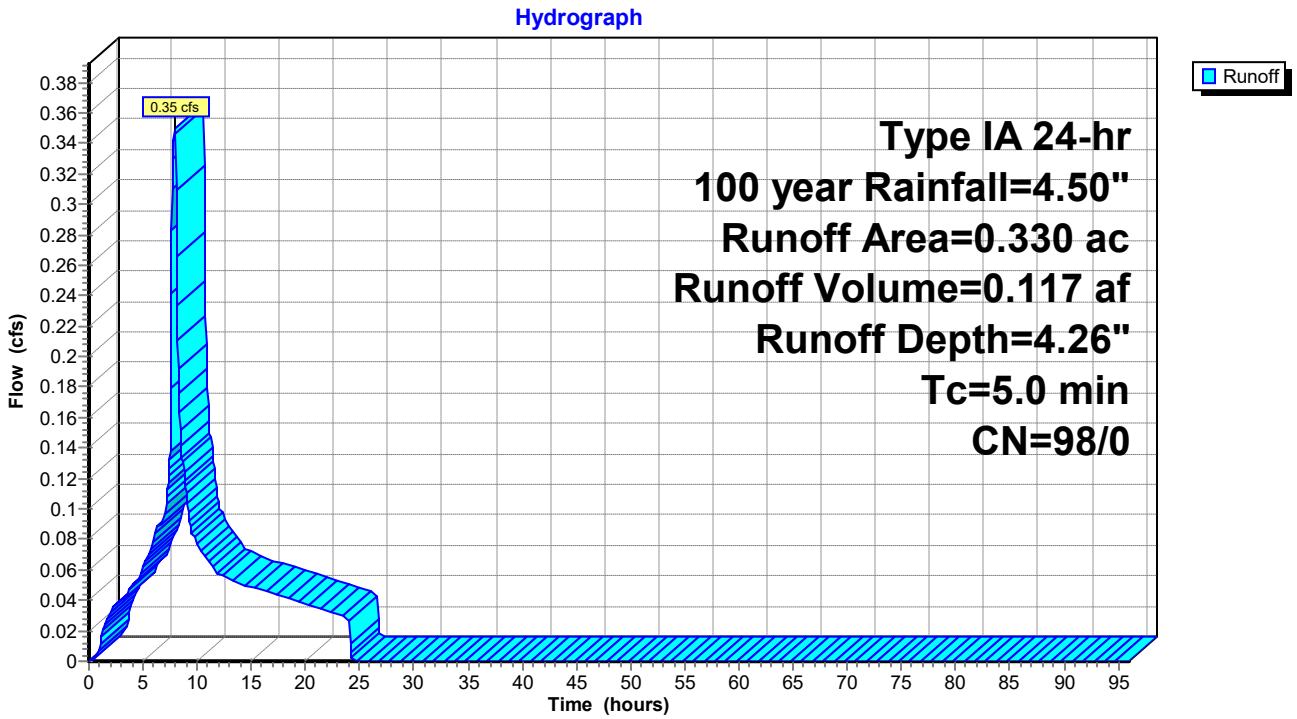
Runoff = 0.35 cfs @ 7.90 hrs, Volume= 0.117 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.330	98	Water Surface, 0% imp, HSG D
0.330	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.12: Wet Pond



Summary for Subcatchment 1.2: Lynn

[49] Hint: Tc<2dt may require smaller dt

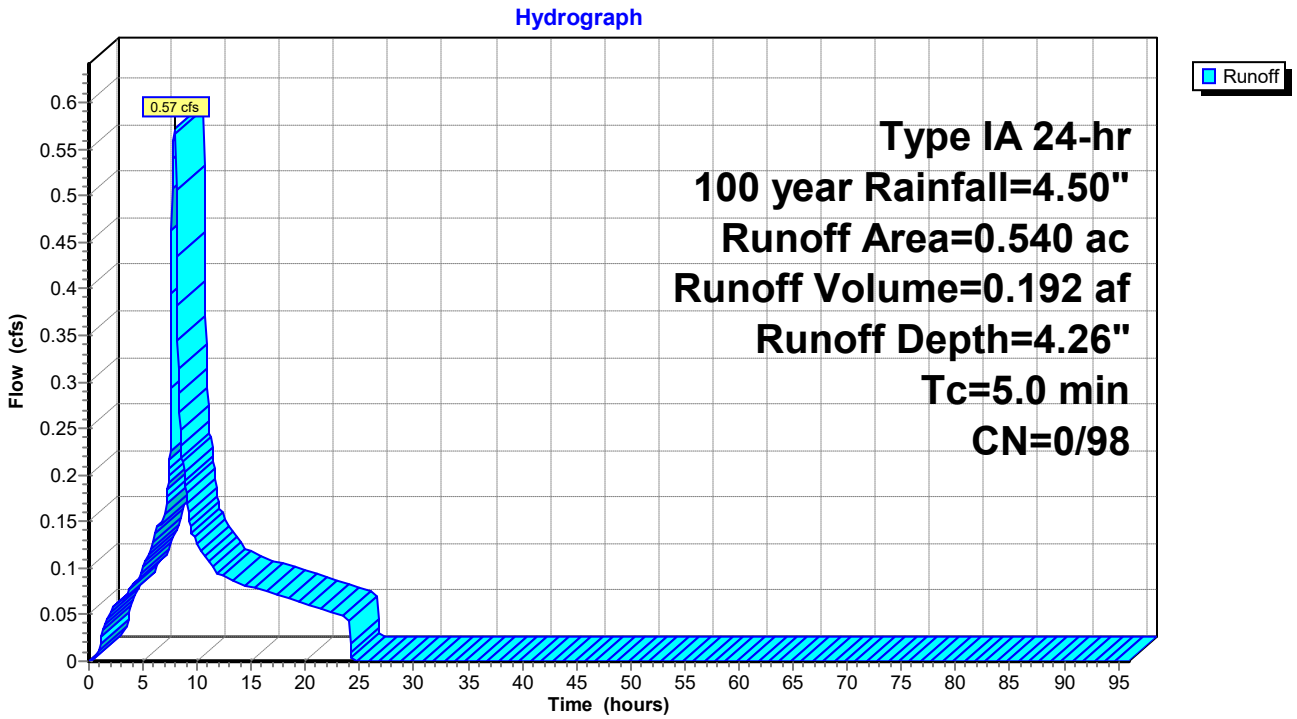
Runoff = 0.57 cfs @ 7.90 hrs, Volume= 0.192 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.540	98	Paved roads w/curbs & sewers, HSG D
0.540	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.2: Lynn



Summary for Subcatchment 1.3: E Parking + Pervious

[49] Hint: Tc<2dt may require smaller dt

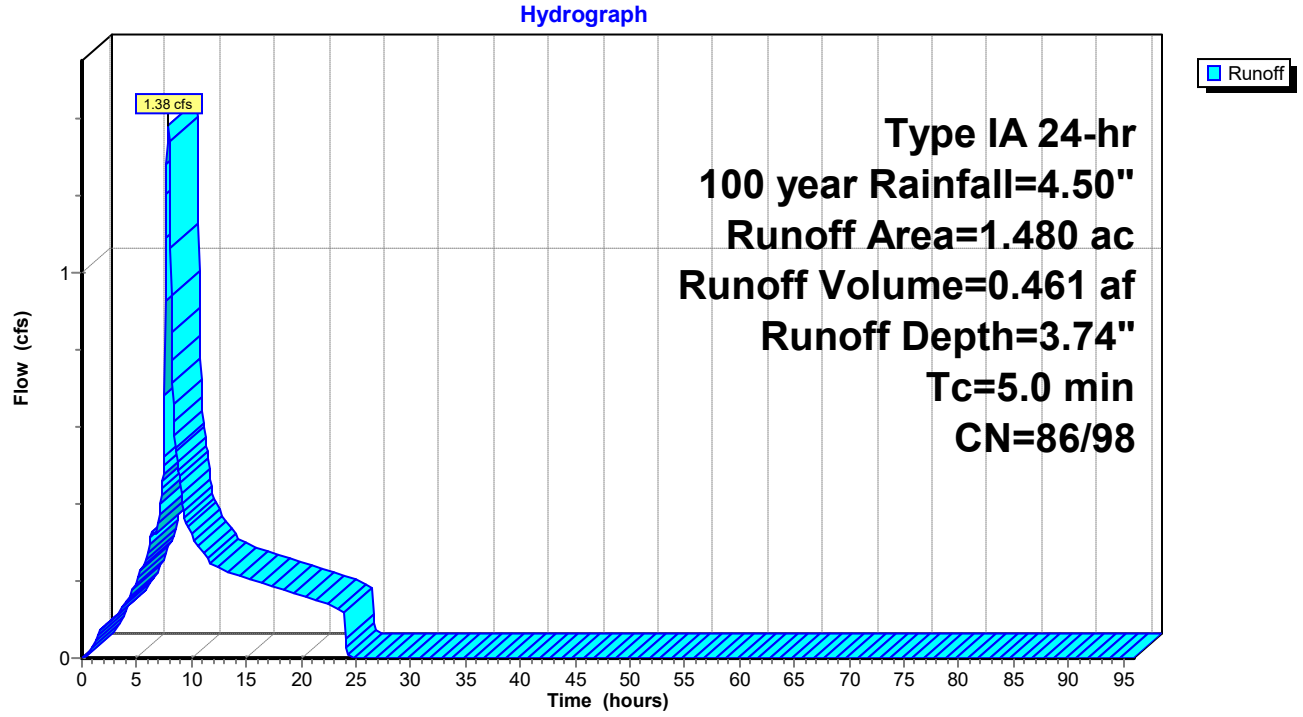
Runoff = 1.38 cfs @ 7.91 hrs, Volume= 0.461 af, Depth= 3.74"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG D
0.410	80	>75% Grass cover, Good, HSG D
0.210	98	Water Surface, 0% imp, HSG D
1.480	93	Weighted Average
0.620	86	41.89% Pervious Area
0.860	98	58.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.3: E Parking + Pervious



Summary for Subcatchment 1.4: N Parking

[49] Hint: Tc<2dt may require smaller dt

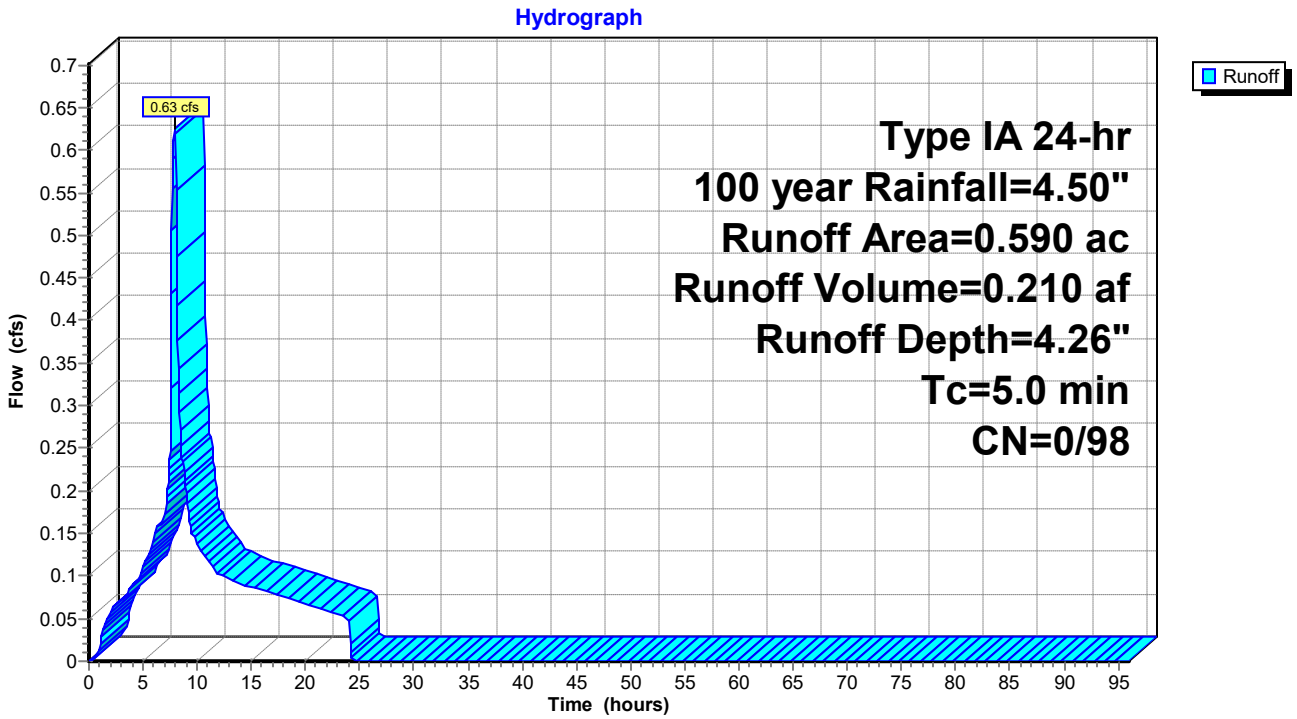
Runoff = 0.63 cfs @ 7.90 hrs, Volume= 0.210 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.590	98	Paved parking, HSG D
0.590	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.4: N Parking



Summary for Subcatchment 1.5: E Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

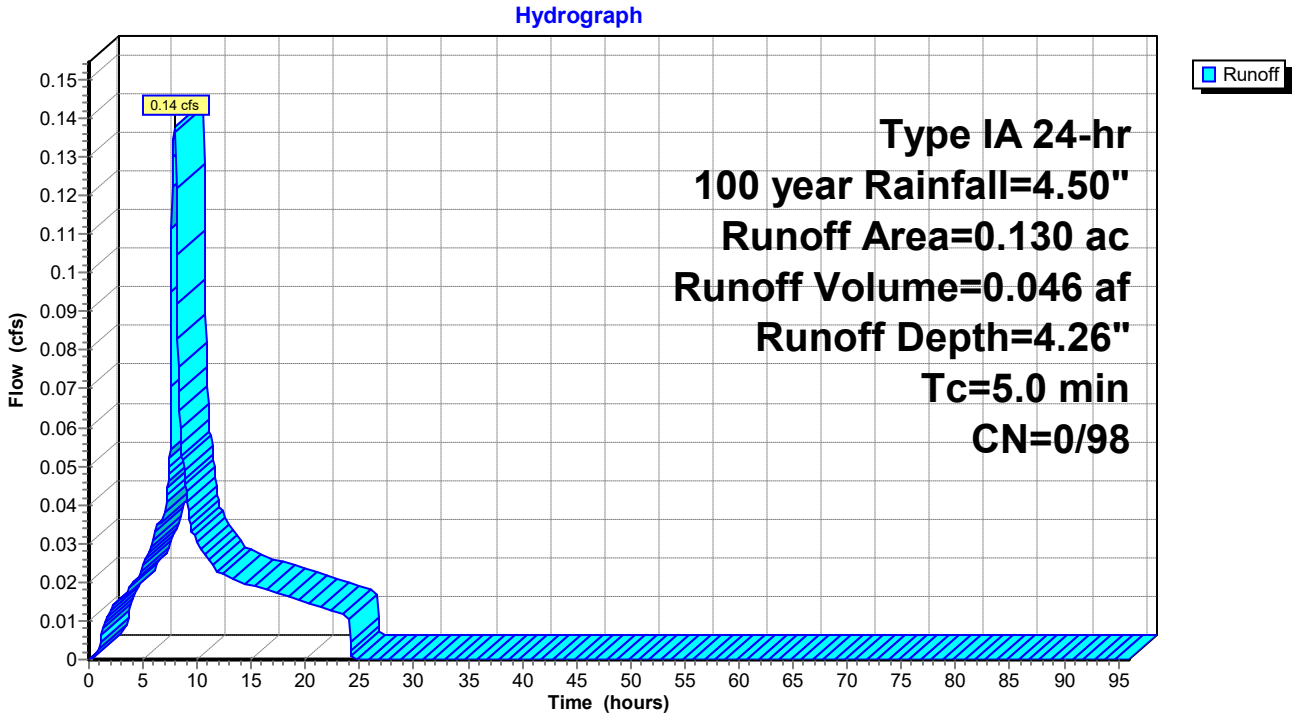
Runoff = 0.14 cfs @ 7.90 hrs, Volume= 0.046 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG D
0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.5: E Leroy



Summary for Subcatchment 1.6: NE Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

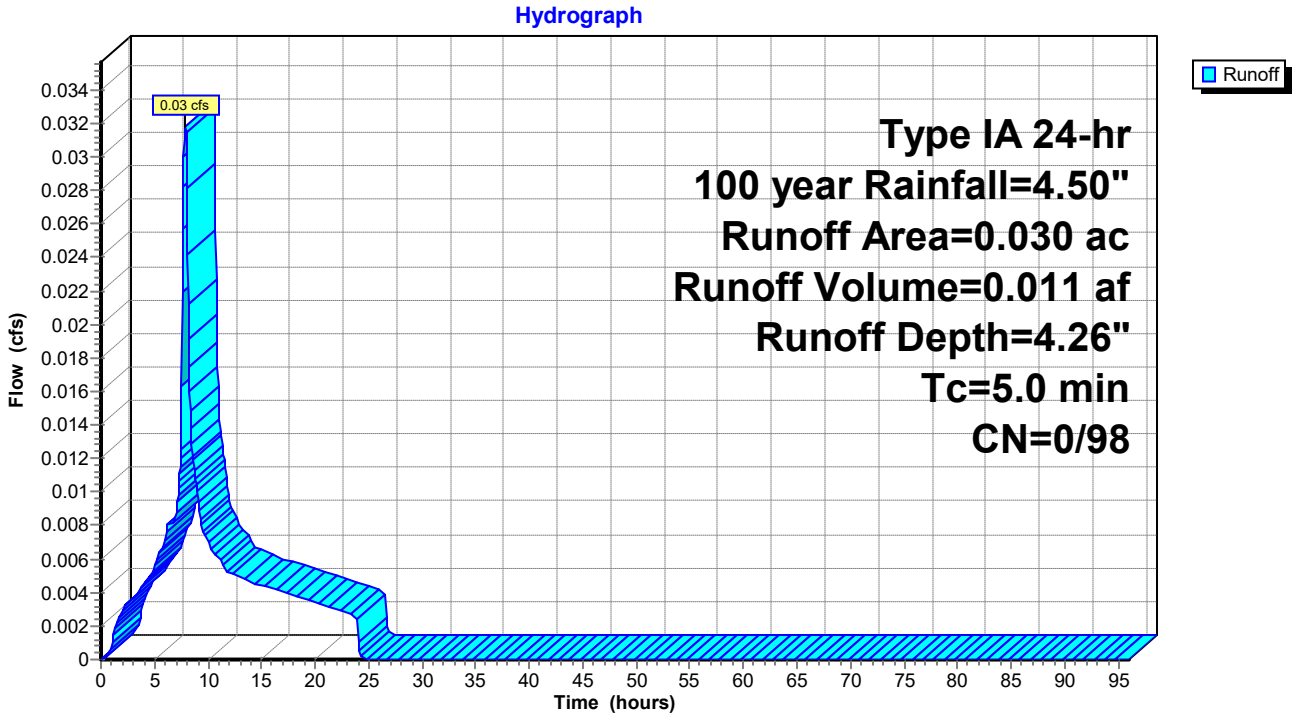
Runoff = 0.03 cfs @ 7.90 hrs, Volume= 0.011 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.6: NE Leroy



Summary for Subcatchment 1.7: NW Leroy

[49] Hint: Tc<2dt may require smaller dt

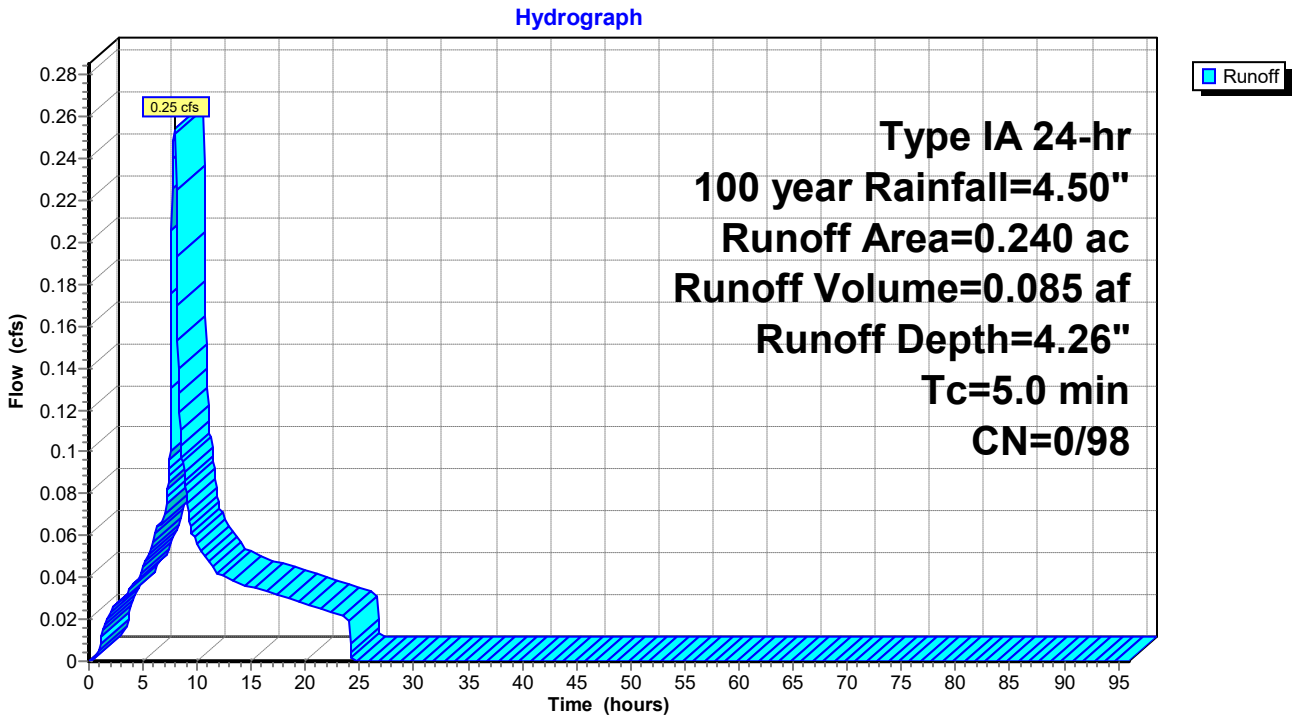
Runoff = 0.25 cfs @ 7.90 hrs, Volume= 0.085 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.7: NW Leroy



Summary for Subcatchment 1.8: S Parking

[49] Hint: Tc<2dt may require smaller dt

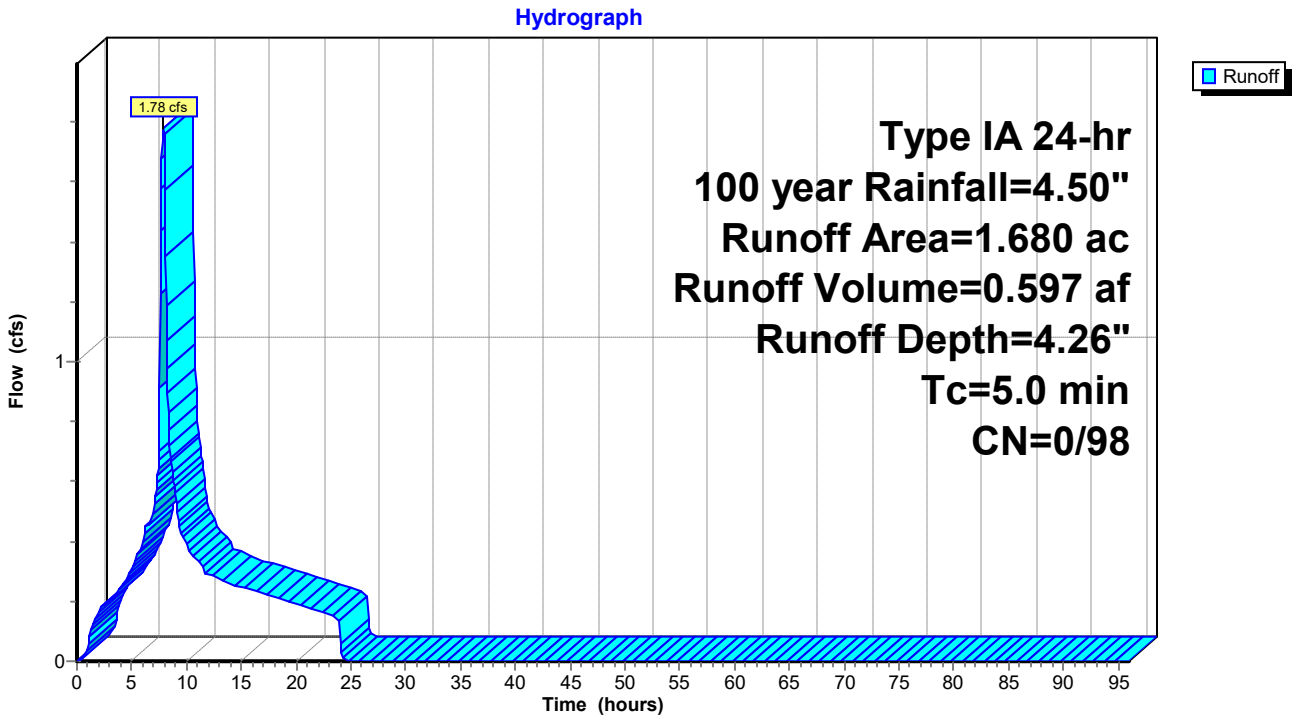
Runoff = 1.78 cfs @ 7.90 hrs, Volume= 0.597 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
1.680	98	Paved parking, HSG D
1.680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.8: S Parking



Summary for Subcatchment 1.9: Rec. Area

[49] Hint: Tc<2dt may require smaller dt

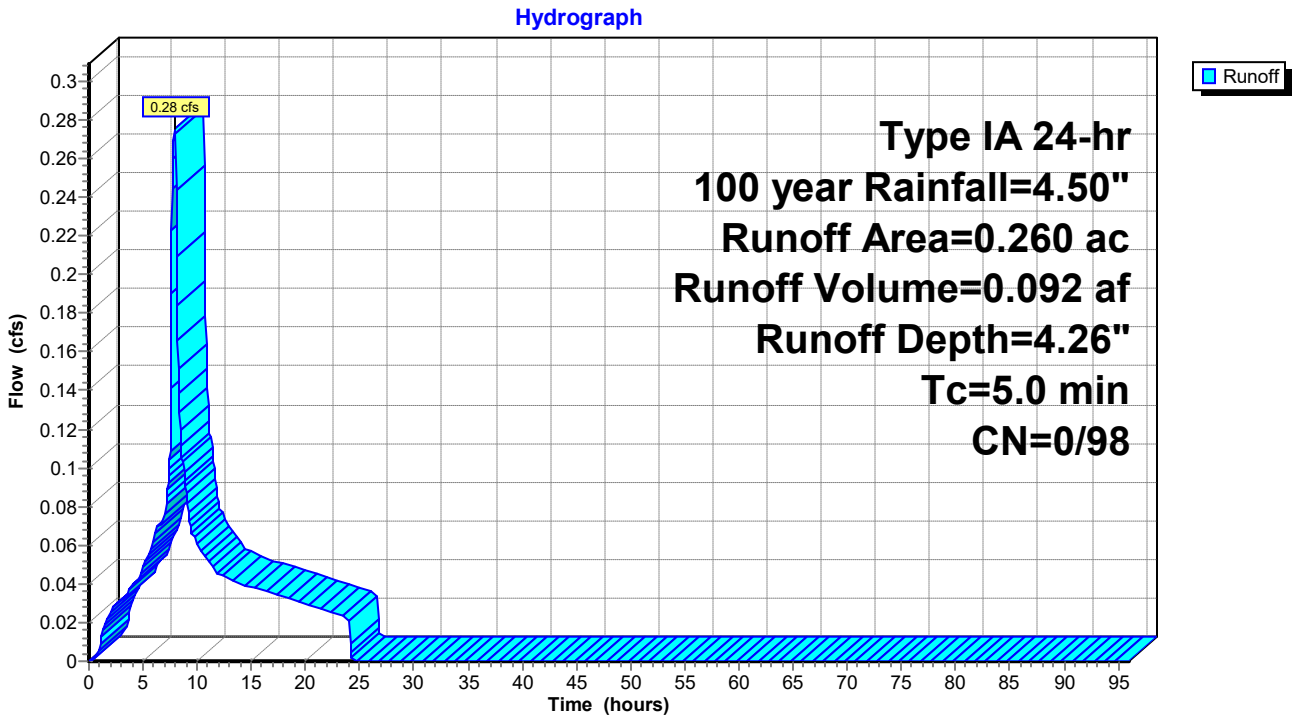
Runoff = 0.28 cfs @ 7.90 hrs, Volume= 0.092 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers, HSG D
0.260	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.9: Rec. Area



Summary for Subcatchment 2: Post Developed - Basin 2

[49] Hint: Tc<2dt may require smaller dt

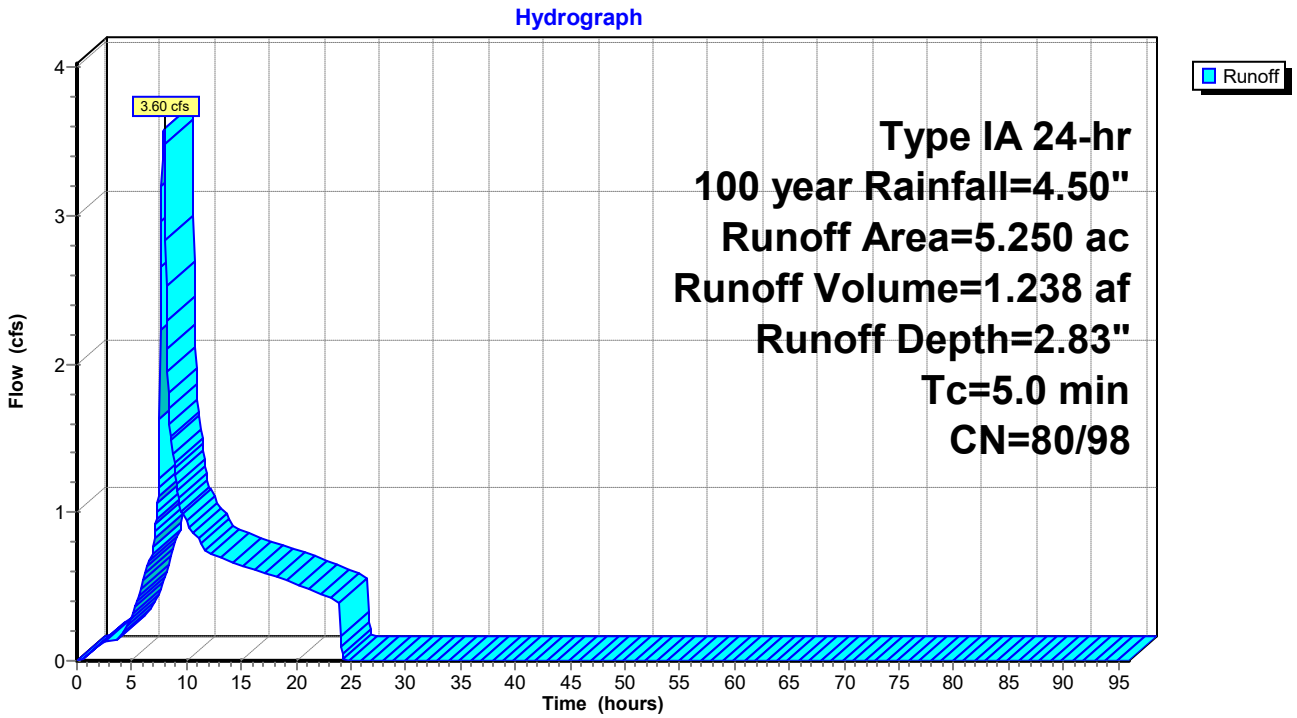
Runoff = 3.60 cfs @ 7.95 hrs, Volume= 1.238 af, Depth= 2.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
4.180	80	>75% Grass cover, Good, HSG D
1.070	98	Paved roads w/curbs & sewers, HSG D
5.250	84	Weighted Average
4.180	80	79.62% Pervious Area
1.070	98	20.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2: Post Developed - Basin 2



Summary for Subcatchment 2.1: NE West

[49] Hint: Tc<2dt may require smaller dt

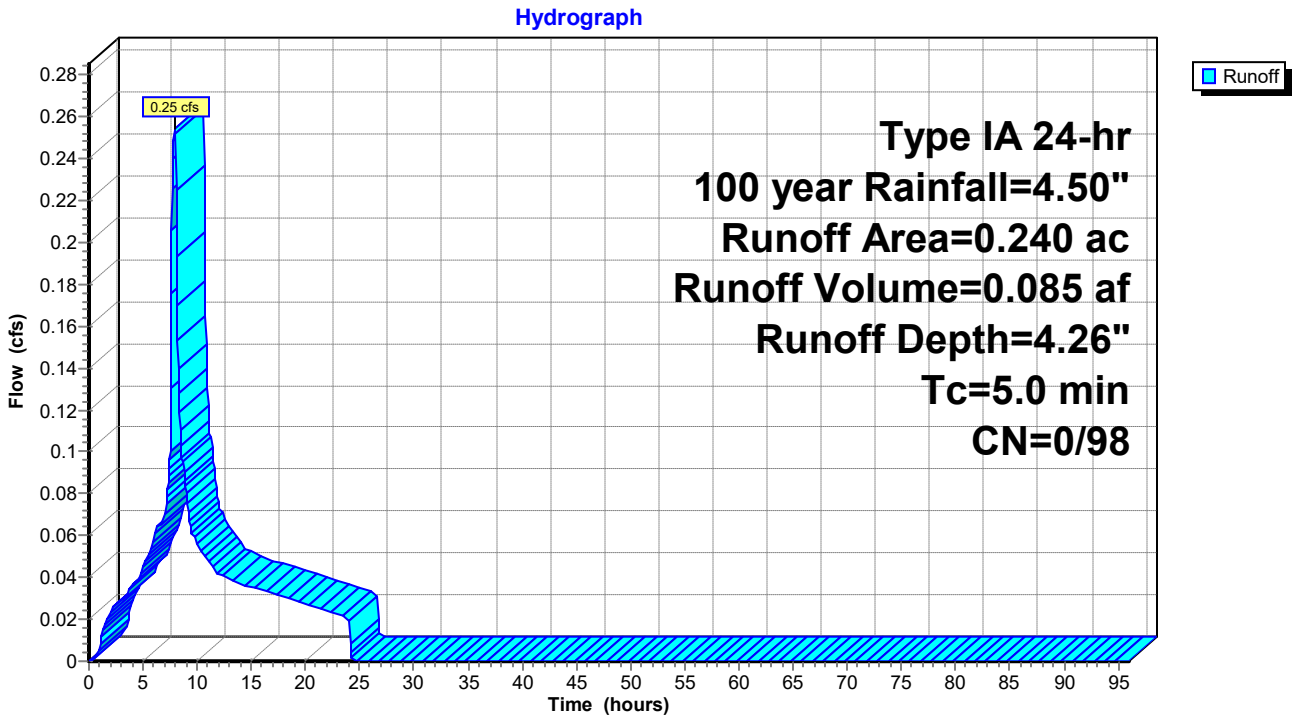
Runoff = 0.25 cfs @ 7.90 hrs, Volume= 0.085 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.1: NE West



Summary for Subcatchment 2.2: S Hezzie

[49] Hint: Tc<2dt may require smaller dt

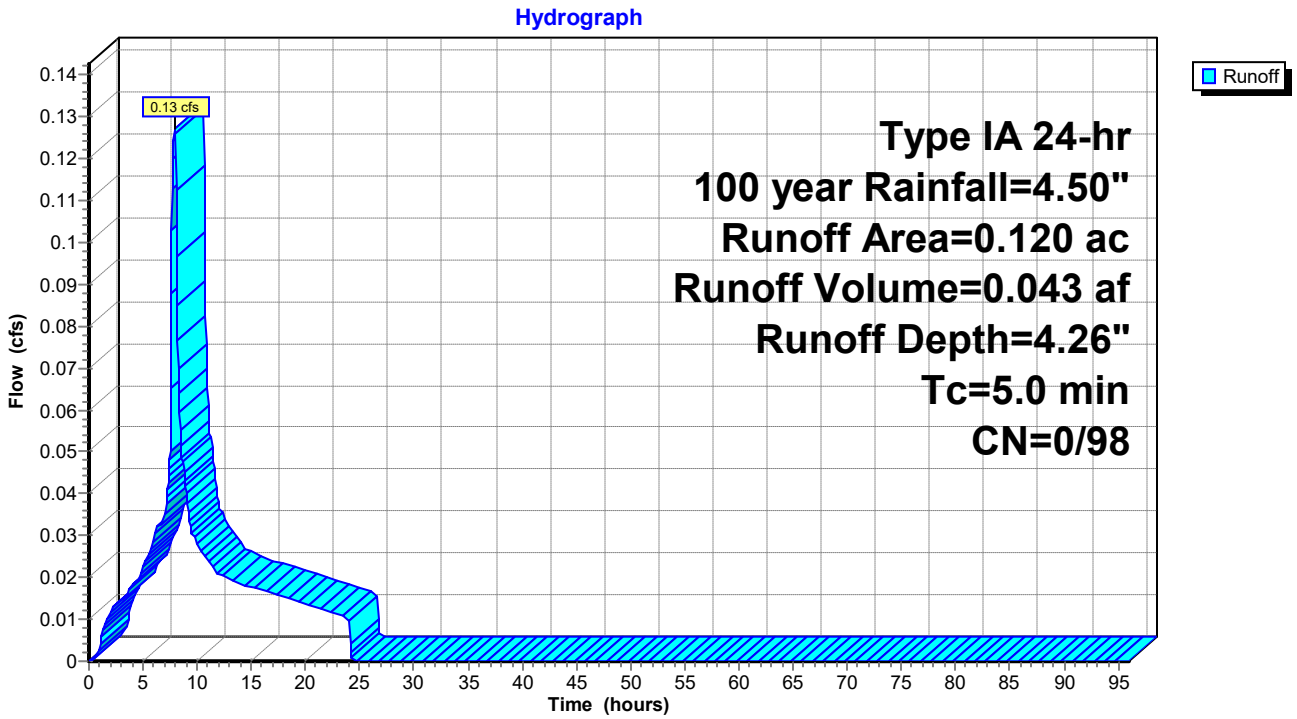
Runoff = 0.13 cfs @ 7.90 hrs, Volume= 0.043 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.120	98	Paved roads w/curbs & sewers, HSG D
0.120	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.2: S Hezzie



Summary for Subcatchment 2.3: NW West

[49] Hint: Tc<2dt may require smaller dt

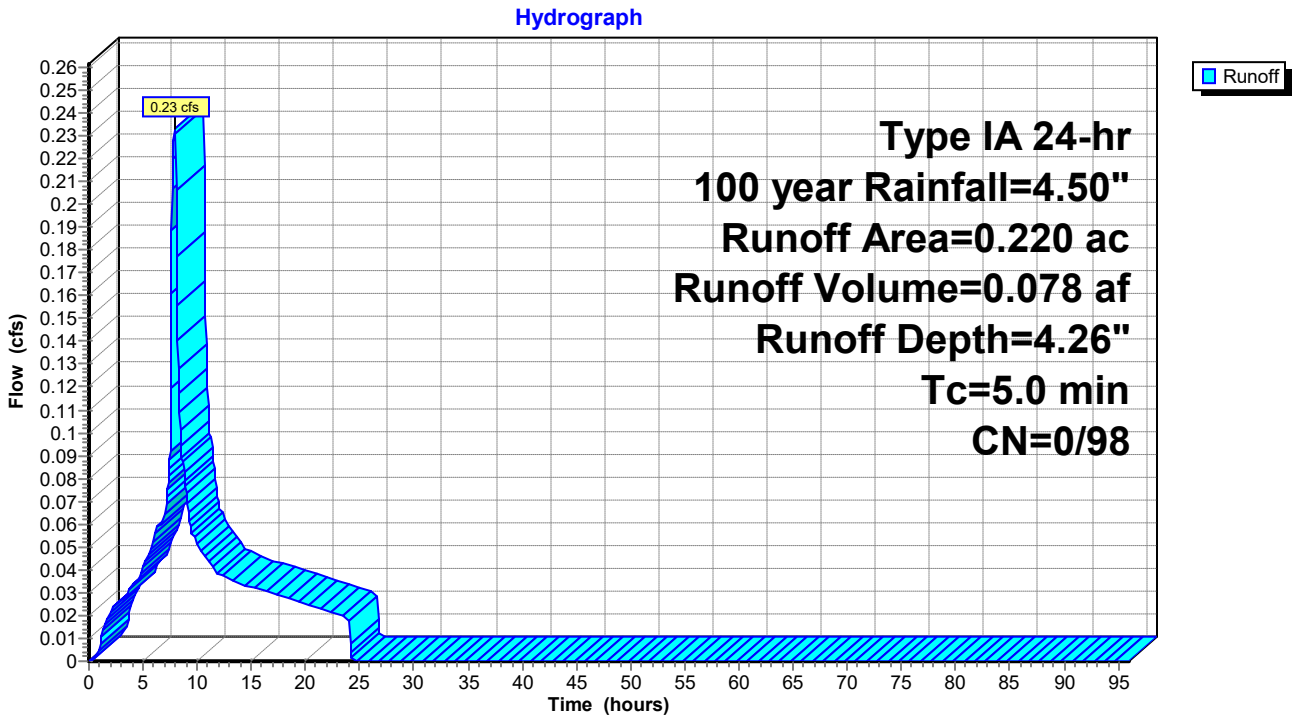
Runoff = 0.23 cfs @ 7.90 hrs, Volume= 0.078 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.220	98	Paved roads w/curbs & sewers, HSG D
0.220	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.3: NW West



Summary for Subcatchment 2.4: SW West

[49] Hint: Tc<2dt may require smaller dt

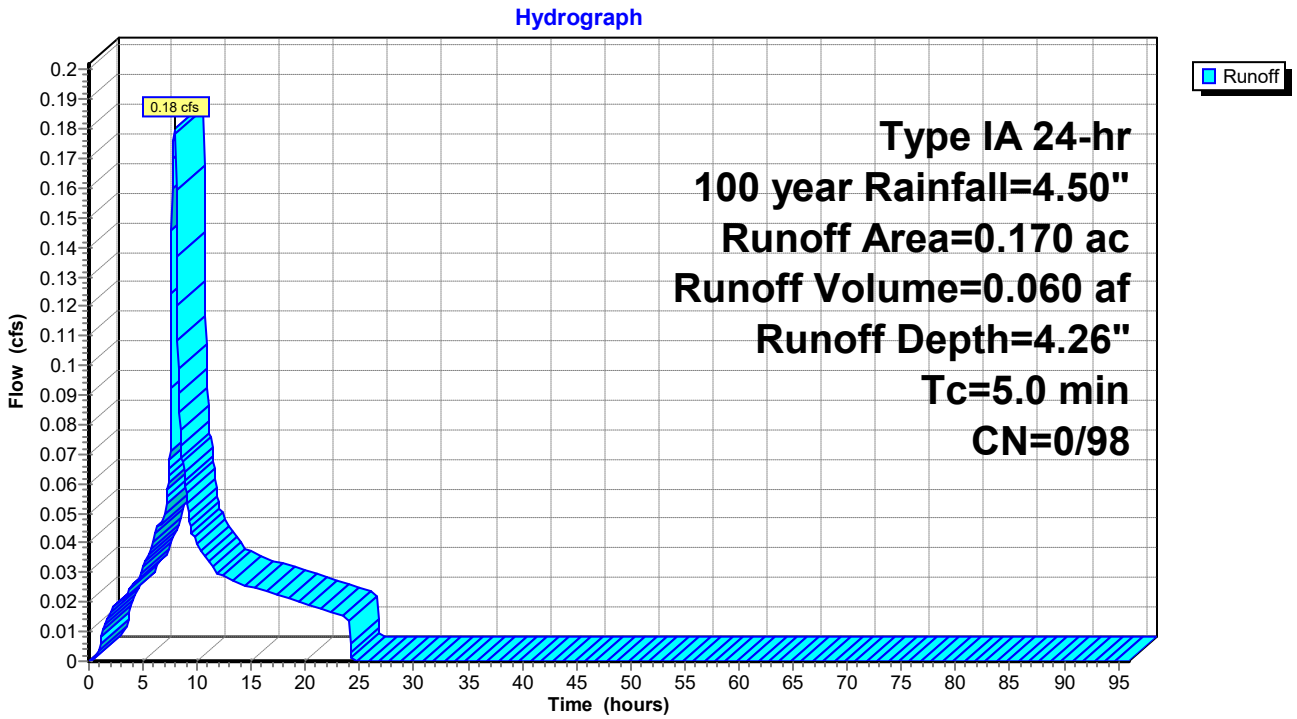
Runoff = 0.18 cfs @ 7.90 hrs, Volume= 0.060 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers, HSG D
0.170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.4: SW West



Summary for Subcatchment 2.5: SE West

[49] Hint: Tc<2dt may require smaller dt

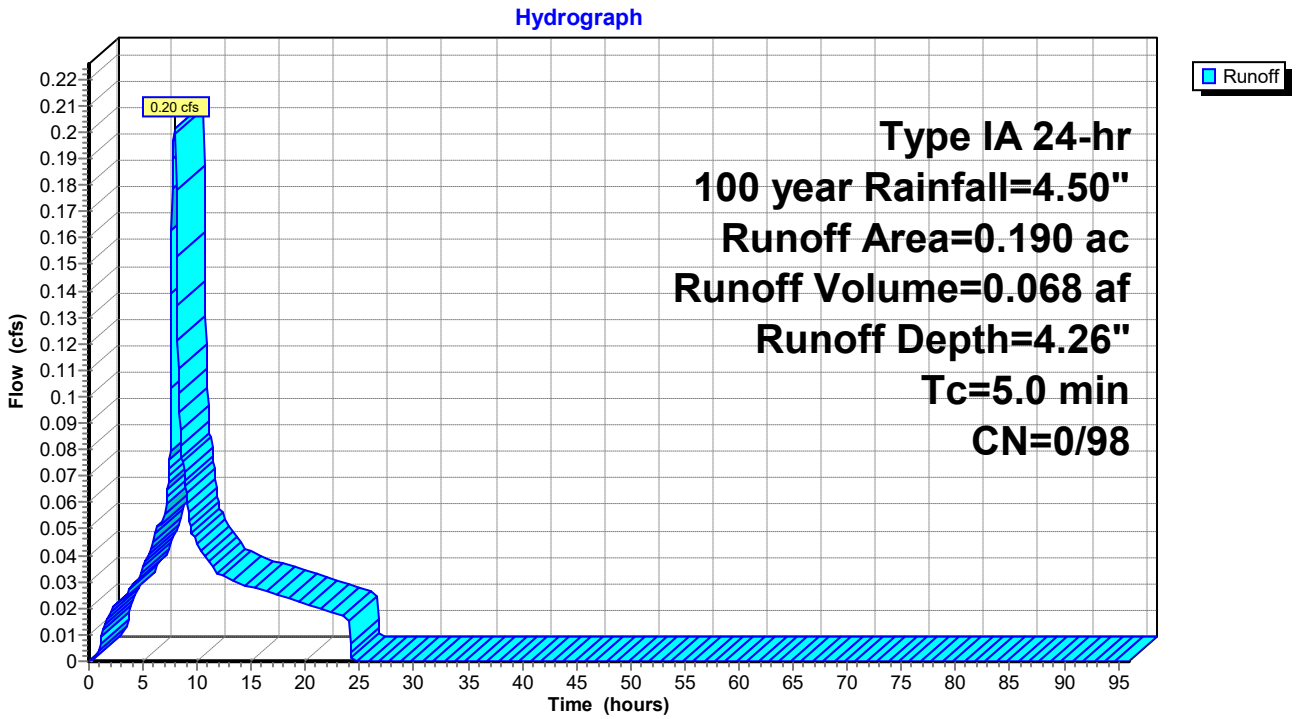
Runoff = 0.20 cfs @ 7.90 hrs, Volume= 0.068 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers, HSG D
0.190	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.5: SE West



Summary for Subcatchment 2.6: SE Leroy

[49] Hint: Tc<2dt may require smaller dt

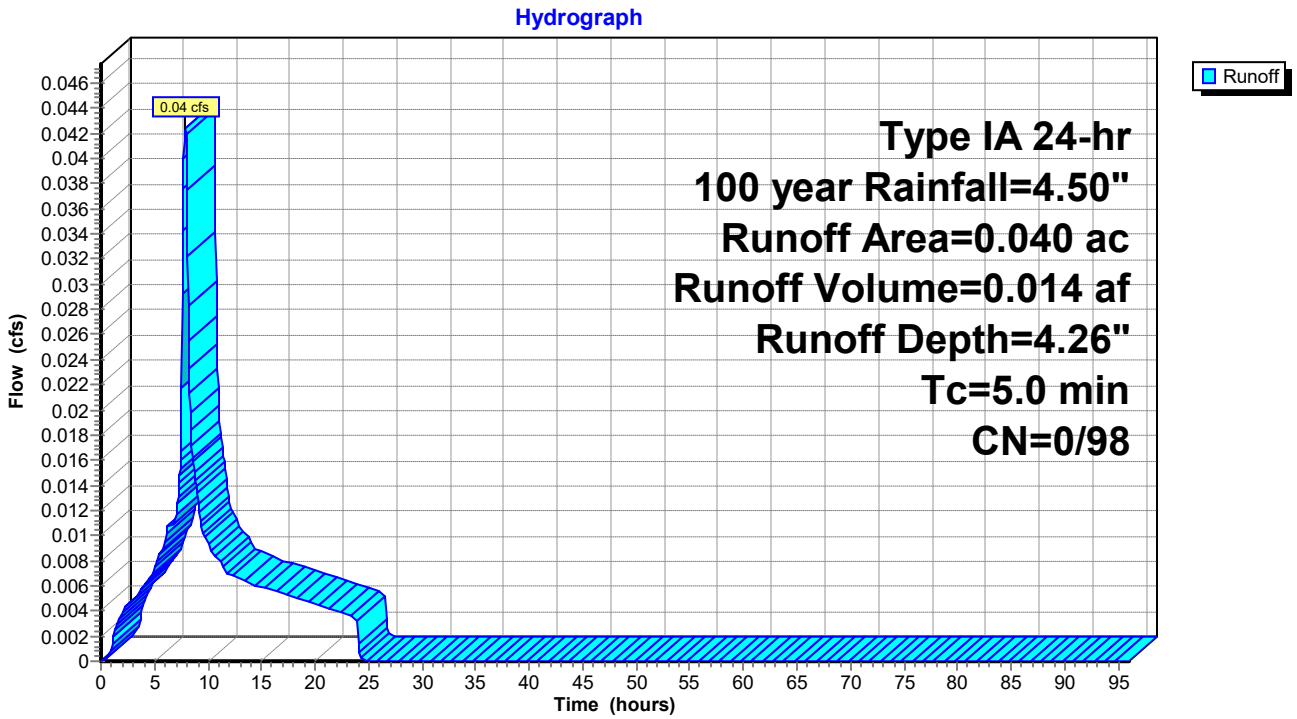
Runoff = 0.04 cfs @ 7.90 hrs, Volume= 0.014 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers, HSG D
0.040	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.6: SE Leroy



Summary for Subcatchment 2.7: SW Leroy

[49] Hint: Tc<2dt may require smaller dt

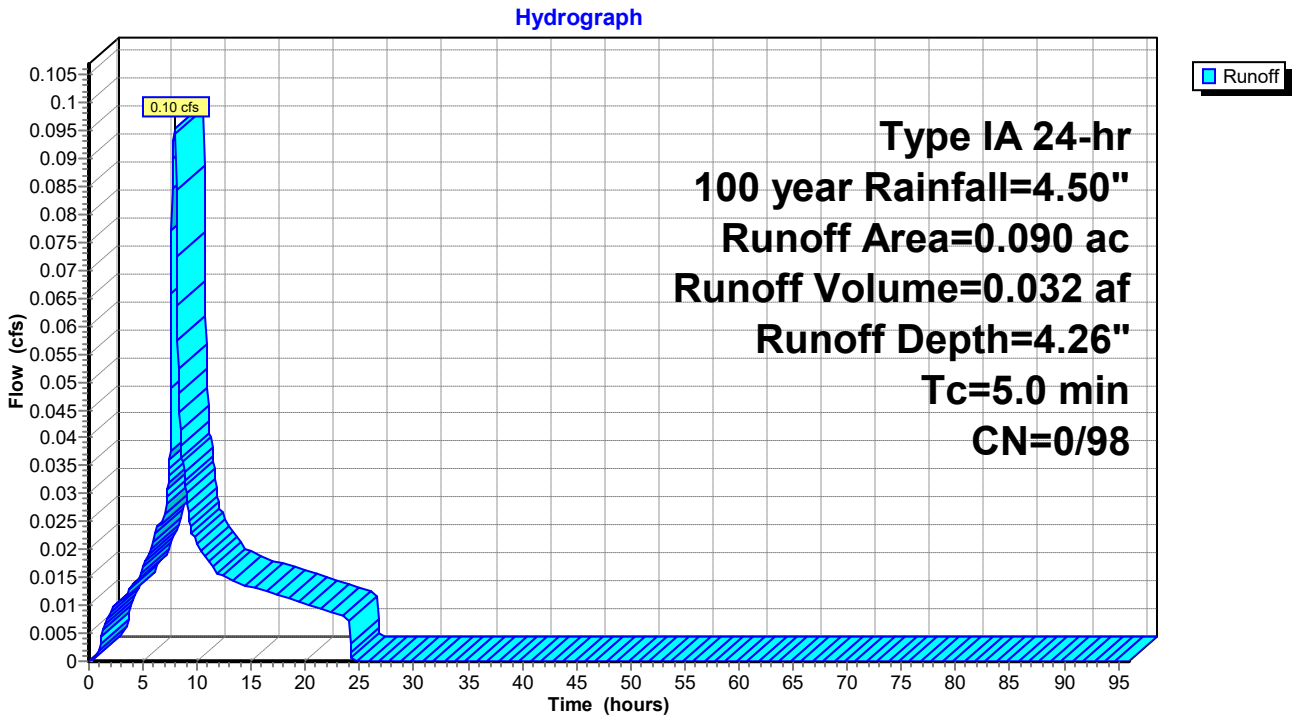
Runoff = 0.10 cfs @ 7.90 hrs, Volume= 0.032 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers, HSG D
0.090	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.7: SW Leroy



Summary for Subcatchment 2.8: Pervious West

[49] Hint: Tc<2dt may require smaller dt

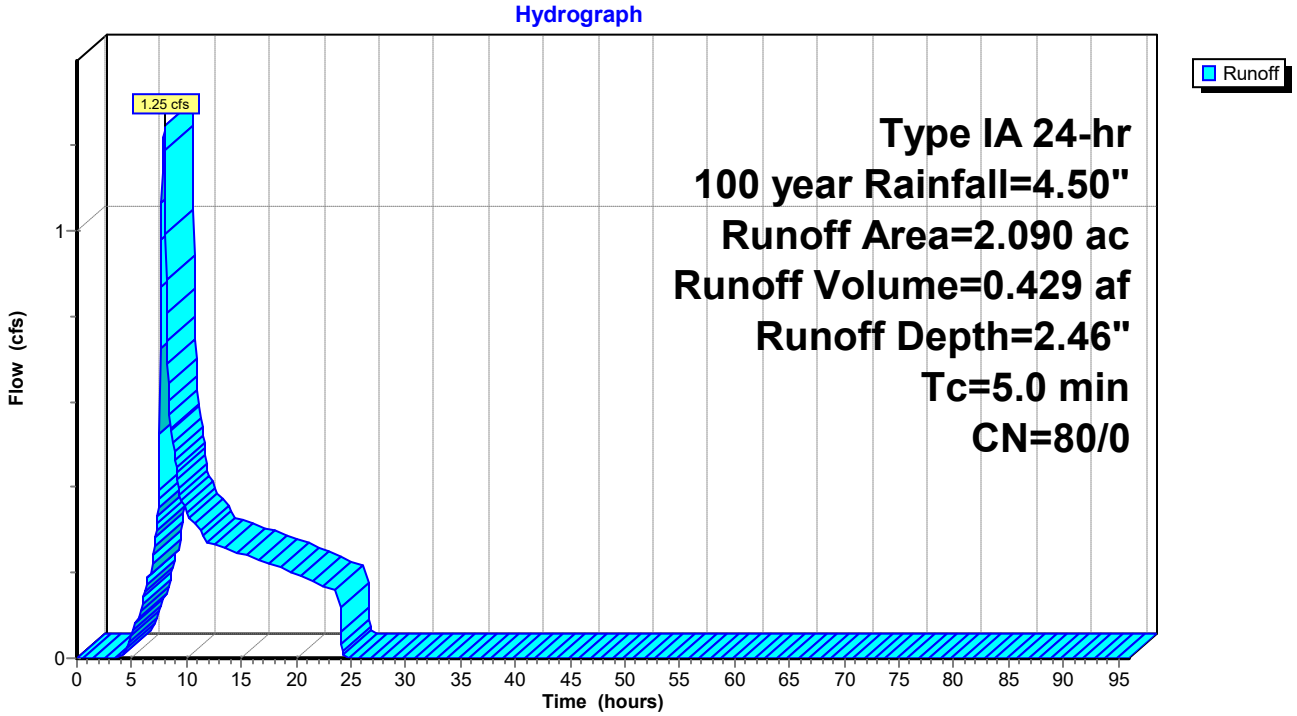
Runoff = 1.25 cfs @ 7.98 hrs, Volume= 0.429 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.8: Pervious West



Summary for Subcatchment 2.9: Pervious East

[49] Hint: Tc<2dt may require smaller dt

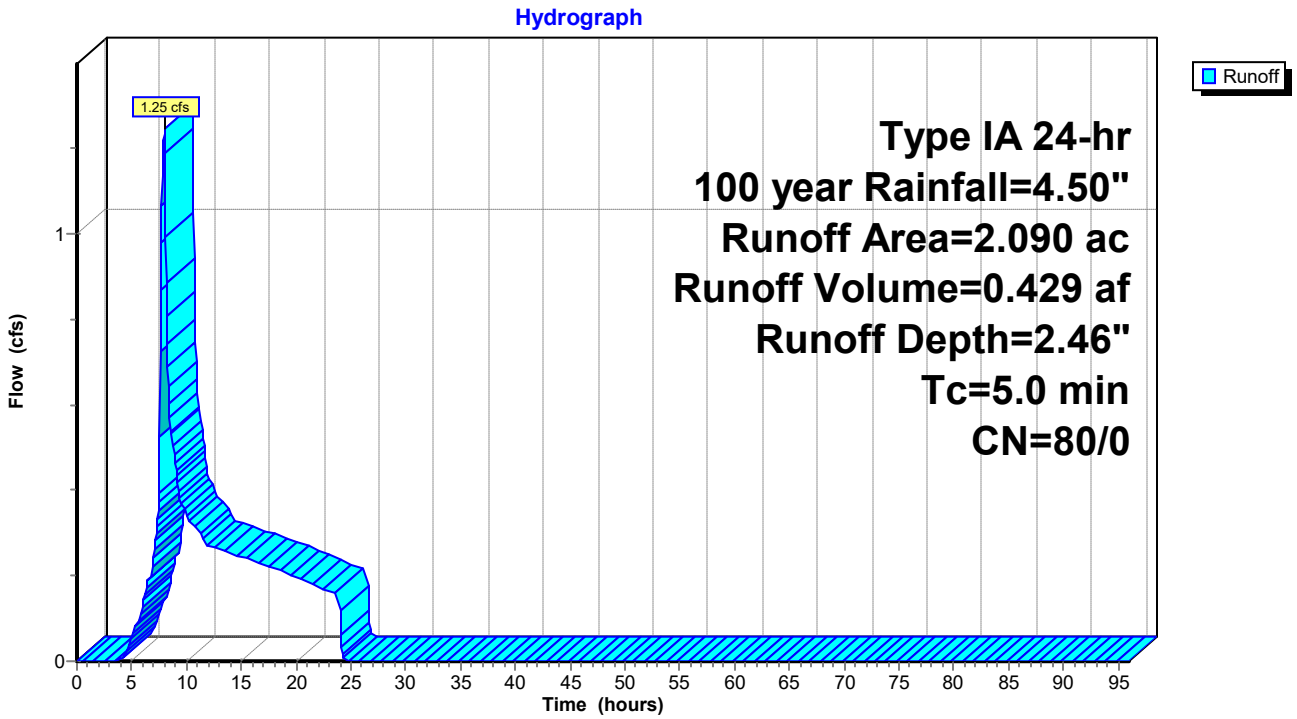
Runoff = 1.25 cfs @ 7.98 hrs, Volume= 0.429 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.9: Pervious East



Summary for Subcatchment 3.1: SW Parking + Pervious - Basin 3

[49] Hint: Tc<2dt may require smaller dt

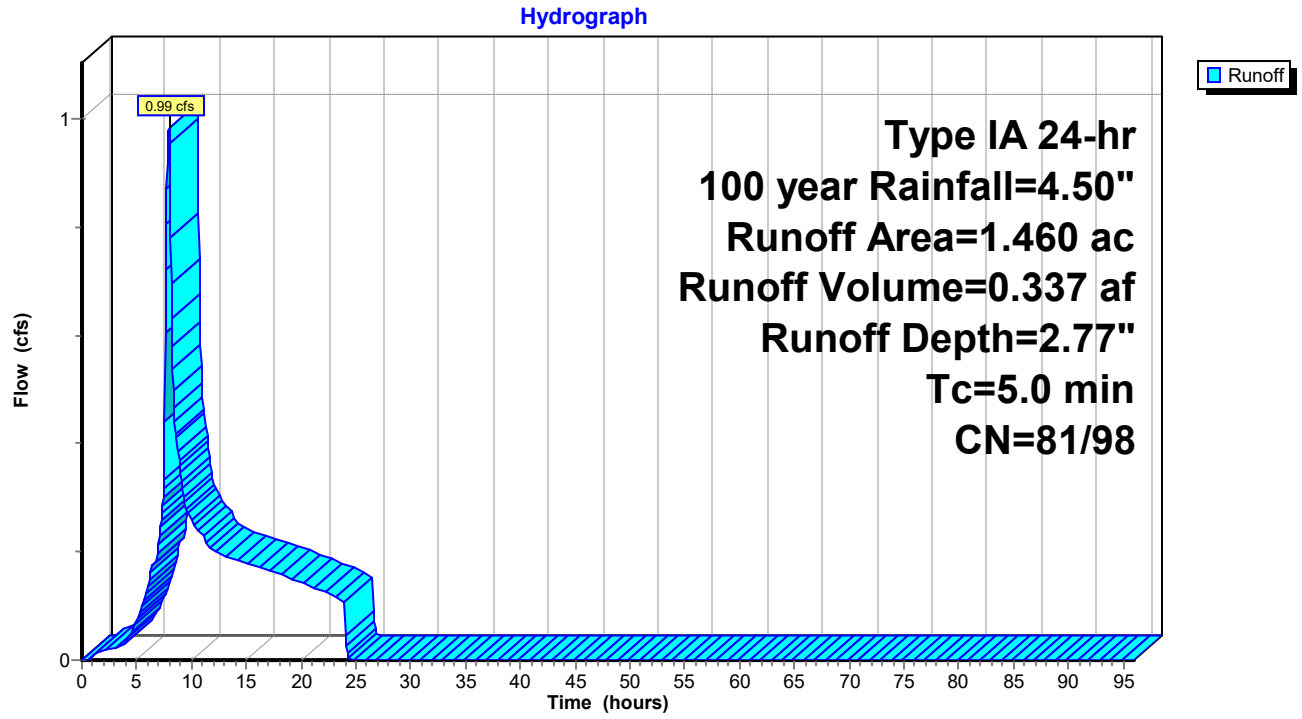
Runoff = 0.99 cfs @ 7.96 hrs, Volume= 0.337 af, Depth= 2.77"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
1.190	80	>75% Grass cover, Good, HSG D
0.190	98	Paved parking, HSG D
0.080	98	Water Surface, 0% imp, HSG D
1.460	83	Weighted Average
1.270	81	86.99% Pervious Area
0.190	98	13.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.1: SW Parking + Pervious - Basin 3



Summary for Subcatchment 3.2: N Hezzie

[49] Hint: Tc<2dt may require smaller dt

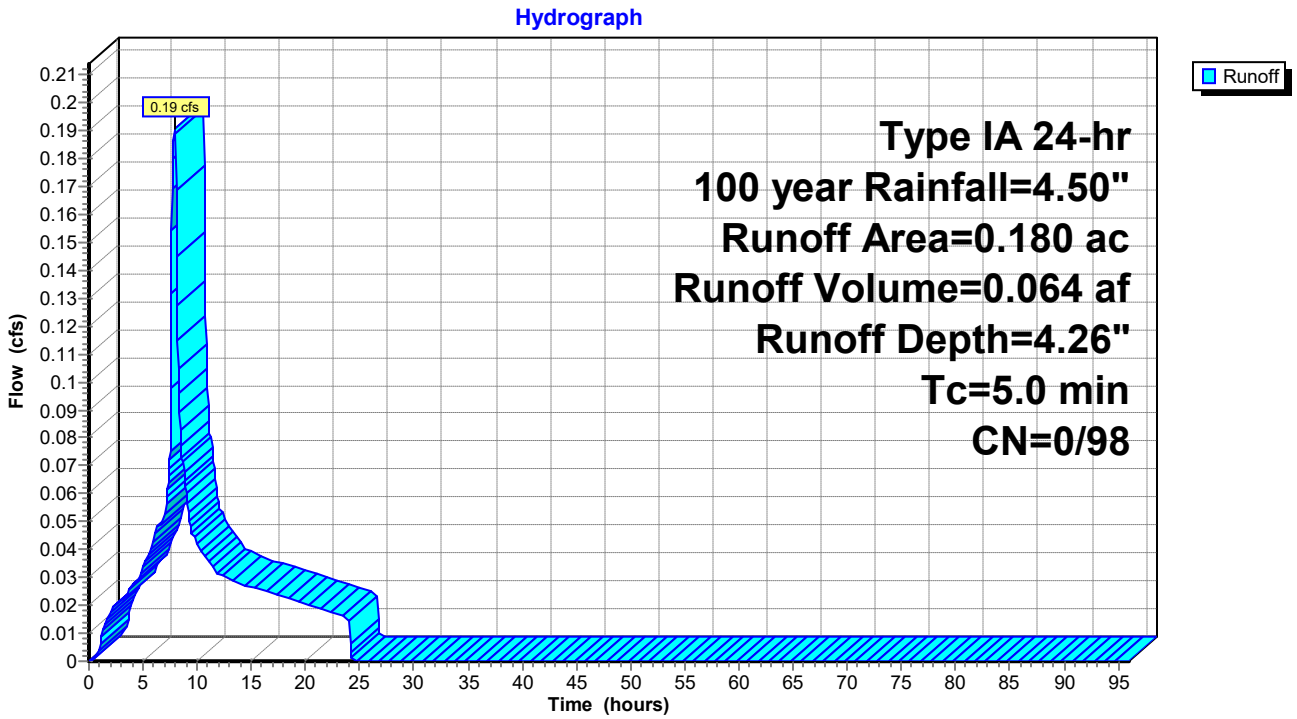
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Depth= 4.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=4.50"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG D
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.2: N Hezzie



Summary for Reach 2.1R: 12" outfall (West)

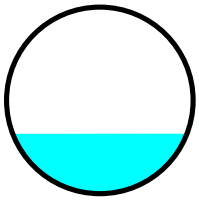
[52] Hint: Inlet/Outlet conditions not evaluated

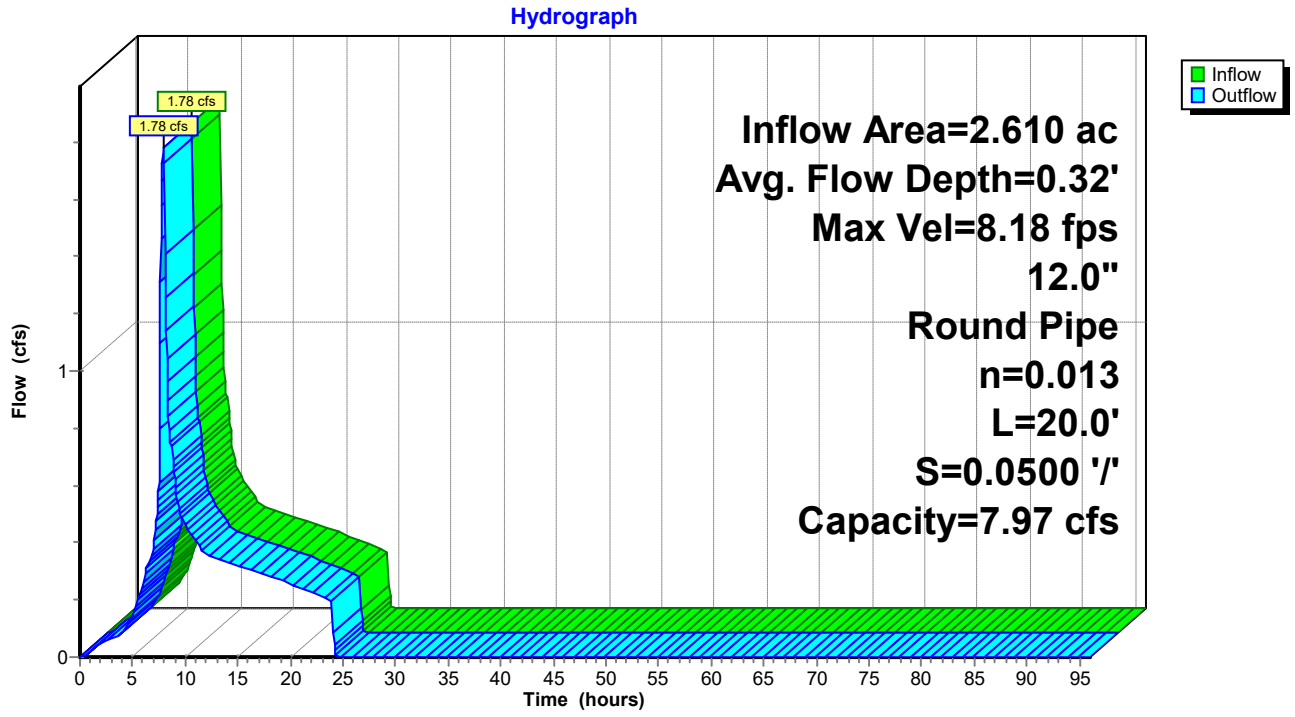
Inflow Area = 2.610 ac, 19.92% Impervious, Inflow Depth = 2.82" for 100 year event
Inflow = 1.78 cfs @ 7.95 hrs, Volume= 0.613 af
Outflow = 1.78 cfs @ 7.96 hrs, Volume= 0.613 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.18 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.56 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 7.95 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





Summary for Reach 2.2R: 12" outfall (Hezzie)

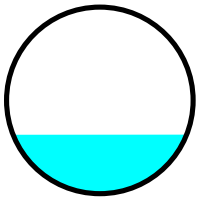
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.600 ac, 19.62% Impervious, Inflow Depth = 2.82" for 100 year event
Inflow = 1.77 cfs @ 7.95 hrs, Volume= 0.610 af
Outflow = 1.77 cfs @ 7.96 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.1 min

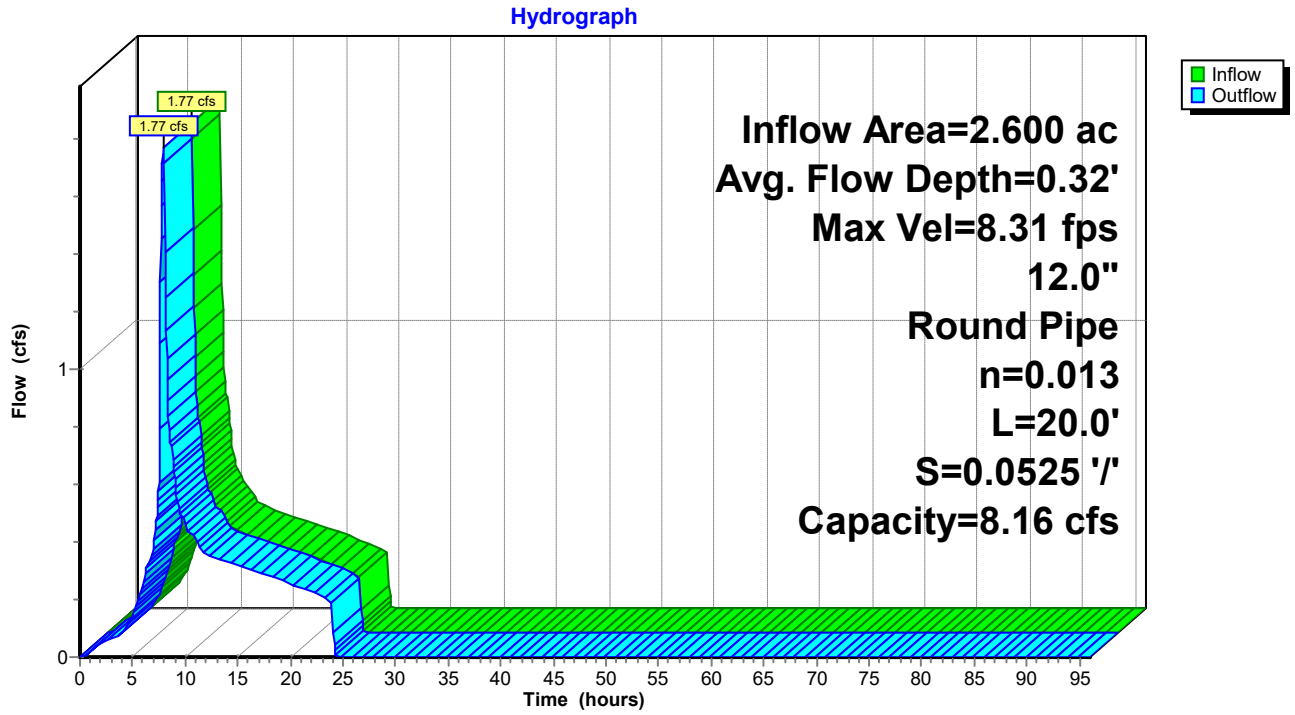
Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.31 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 7.95 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.16 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0525 '/'
Inlet Invert= 1.05', Outlet Invert= 0.00'



Reach 2.2R: 12" outfall (Hezzie)



Summary for Reach 3R: To Ex. MH (Hezzie & North Valley)

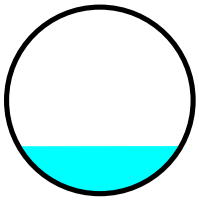
[52] Hint: Inlet/Outlet conditions not evaluated
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 1.640 ac, 22.56% Impervious, Inflow Depth = 2.72" for 100 year event
Inflow = 1.14 cfs @ 8.06 hrs, Volume= 0.371 af
Outflow = 1.12 cfs @ 8.06 hrs, Volume= 0.371 af, Atten= 1%, Lag= 0.1 min

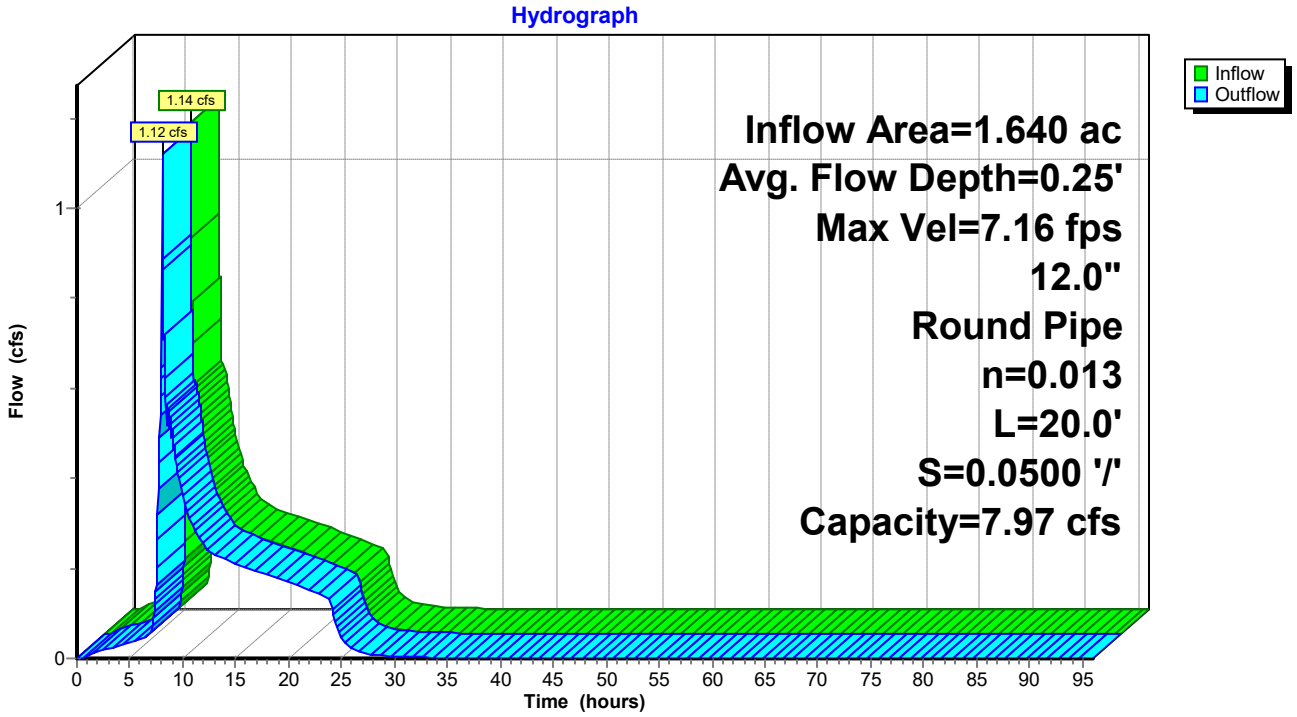
Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.16 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 8.06 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'



Reach 3R: To Ex. MH (Hezzie & North Valley)



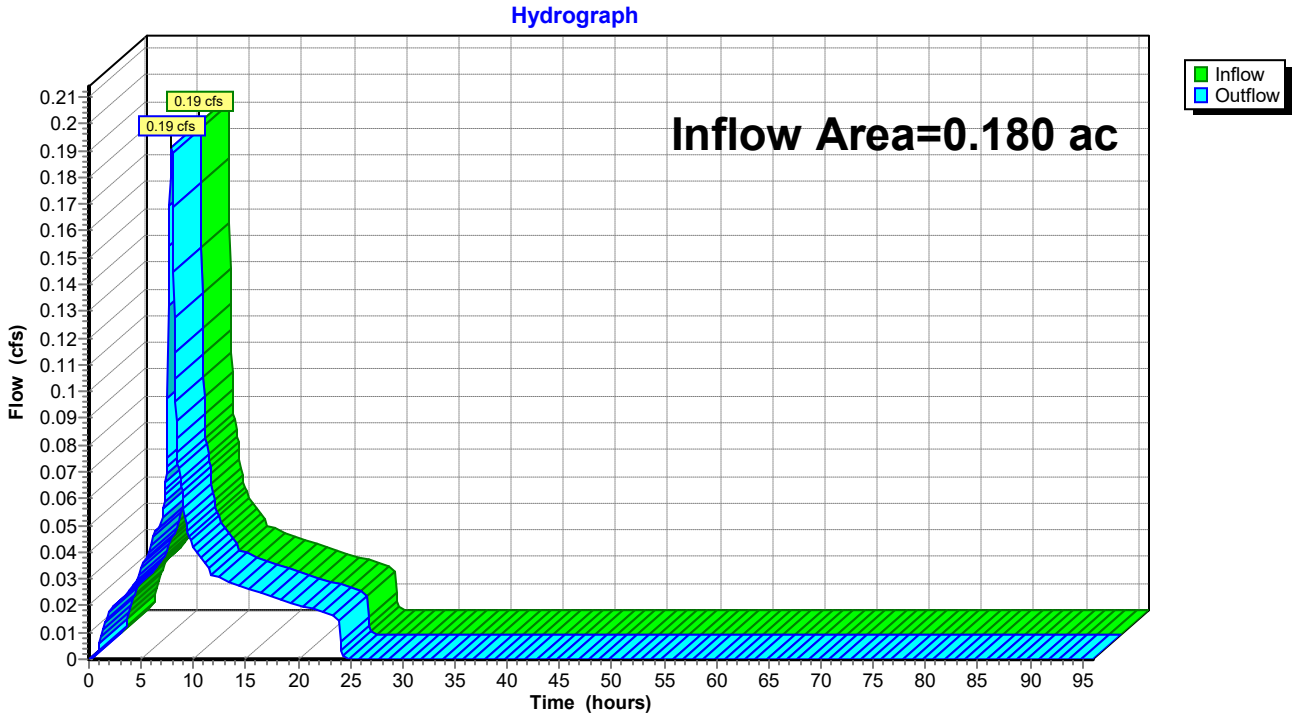
Summary for Reach C14: Filter CB 11

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af
Outflow = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C14: Filter CB 11



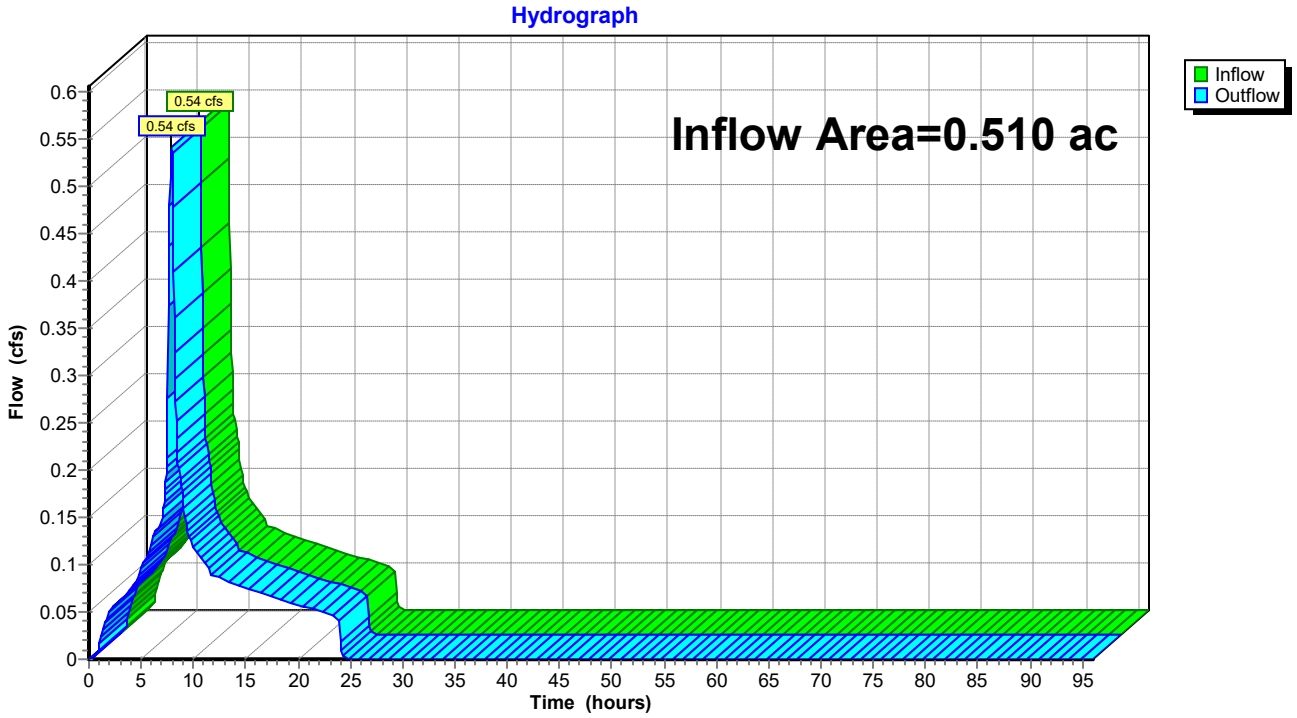
Summary for Reach C15: Filter CB 12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.510 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.54 cfs @ 7.90 hrs, Volume= 0.181 af
Outflow = 0.54 cfs @ 7.90 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C15: Filter CB 12



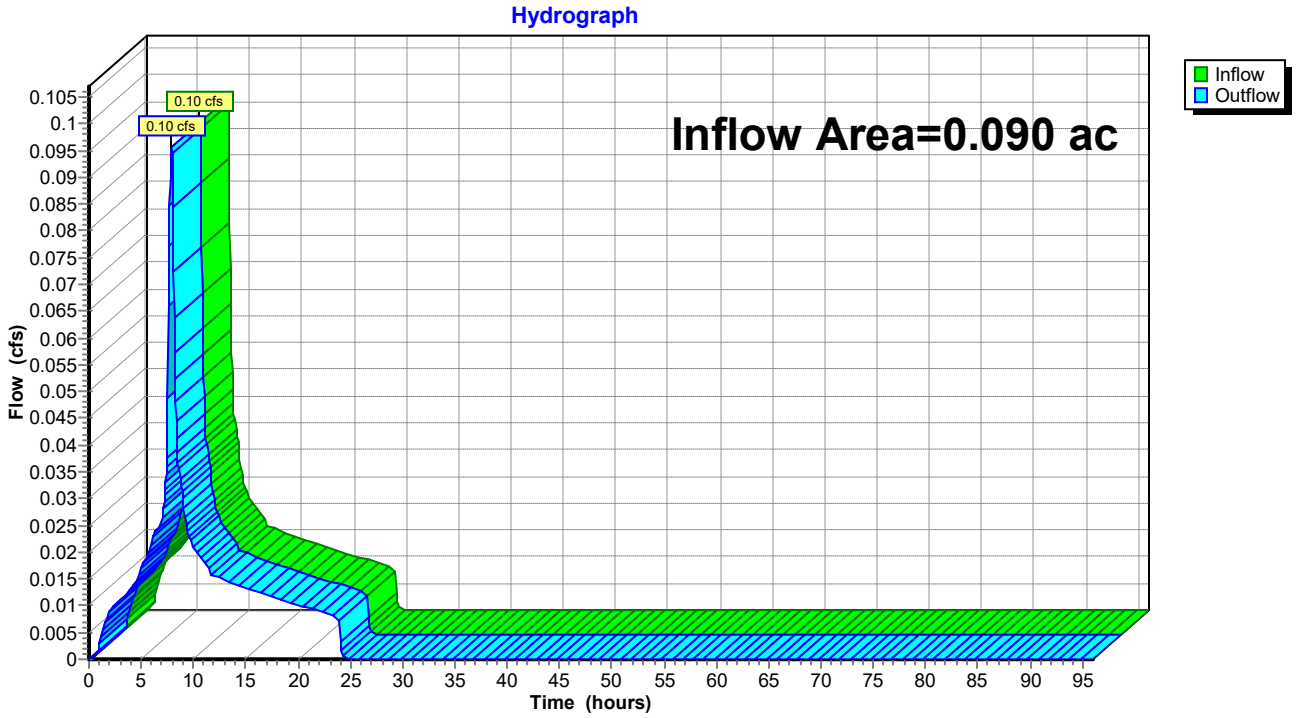
Summary for Reach C16: Filter CB 14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.10 cfs @ 7.90 hrs, Volume= 0.032 af
Outflow = 0.10 cfs @ 7.90 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C16: Filter CB 14



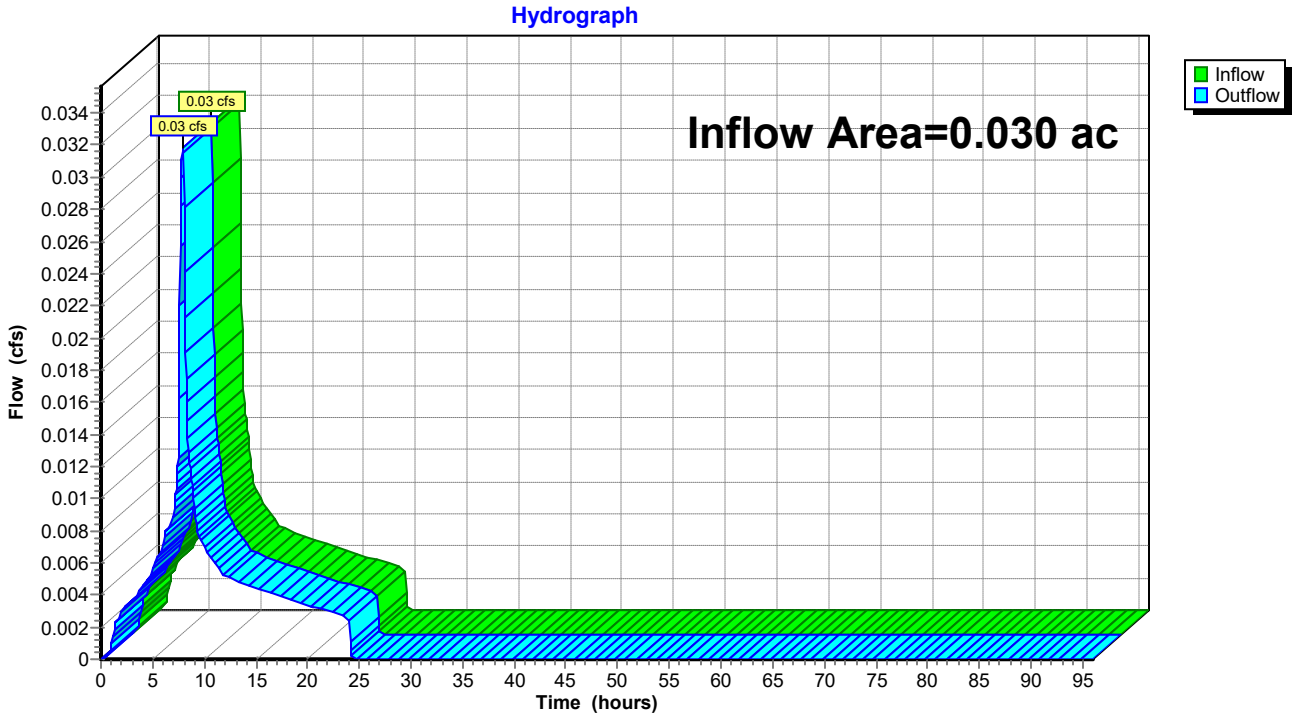
Summary for Reach C17: Filter CB 15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.030 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.03 cfs @ 7.90 hrs, Volume= 0.011 af
Outflow = 0.03 cfs @ 7.90 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C17: Filter CB 15



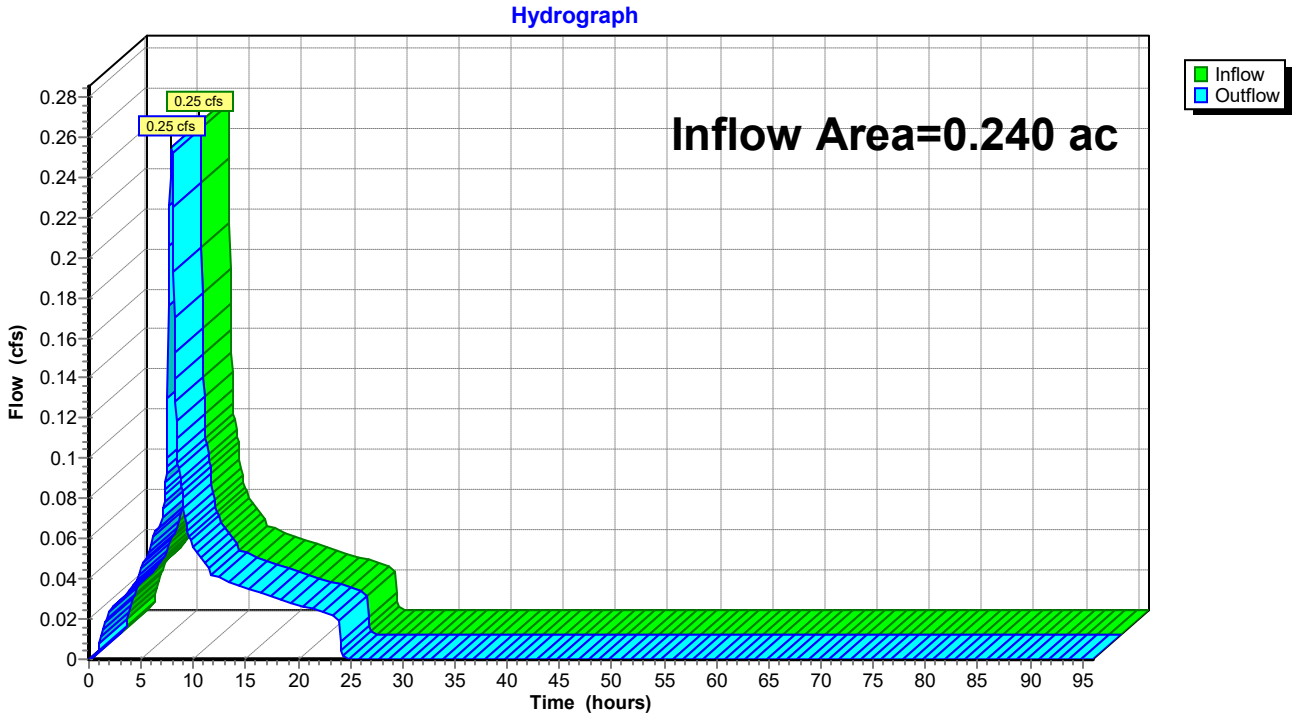
Summary for Reach C18: Filter CB 16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.240 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.25 cfs @ 7.90 hrs, Volume= 0.085 af
Outflow = 0.25 cfs @ 7.90 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C18: Filter CB 16



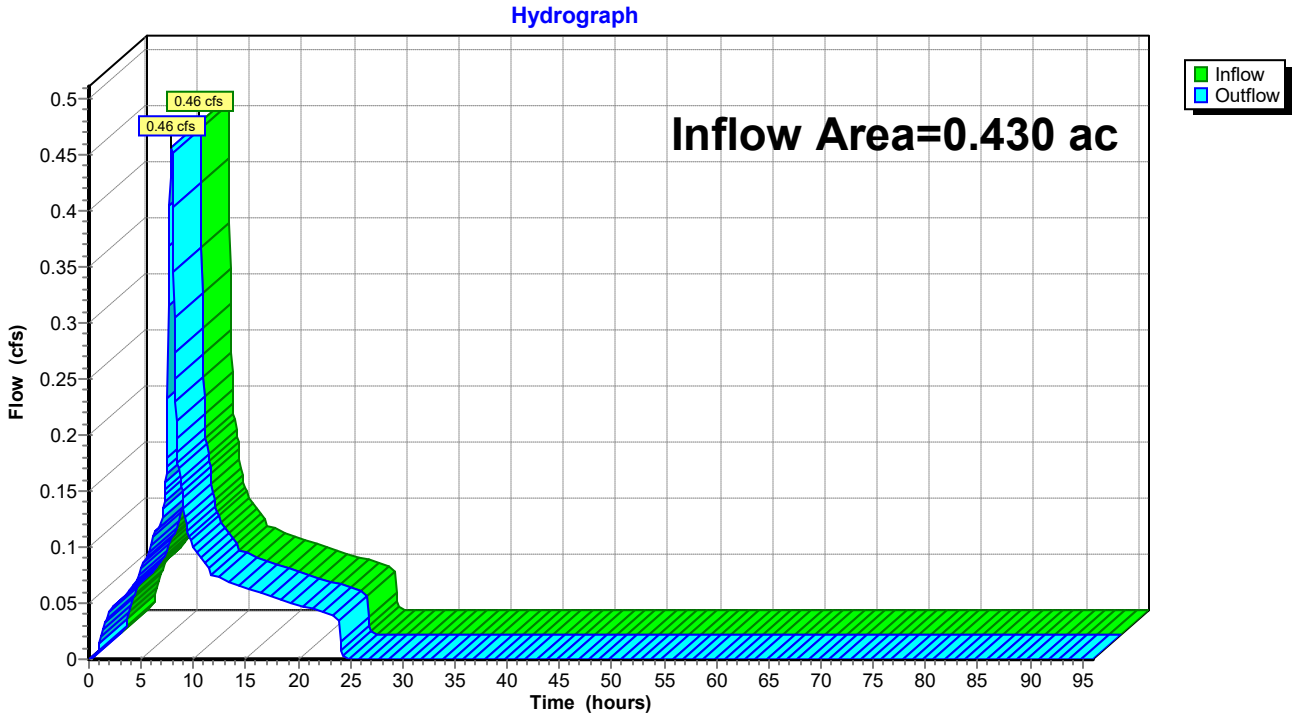
Summary for Reach C19: Filter CB 17

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.430 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.46 cfs @ 7.90 hrs, Volume= 0.153 af
Outflow = 0.46 cfs @ 7.90 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C19: Filter CB 17



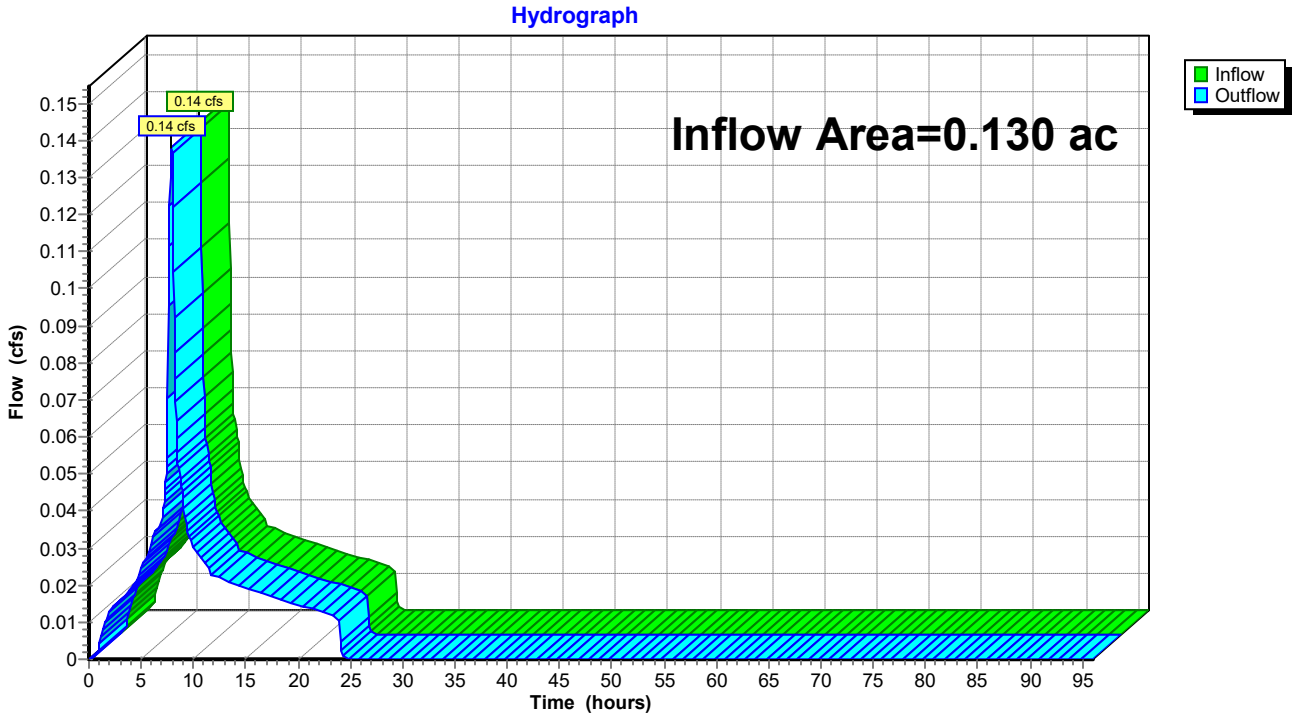
Summary for Reach C20: Filter CB 18

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.130 ac,100.00% Impervious, Inflow Depth = 4.26" for 100 year event
Inflow = 0.14 cfs @ 7.90 hrs, Volume= 0.046 af
Outflow = 0.14 cfs @ 7.90 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C20: Filter CB 18



Summary for Pond 6P: Wet Pond- Basin 1

Inflow Area = 13.140 ac, 46.04% Impervious, Inflow Depth = 3.34" for 100 year event
Inflow = 10.73 cfs @ 7.93 hrs, Volume= 3.654 af
Outflow = 4.43 cfs @ 8.48 hrs, Volume= 3.653 af, Atten= 59%, Lag= 33.3 min
Primary = 4.43 cfs @ 8.48 hrs, Volume= 3.653 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Starting Elev= 340.66' Surf.Area= 0.163 ac Storage= 0.100 af
Peak Elev= 344.28' @ 8.48 hrs Surf.Area= 0.310 ac Storage= 0.945 af (0.845 af above start)

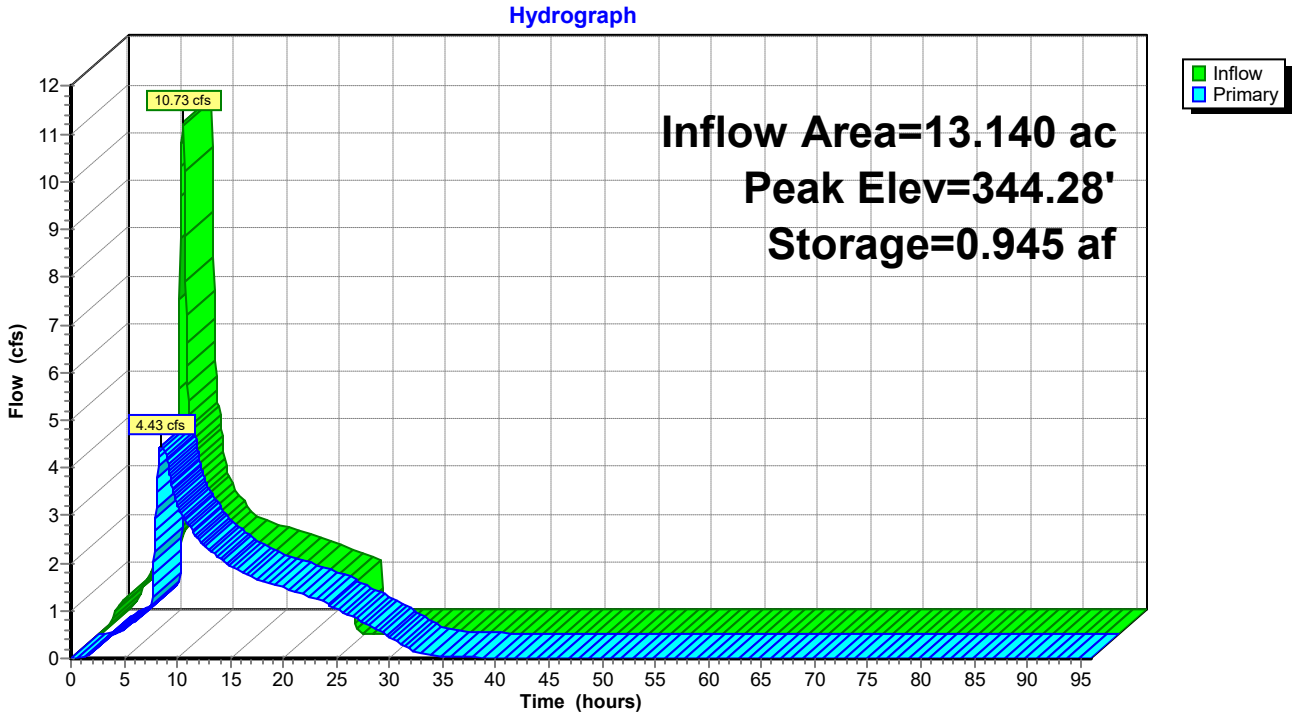
Plug-Flow detention time= 254.6 min calculated for 3.551 af (97% of inflow)
Center-of-Mass det. time= 216.3 min (923.4 - 707.1)

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	1.179 af	**45.00'W x 136.00'L x 5.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices		
#1	Primary	340.66'	**5.4" Vert. Orifice/Grate**	C= 0.600	
#2	Primary	342.88'	**7.9" Vert. Orifice/Grate**	C= 0.600	
#3	Primary	343.62'	**4.9" Vert. Orifice/Grate**	C= 0.600	
#4	Primary	344.00'	**8.0" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=4.43 cfs @ 8.48 hrs HW=344.28' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 1.41 cfs @ 8.87 fps)
- **2=Orifice/Grate** (Orifice Controls 1.70 cfs @ 4.99 fps)
- **3=Orifice/Grate** (Orifice Controls 0.43 cfs @ 3.26 fps)
- **4=Orifice/Grate** (Orifice Controls 0.89 cfs @ 2.56 fps)

Pond 6P: Wet Pond- Basin 1



Summary for Pond P1: Planter 1

[93] Warning: Storage range exceeded by 0.09'

Inflow Area = 1.480 ac, 58.11% Impervious, Inflow Depth = 3.74" for 100 year event
Inflow = 1.38 cfs @ 7.91 hrs, Volume= 0.461 af
Outflow = 0.55 cfs @ 8.50 hrs, Volume= 0.389 af, Atten= 60%, Lag= 35.2 min
Primary = 0.55 cfs @ 8.50 hrs, Volume= 0.389 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 347.59' @ 8.50 hrs Surf.Area= 0.180 ac Storage= 0.154 af

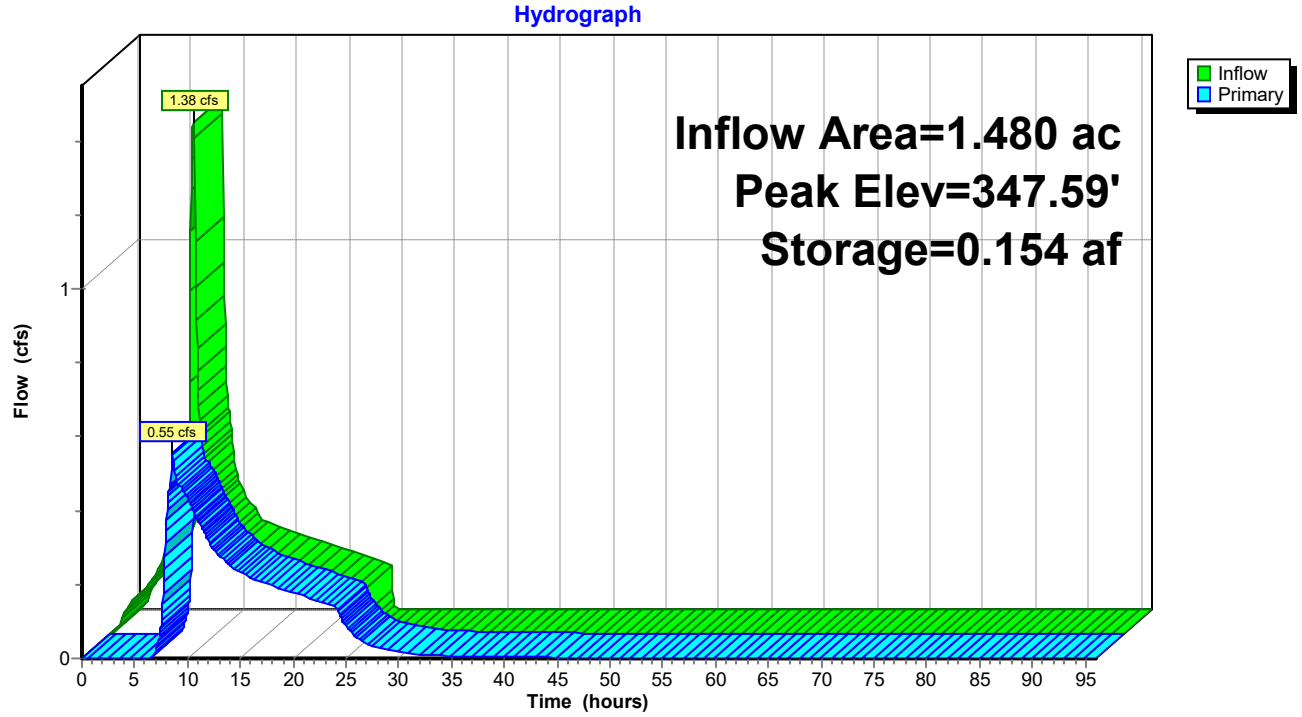
Plug-Flow detention time= 350.9 min calculated for 0.389 af (84% of inflow)
Center-of-Mass det. time= 245.4 min (934.8 - 689.5)

Volume	Invert	Avail.Storage	Storage Description
#1	346.50'	0.154 af	**16.00'W x 350.00'L x 1.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	347.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.55 cfs @ 8.50 hrs HW=347.59' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.55 cfs @ 2.81 fps)

Pond P1: Planter 1



Summary for Pond P2: Planter 2

[93] Warning: Storage range exceeded by 0.80'

Inflow Area = 1.460 ac, 13.01% Impervious, Inflow Depth = 2.77" for 100 year event
Inflow = 0.99 cfs @ 7.96 hrs, Volume= 0.337 af
Outflow = 0.97 cfs @ 8.06 hrs, Volume= 0.307 af, Atten= 1%, Lag= 6.1 min
Primary = 0.97 cfs @ 8.06 hrs, Volume= 0.307 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 345.80' @ 8.06 hrs Surf.Area= 0.075 ac Storage= 0.065 af

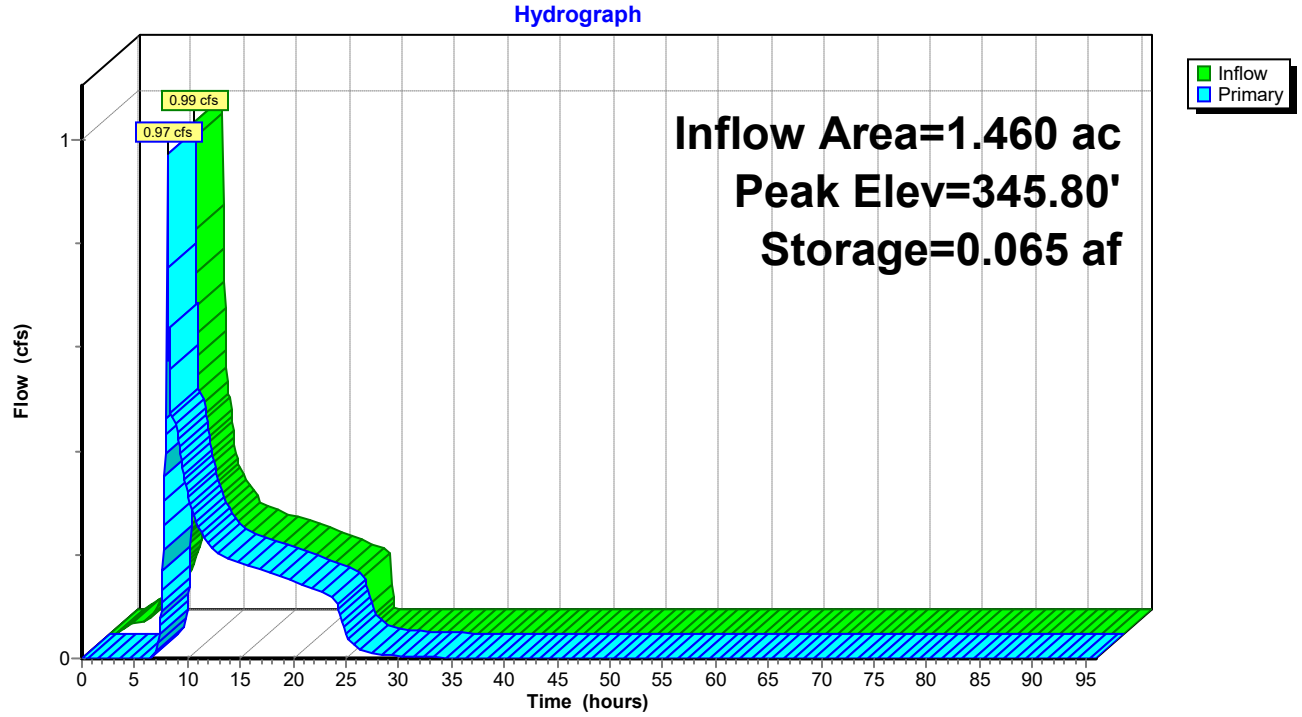
Plug-Flow detention time= 174.6 min calculated for 0.307 af (91% of inflow)
Center-of-Mass det. time= 116.3 min (873.0 - 756.8)

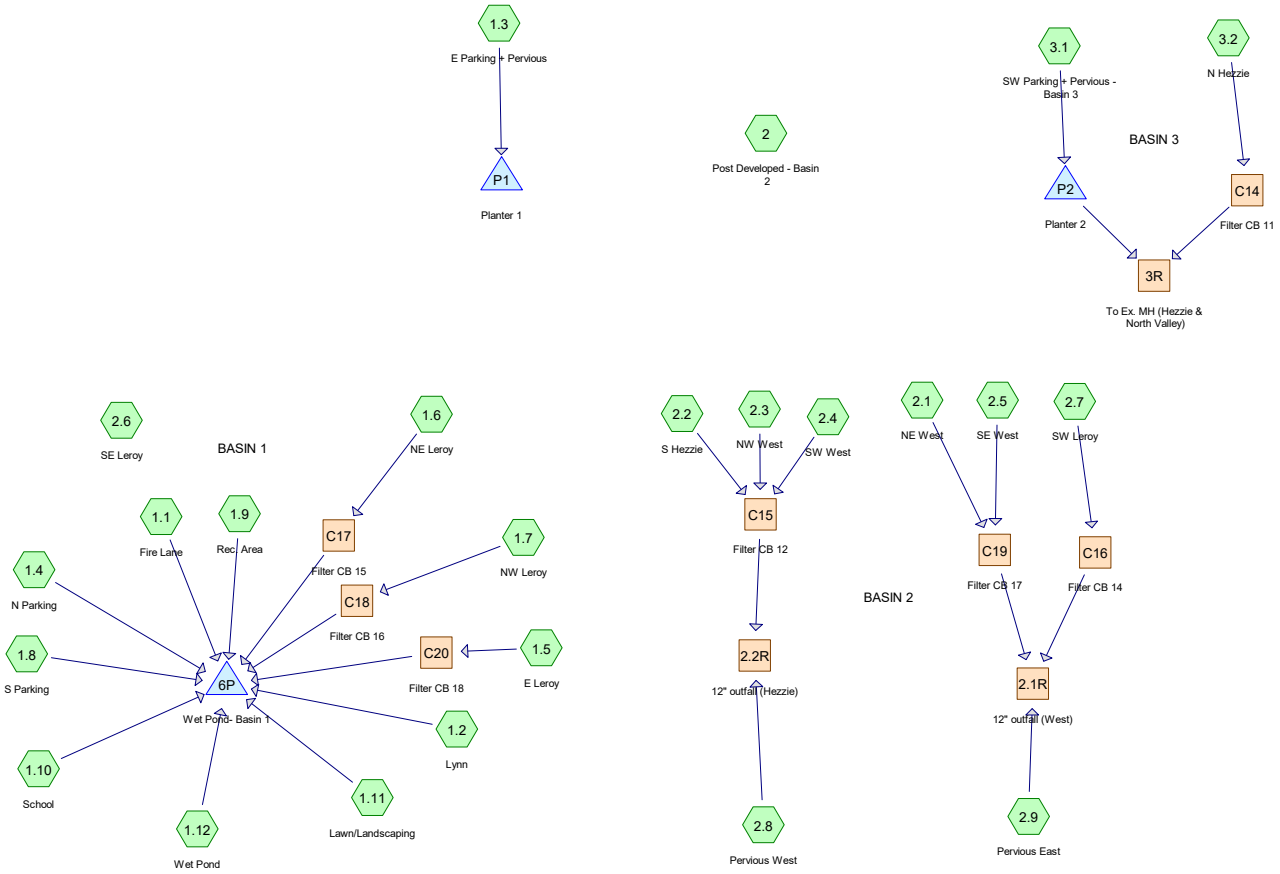
Volume	Invert	Avail.Storage	Storage Description
#1	344.00'	0.065 af	**50.00'W x 48.00'L x 1.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.92 cfs @ 8.06 hrs HW=345.70' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.92 cfs @ 4.70 fps)

Pond P2: Planter 2





Subcat Reach Pond Link

Routing Diagram for 2025-05-16_Prelim Stormwater Facitlity Sizing
Prepared by Standridge Inc., Printed 5/21/2025
HydroCAD® 10.00-26 s/n 08941 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1.1: Fire Lane

[49] Hint: Tc<2dt may require smaller dt

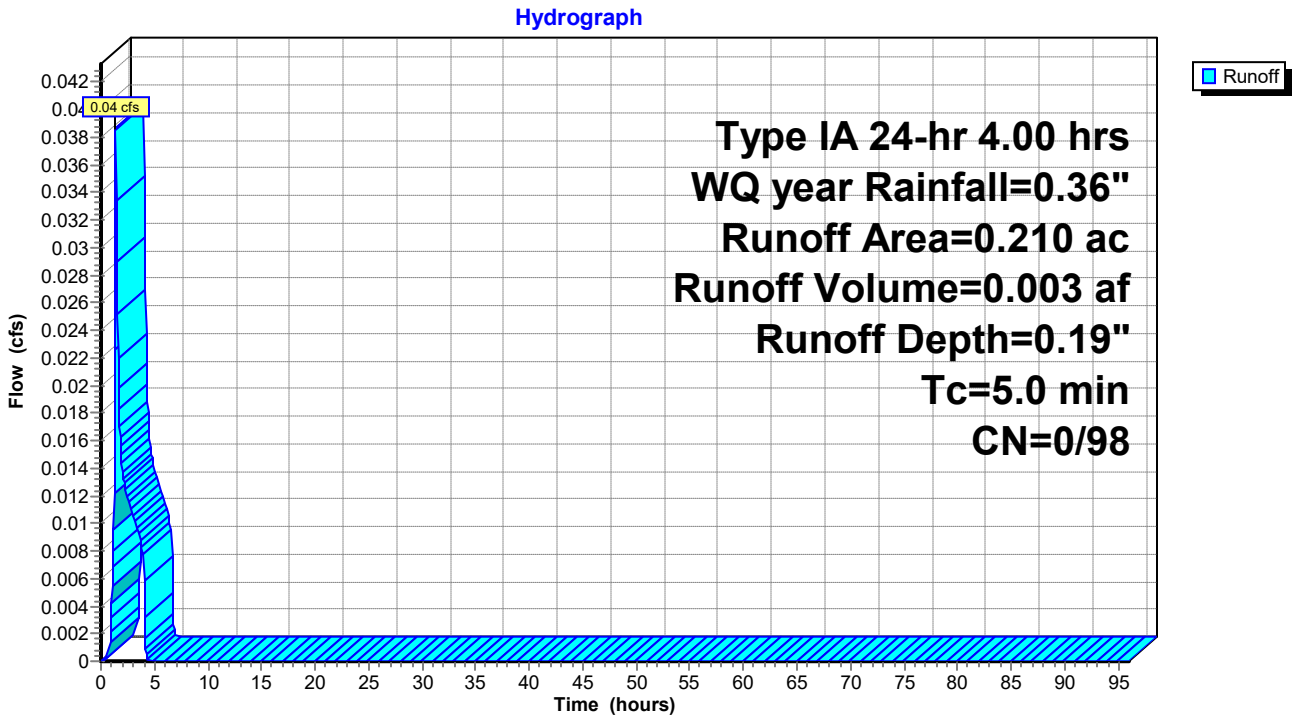
Runoff = 0.04 cfs @ 1.39 hrs, Volume= 0.003 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.210	98	Paved parking, HSG D
0.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.1: Fire Lane



Summary for Subcatchment 1.10: School

[49] Hint: Tc<2dt may require smaller dt

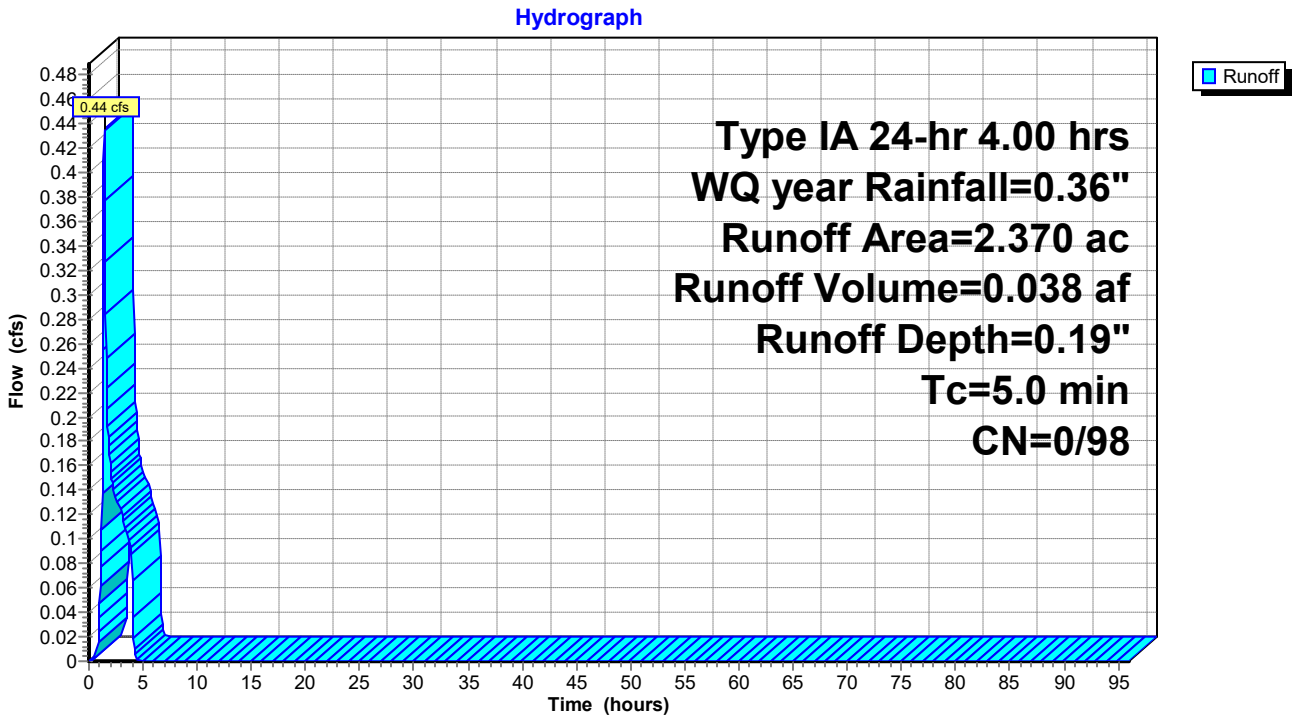
Runoff = 0.44 cfs @ 1.39 hrs, Volume= 0.038 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
2.370	98	Roofs, HSG D
2.370	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.10: School



Summary for Subcatchment 1.11: Lawn/Landscaping

Impervious Leroy

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

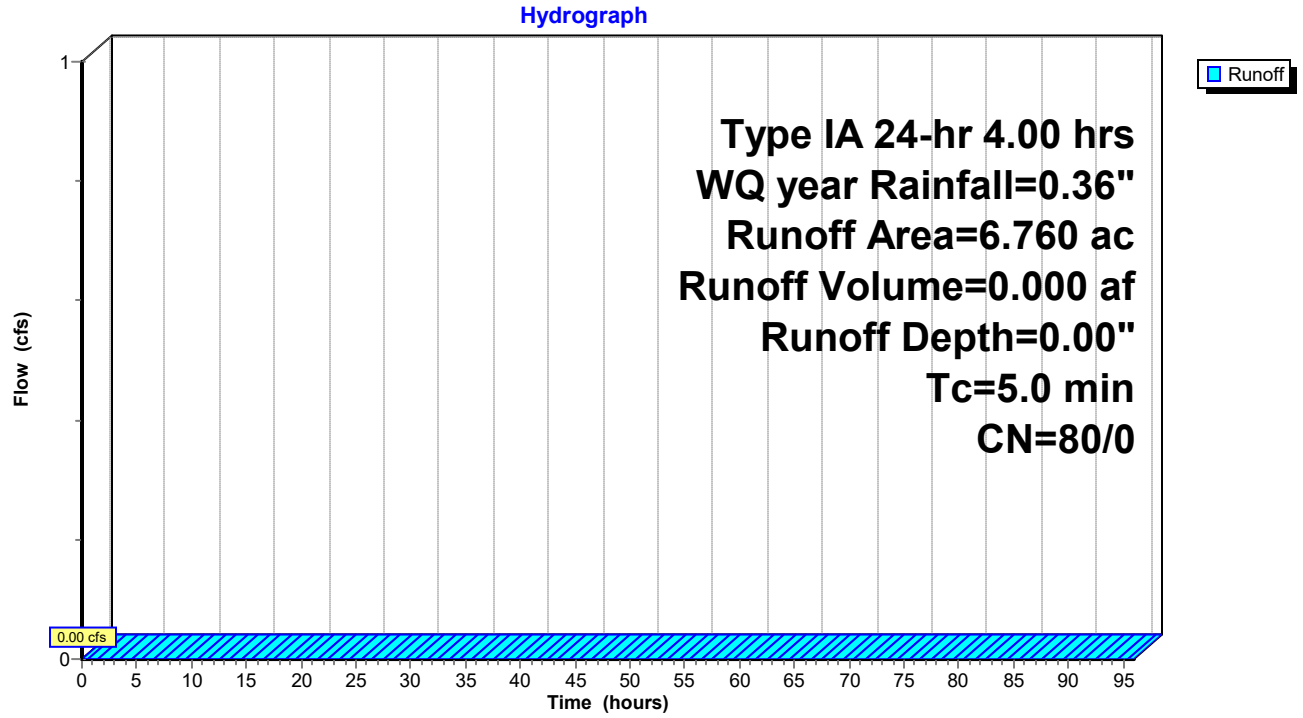
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
6.760	80	>75% Grass cover, Good, HSG D
6.760	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.11: Lawn/Landscaping



Summary for Subcatchment 1.12: Wet Pond

[49] Hint: Tc<2dt may require smaller dt

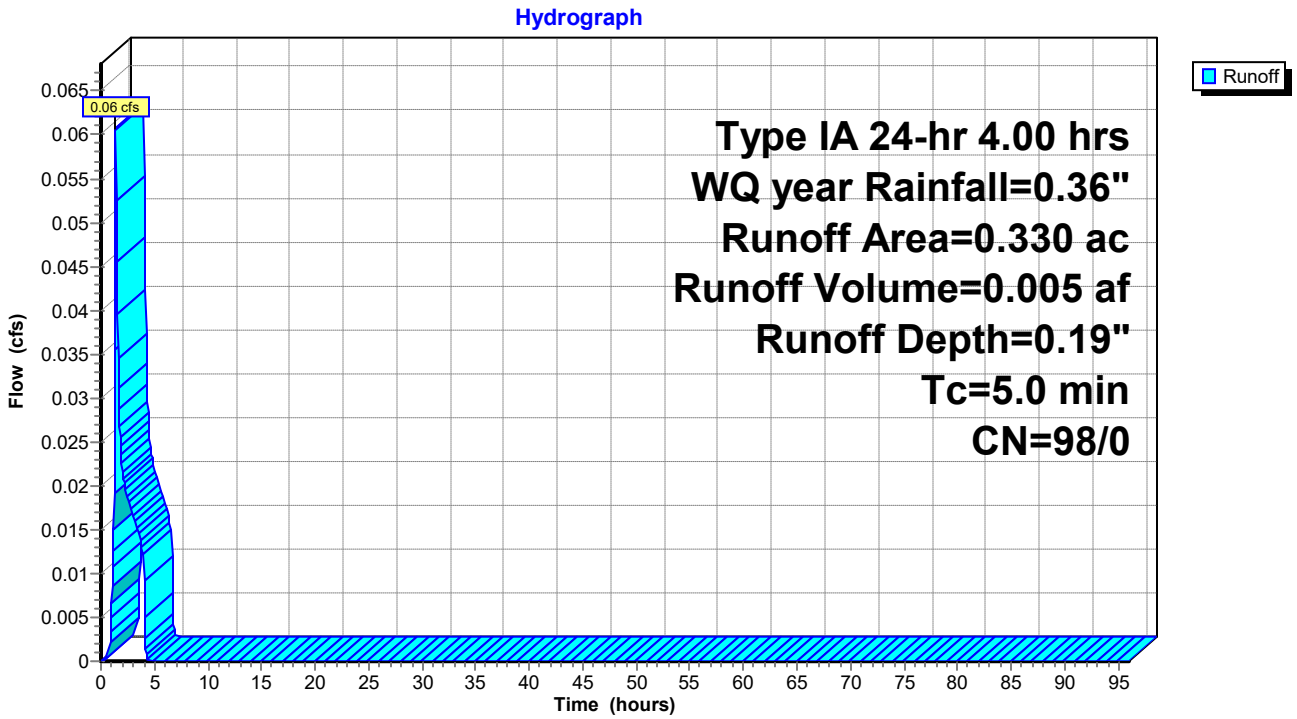
Runoff = 0.06 cfs @ 1.39 hrs, Volume= 0.005 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.330	98	Water Surface, 0% imp, HSG D
0.330	98	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.12: Wet Pond



Summary for Subcatchment 1.2: Lynn

[49] Hint: Tc<2dt may require smaller dt

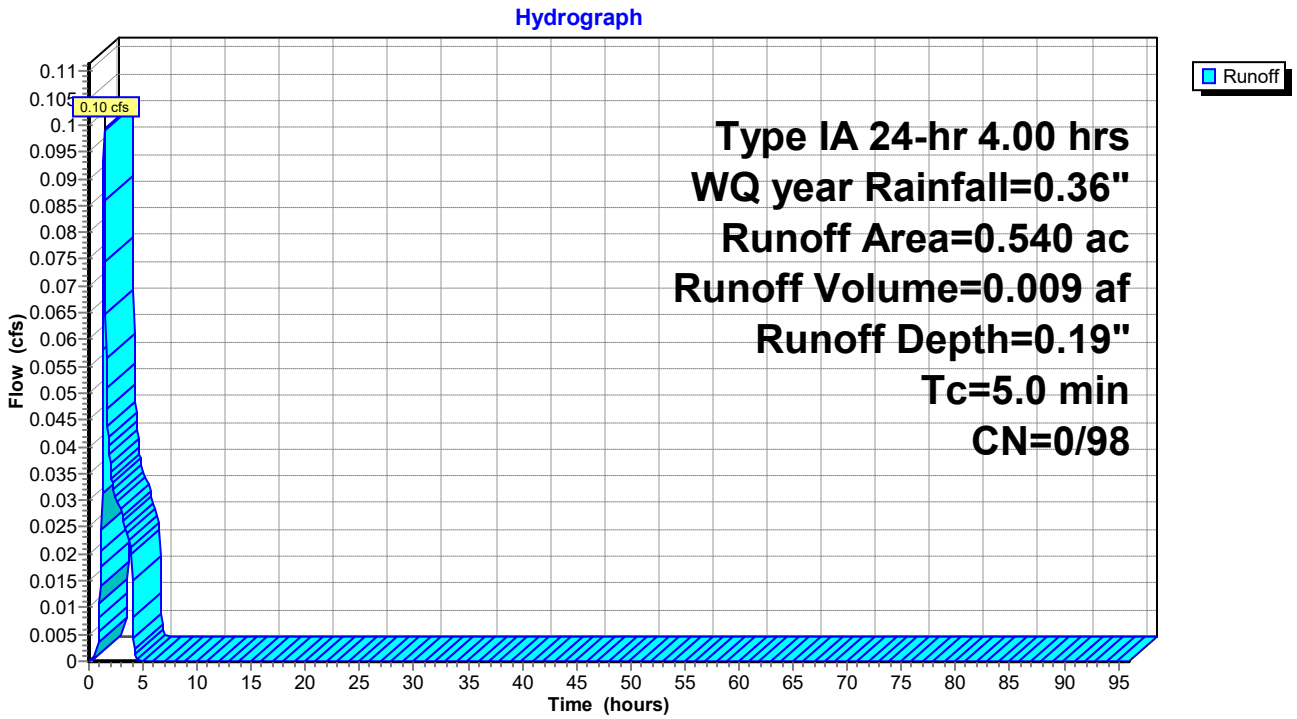
Runoff = 0.10 cfs @ 1.39 hrs, Volume= 0.009 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.540	98	Paved roads w/curbs & sewers, HSG D
0.540	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.2: Lynn



Summary for Subcatchment 1.3: E Parking + Pervious

[49] Hint: Tc<2dt may require smaller dt

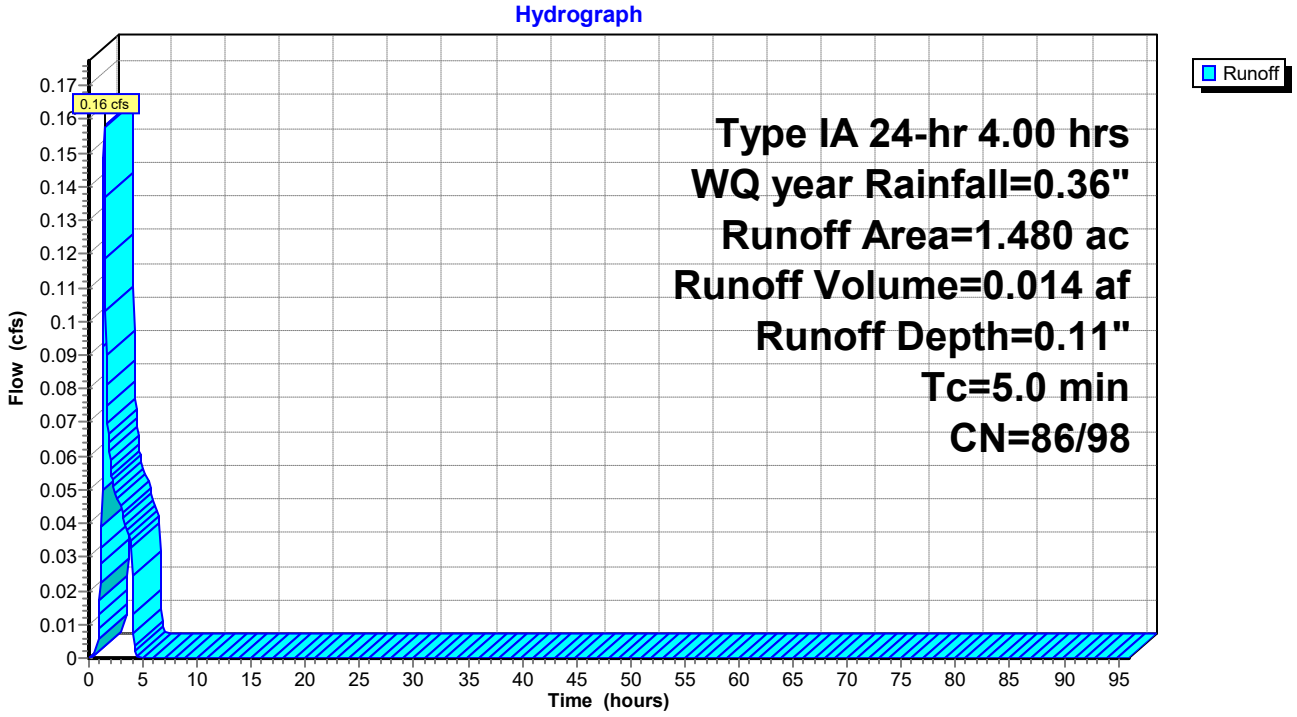
Runoff = 0.16 cfs @ 1.39 hrs, Volume= 0.014 af, Depth= 0.11"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.860	98	Paved parking, HSG D
0.410	80	>75% Grass cover, Good, HSG D
0.210	98	Water Surface, 0% imp, HSG D
1.480	93	Weighted Average
0.620	86	41.89% Pervious Area
0.860	98	58.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.3: E Parking + Pervious



Summary for Subcatchment 1.4: N Parking

[49] Hint: Tc<2dt may require smaller dt

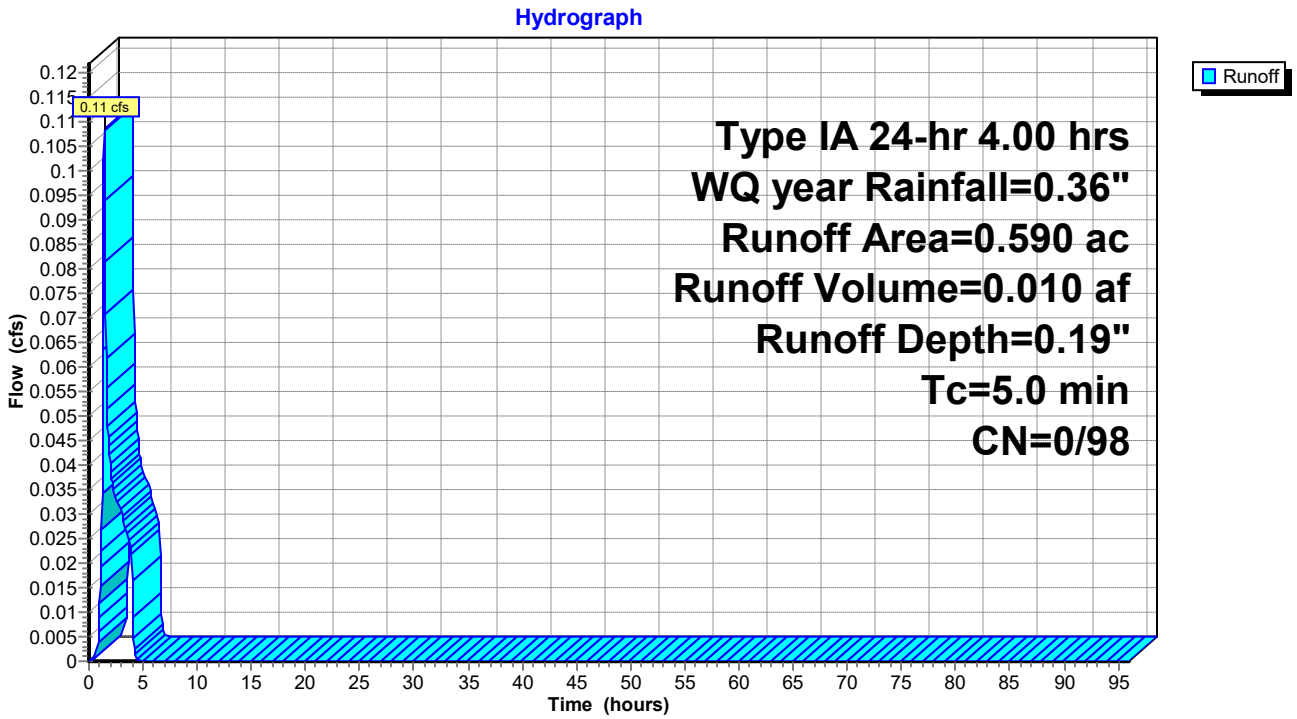
Runoff = 0.11 cfs @ 1.39 hrs, Volume= 0.010 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.590	98	Paved parking, HSG D
0.590	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.4: N Parking



Summary for Subcatchment 1.5: E Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

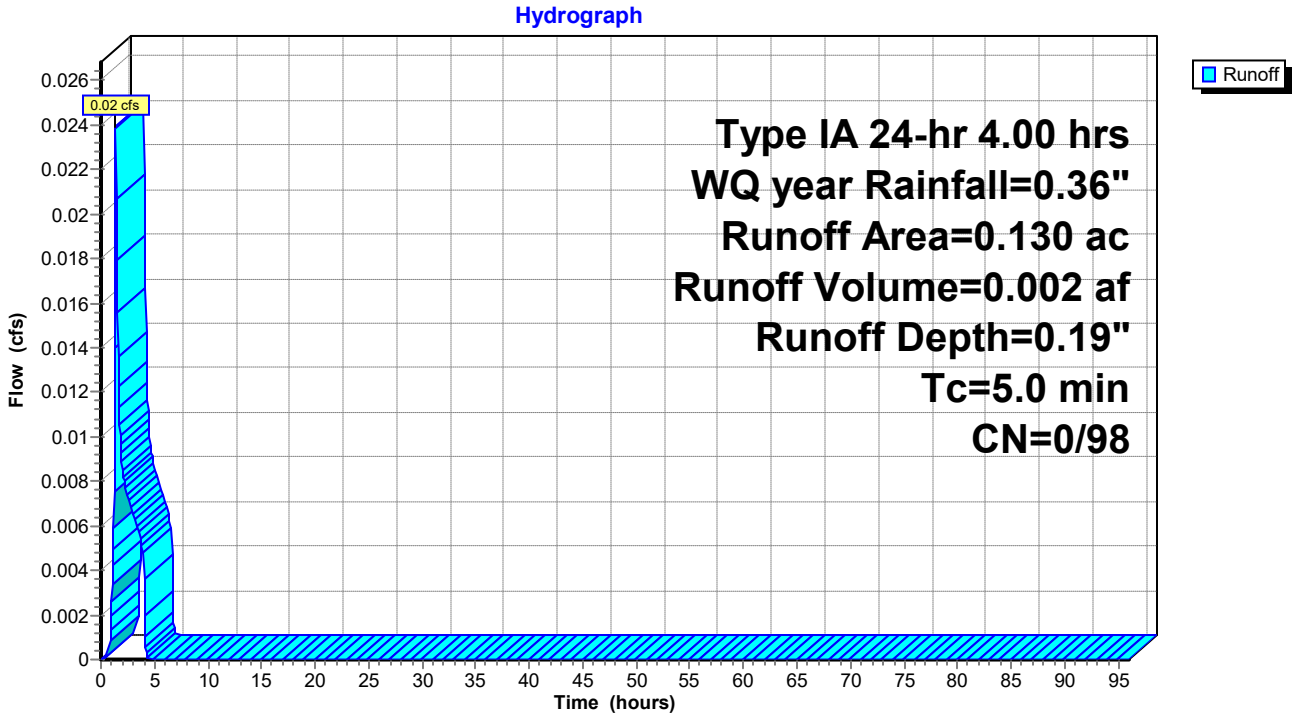
Runoff = 0.02 cfs @ 1.39 hrs, Volume= 0.002 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG D
0.130	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.5: E Leroy



Summary for Subcatchment 1.6: NE Leroy

Impervious Lynn Lane & Leroy

[49] Hint: Tc<2dt may require smaller dt

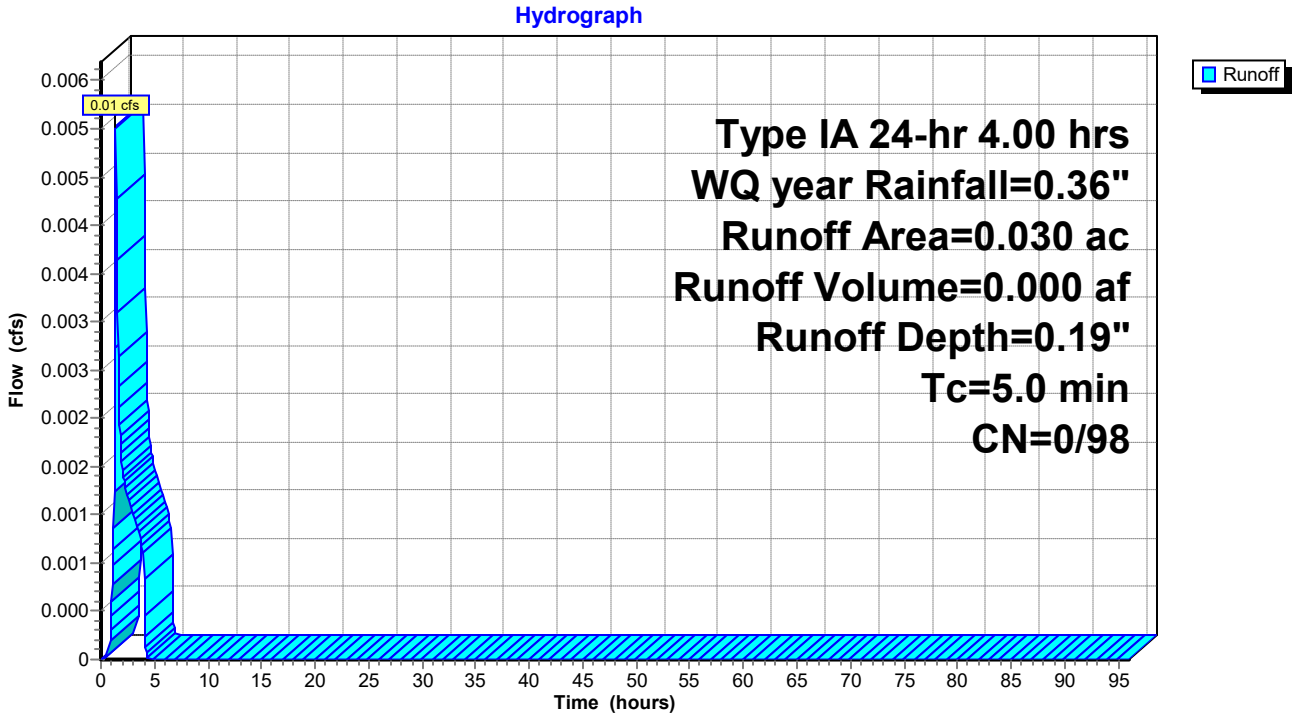
Runoff = 0.01 cfs @ 1.39 hrs, Volume= 0.000 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.6: NE Leroy



Summary for Subcatchment 1.7: NW Leroy

[49] Hint: Tc<2dt may require smaller dt

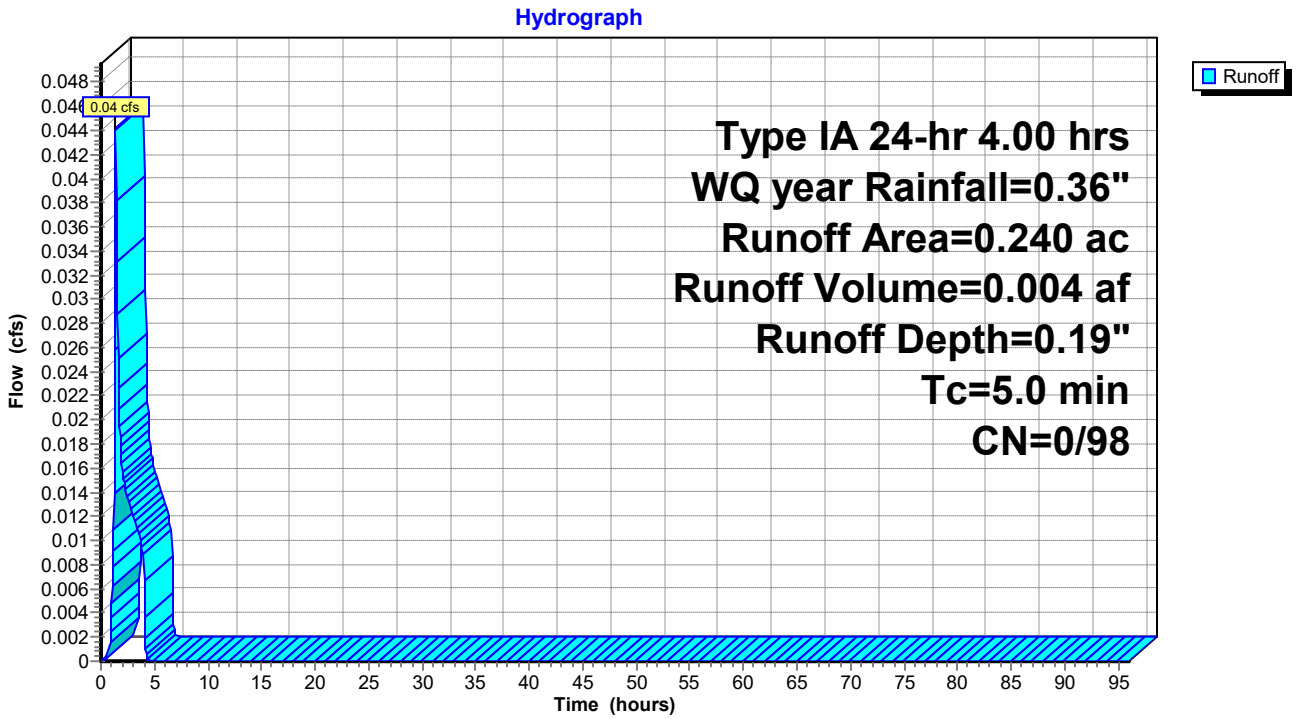
Runoff = 0.04 cfs @ 1.39 hrs, Volume= 0.004 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.7: NW Leroy



Summary for Subcatchment 1.8: S Parking

[49] Hint: Tc<2dt may require smaller dt

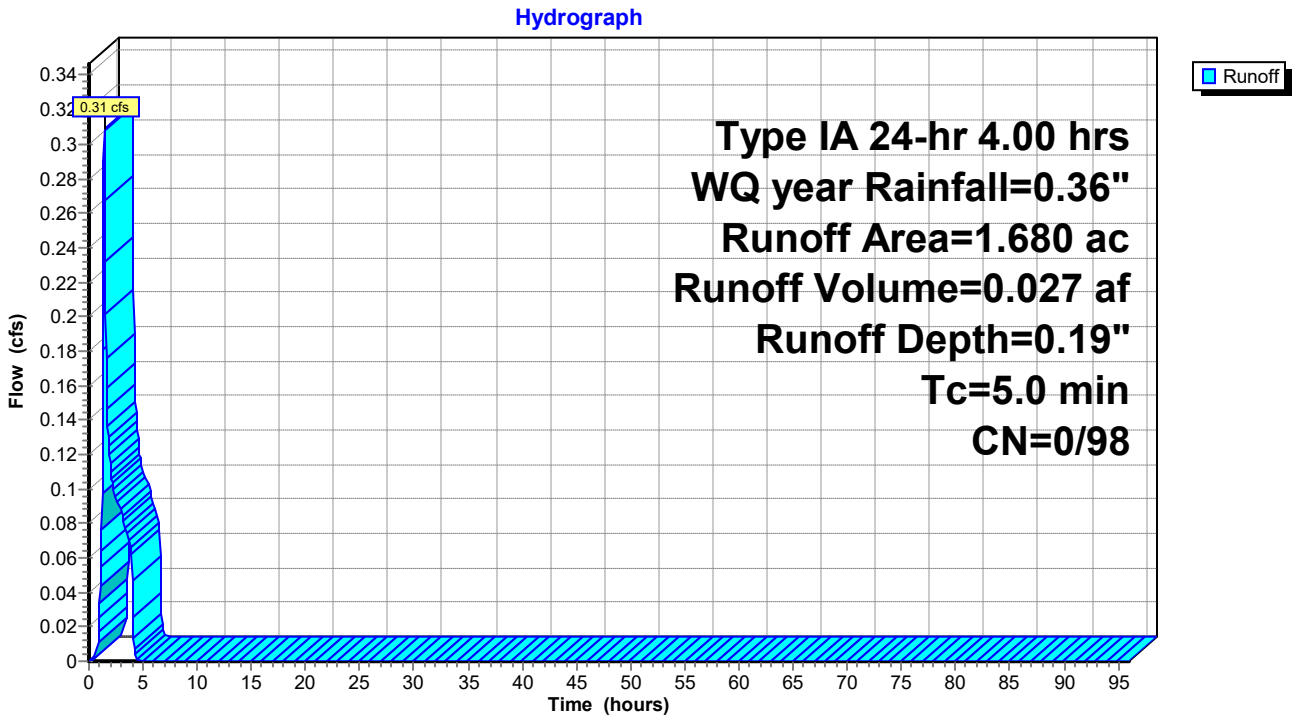
Runoff = 0.31 cfs @ 1.39 hrs, Volume= 0.027 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
1.680	98	Paved parking, HSG D
1.680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.8: S Parking



Summary for Subcatchment 1.9: Rec. Area

[49] Hint: Tc<2dt may require smaller dt

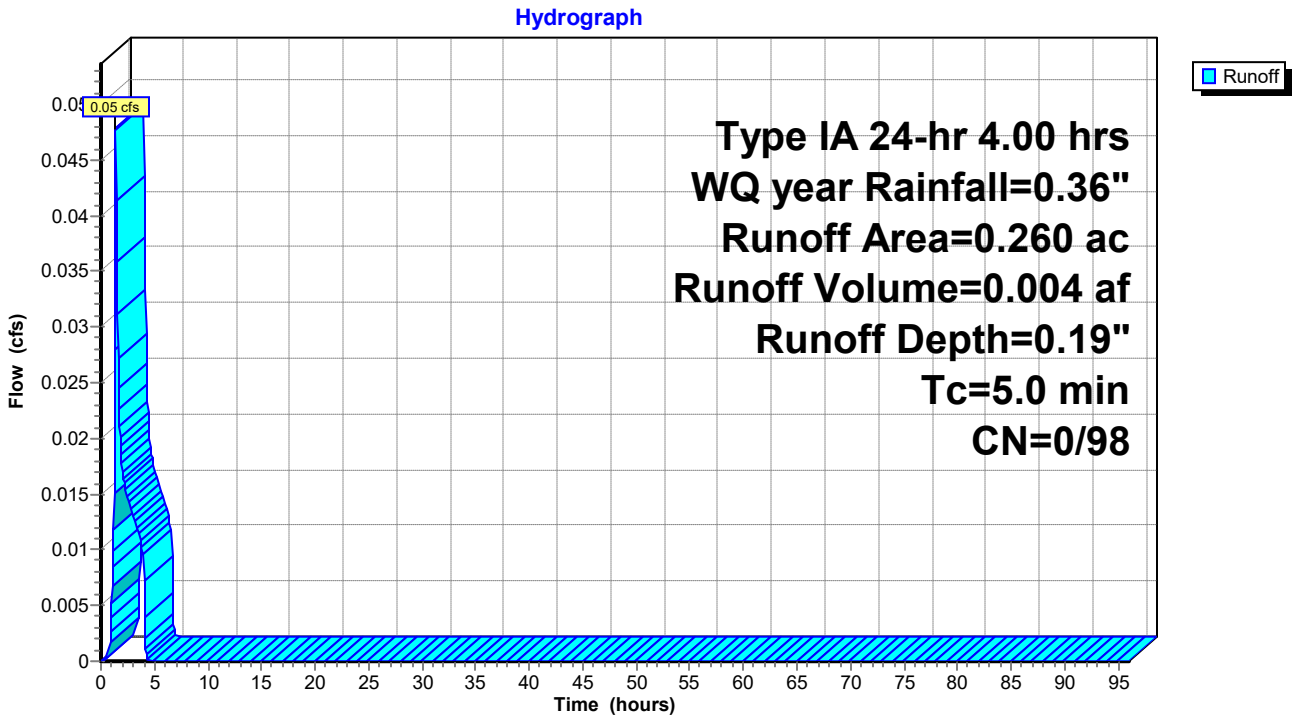
Runoff = 0.05 cfs @ 1.39 hrs, Volume= 0.004 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers, HSG D
0.260	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1.9: Rec. Area



Summary for Subcatchment 2: Post Developed - Basin 2

[49] Hint: Tc<2dt may require smaller dt

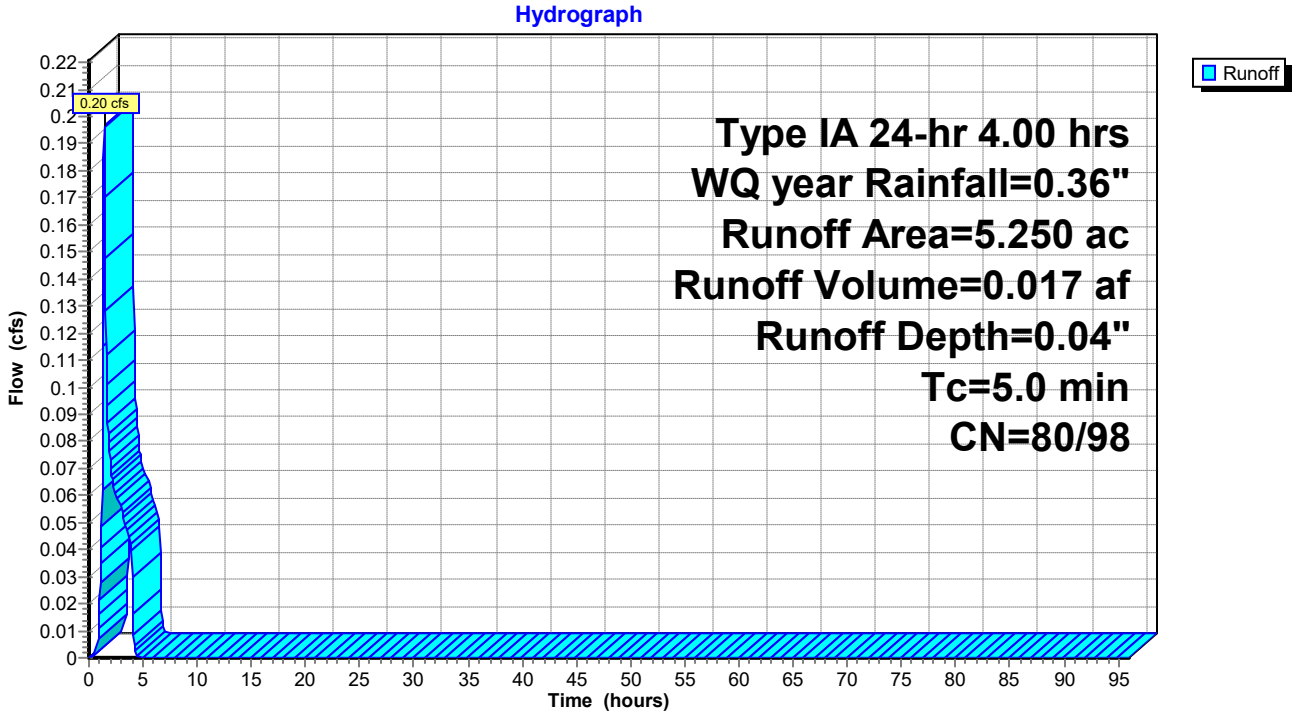
Runoff = 0.20 cfs @ 1.39 hrs, Volume= 0.017 af, Depth= 0.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
4.180	80	>75% Grass cover, Good, HSG D
1.070	98	Paved roads w/curbs & sewers, HSG D
5.250	84	Weighted Average
4.180	80	79.62% Pervious Area
1.070	98	20.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2: Post Developed - Basin 2



Summary for Subcatchment 2.1: NE West

[49] Hint: Tc<2dt may require smaller dt

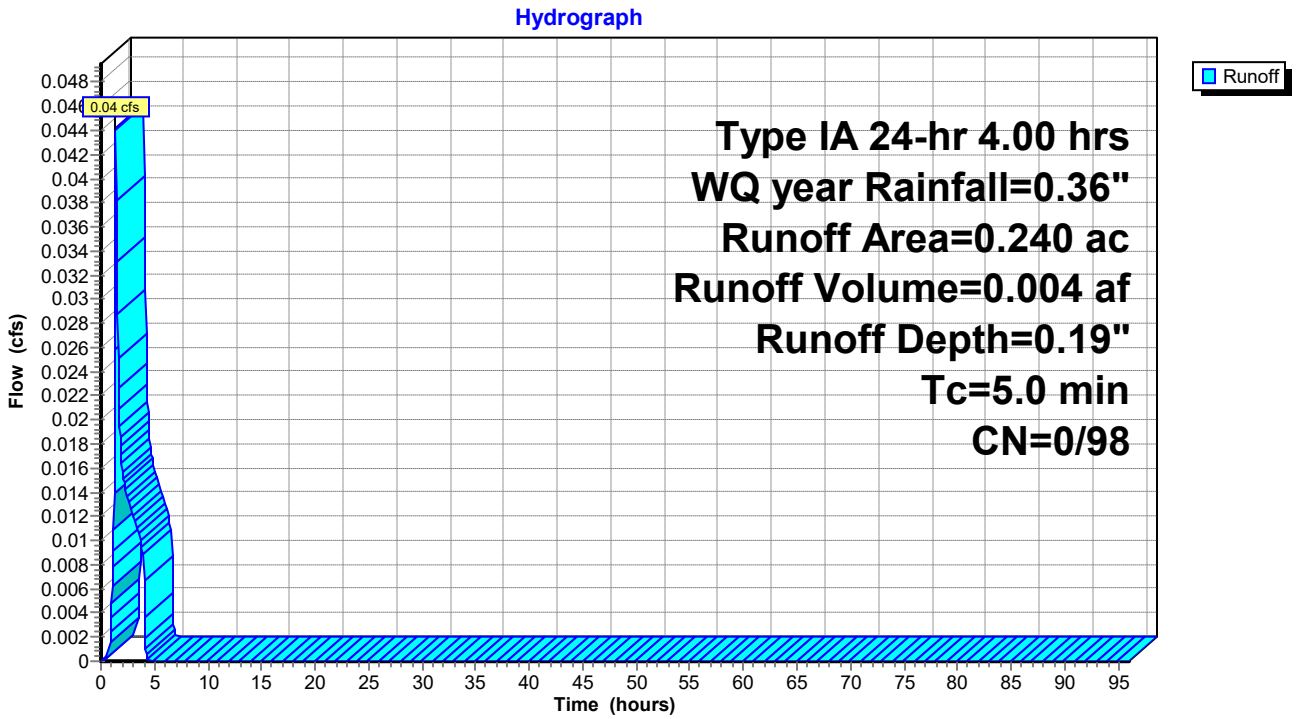
Runoff = 0.04 cfs @ 1.39 hrs, Volume= 0.004 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.1: NE West



Summary for Subcatchment 2.2: S Hezzie

[49] Hint: Tc<2dt may require smaller dt

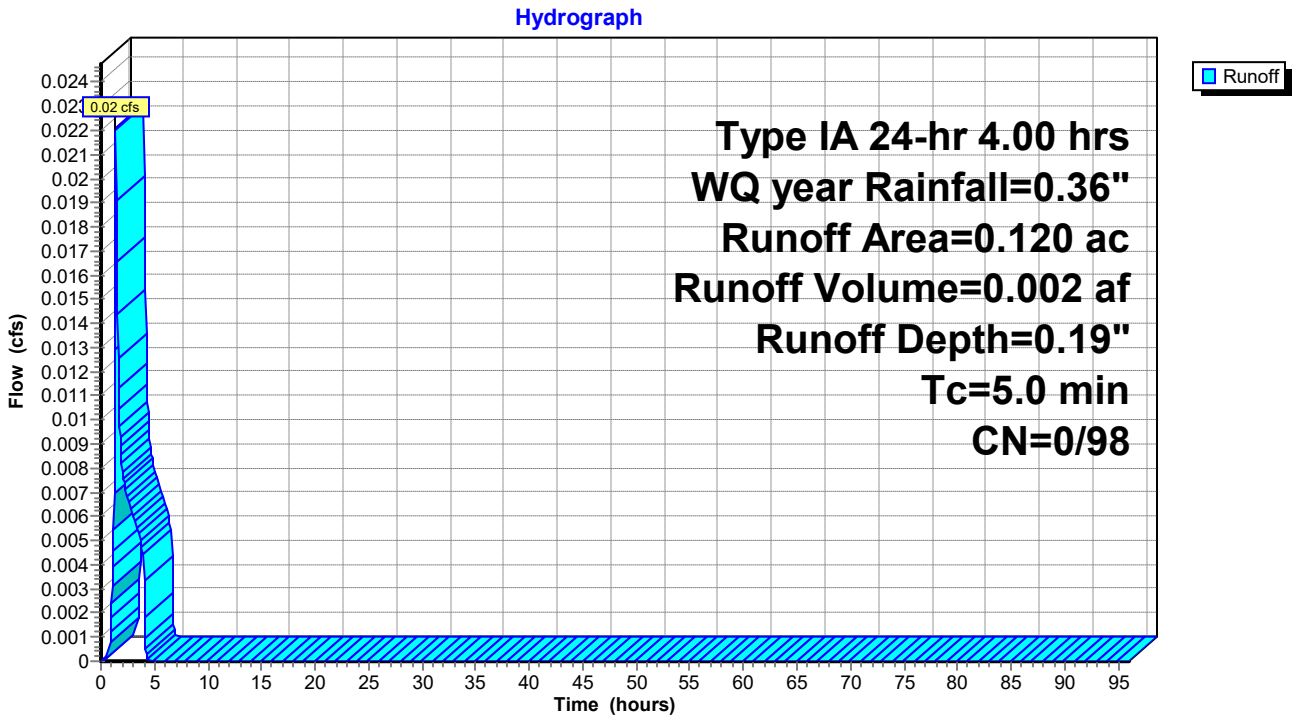
Runoff = 0.02 cfs @ 1.39 hrs, Volume= 0.002 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.120	98	Paved roads w/curbs & sewers, HSG D
0.120	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.2: S Hezzie



Summary for Subcatchment 2.3: NW West

[49] Hint: Tc<2dt may require smaller dt

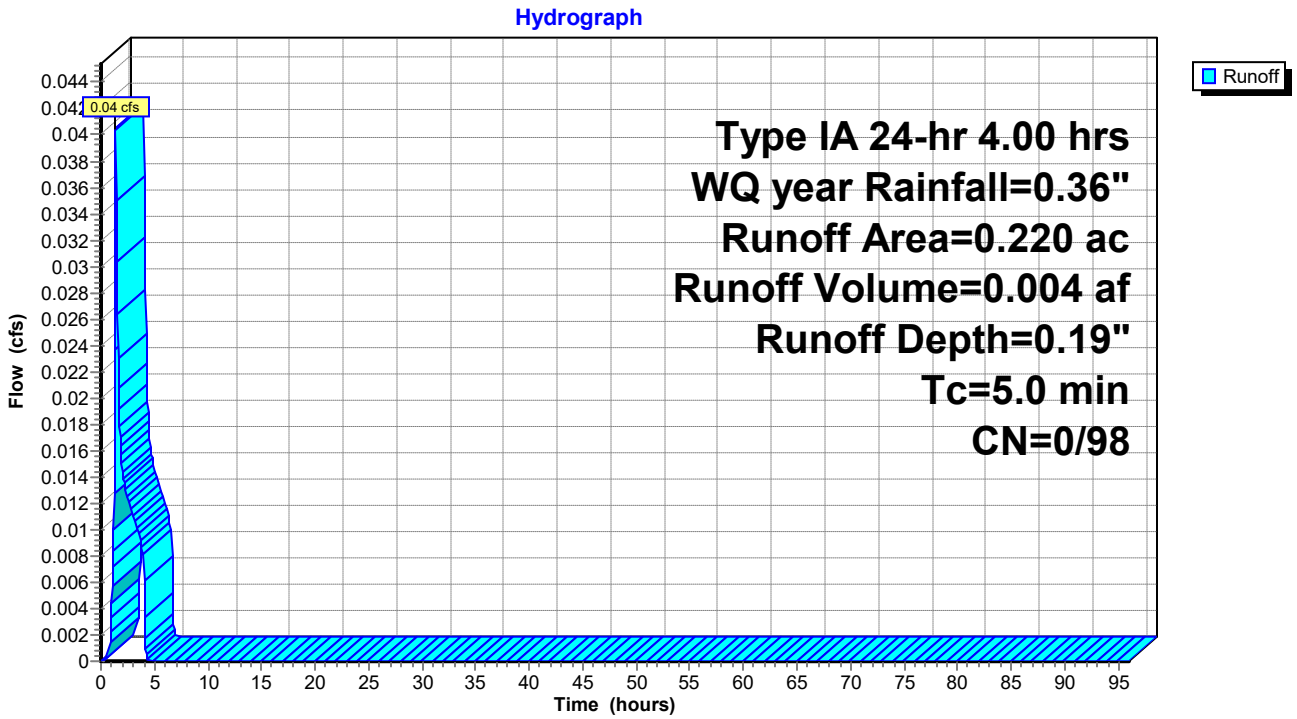
Runoff = 0.04 cfs @ 1.39 hrs, Volume= 0.004 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.220	98	Paved roads w/curbs & sewers, HSG D
0.220	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.3: NW West



Summary for Subcatchment 2.4: SW West

[49] Hint: Tc<2dt may require smaller dt

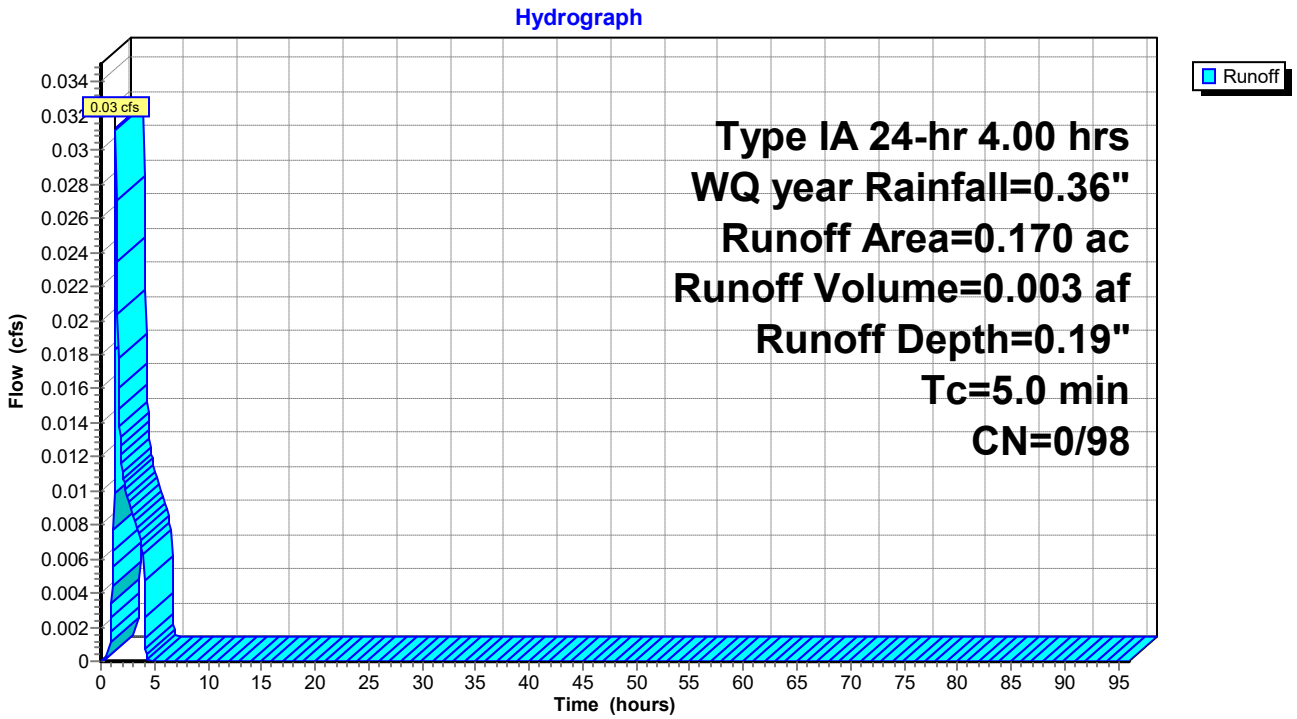
Runoff = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers, HSG D
0.170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.4: SW West



Summary for Subcatchment 2.5: SE West

[49] Hint: Tc<2dt may require smaller dt

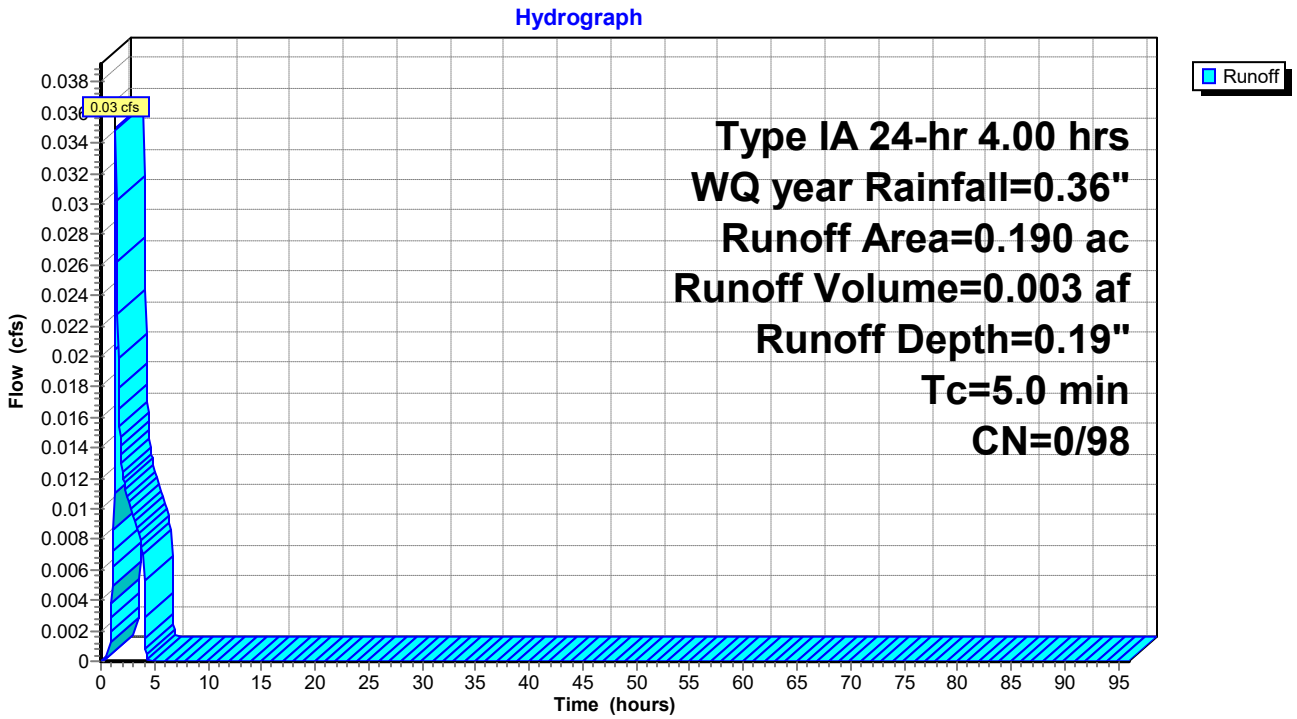
Runoff = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers, HSG D
0.190	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.5: SE West



Summary for Subcatchment 2.6: SE Leroy

[49] Hint: Tc<2dt may require smaller dt

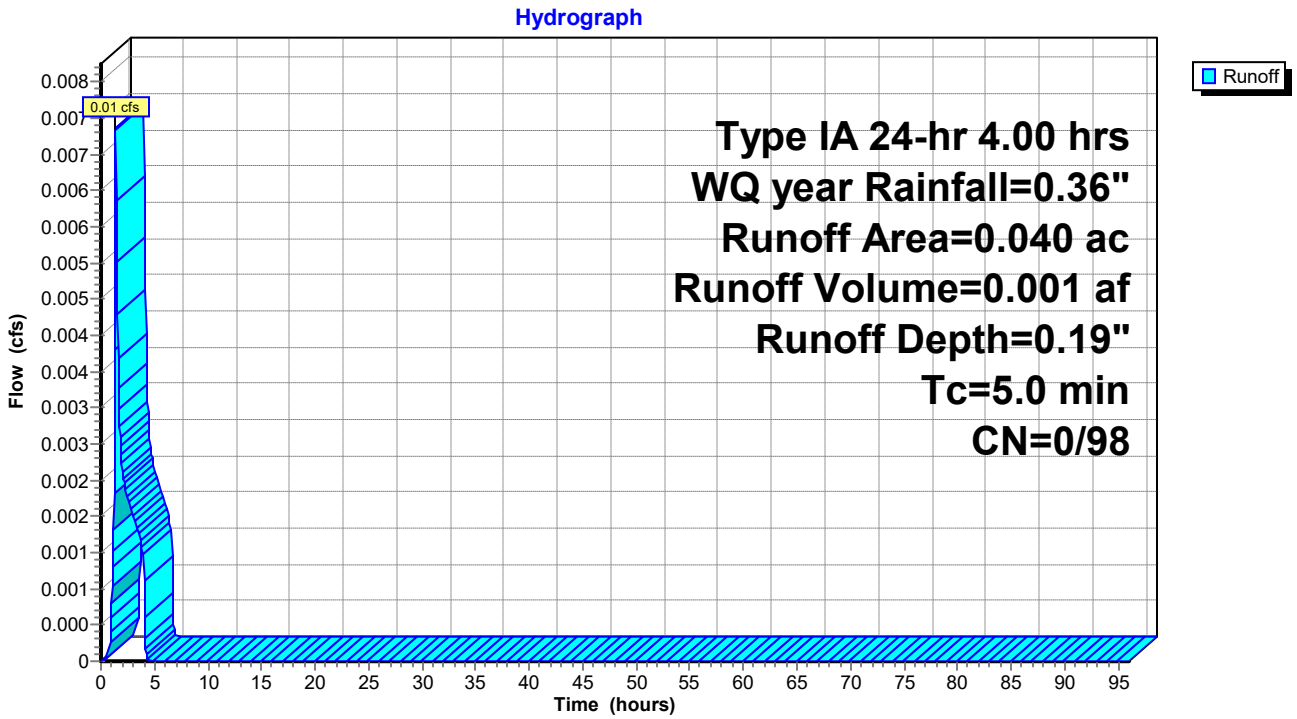
Runoff = 0.01 cfs @ 1.39 hrs, Volume= 0.001 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers, HSG D
0.040	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.6: SE Leroy



Summary for Subcatchment 2.7: SW Leroy

[49] Hint: Tc<2dt may require smaller dt

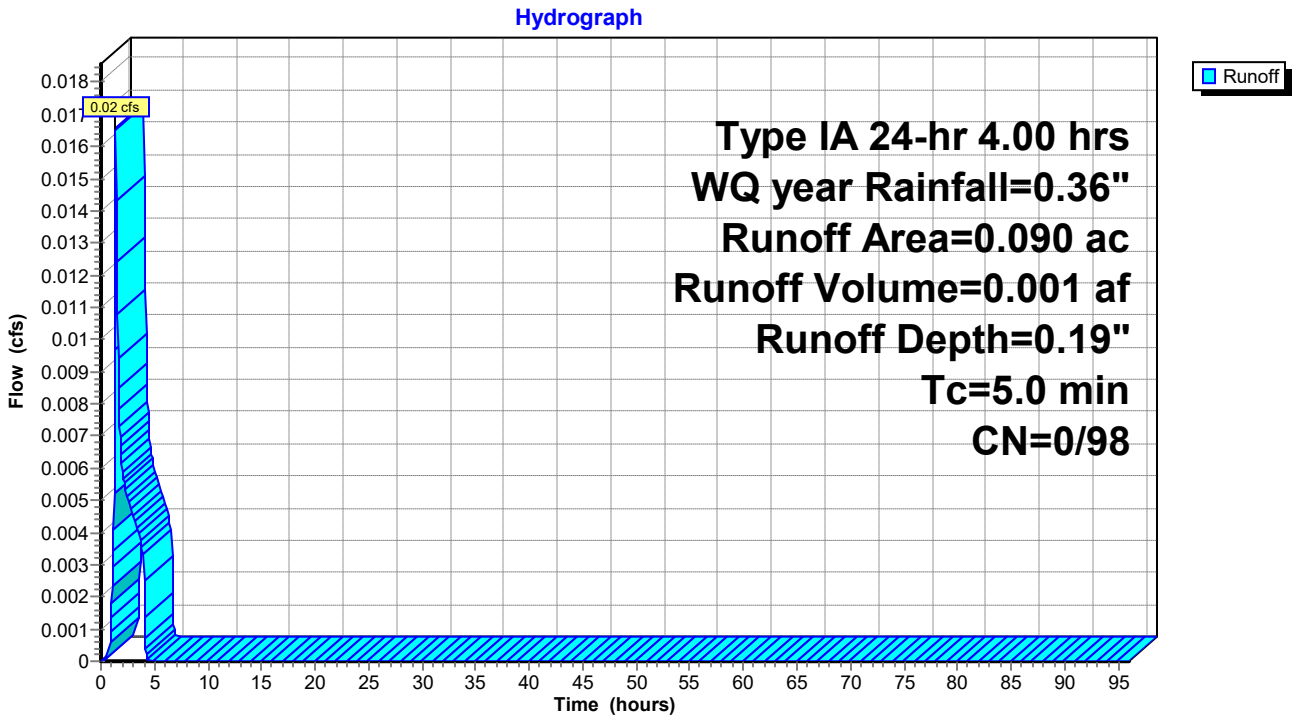
Runoff = 0.02 cfs @ 1.39 hrs, Volume= 0.001 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers, HSG D
0.090	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.7: SW Leroy



Summary for Subcatchment 2.8: Pervious West

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

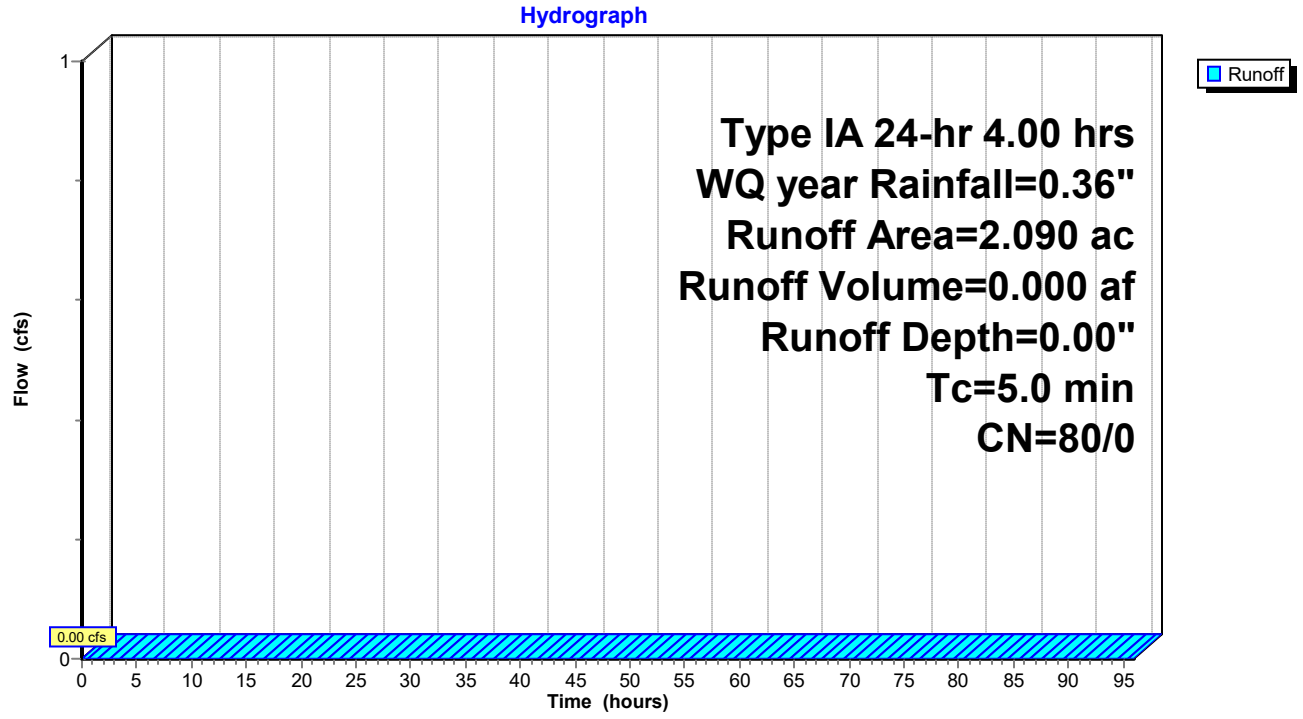
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.8: Pervious West



Summary for Subcatchment 2.9: Pervious East

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

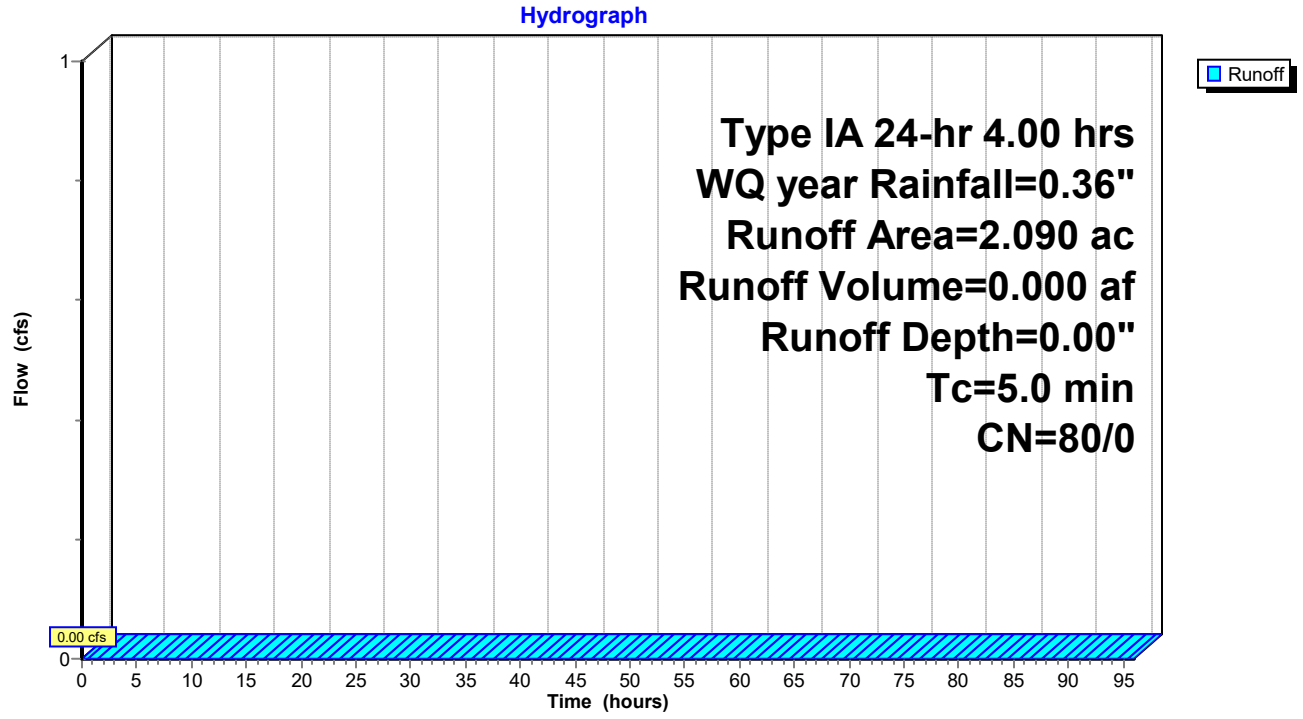
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
2.090	80	>75% Grass cover, Good, HSG D
2.090	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2.9: Pervious East



Summary for Subcatchment 3.1: SW Parking + Pervious - Basin 3

[49] Hint: Tc<2dt may require smaller dt

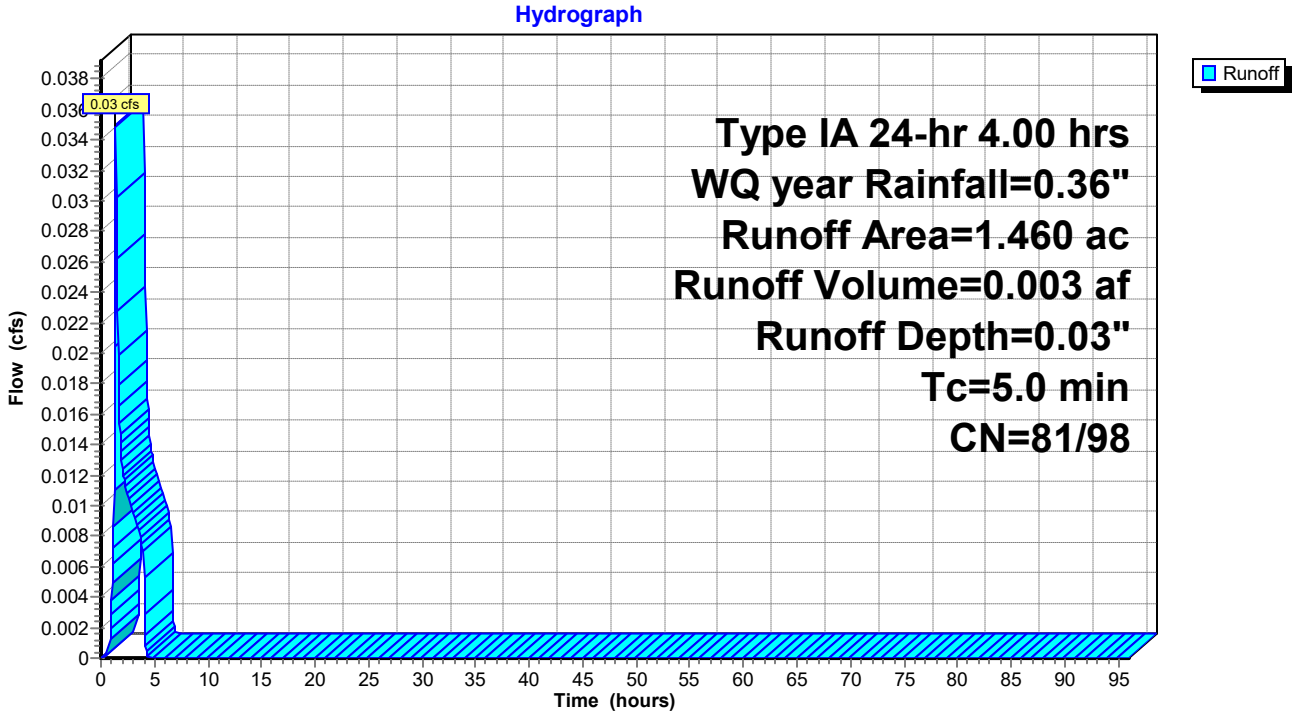
Runoff = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af, Depth= 0.03"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
1.190	80	>75% Grass cover, Good, HSG D
0.190	98	Paved parking, HSG D
0.080	98	Water Surface, 0% imp, HSG D
1.460	83	Weighted Average
1.270	81	86.99% Pervious Area
0.190	98	13.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.1: SW Parking + Pervious - Basin 3



Summary for Subcatchment 3.2: N Hezzie

[49] Hint: Tc<2dt may require smaller dt

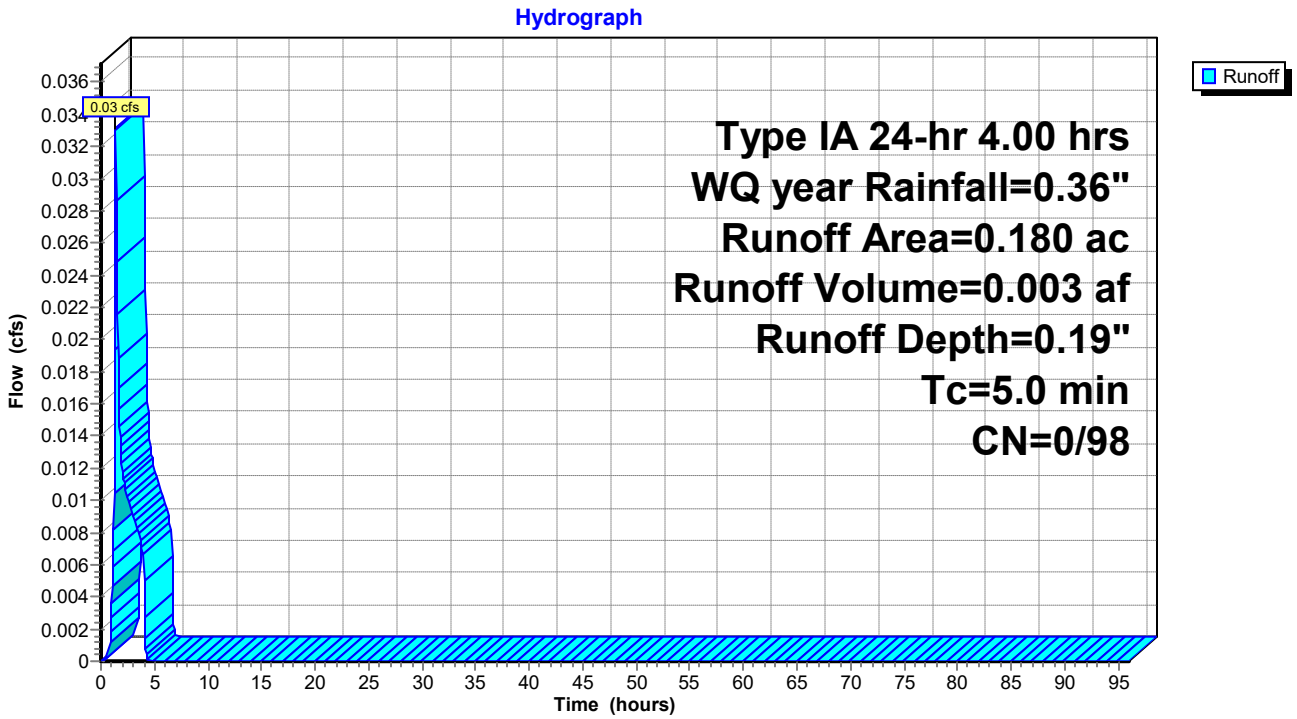
Runoff = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af, Depth= 0.19"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type IA 24-hr 4.00 hrs WQ year Rainfall=0.36"

Area (ac)	CN	Description
0.180	98	Paved roads w/curbs & sewers, HSG D
0.180	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3.2: N Hezzie



Summary for Reach 2.1R: 12" outfall (West)

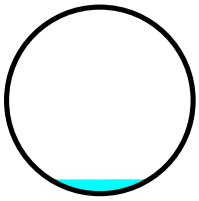
[52] Hint: Inlet/Outlet conditions not evaluated

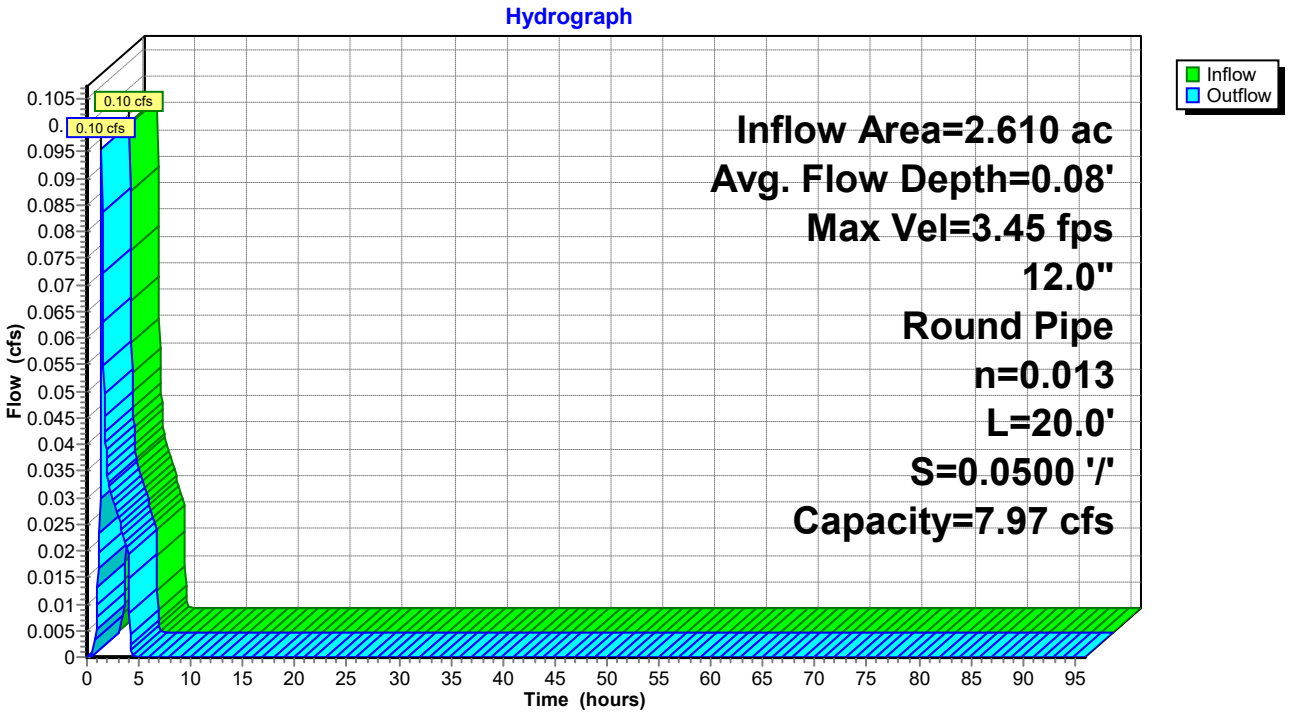
Inflow Area = 2.610 ac, 19.92% Impervious, Inflow Depth = 0.04" for WQ year event
Inflow = 0.10 cfs @ 1.39 hrs, Volume= 0.008 af
Outflow = 0.10 cfs @ 1.39 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.45 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.19 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 1.39 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





Summary for Reach 2.2R: 12" outfall (Hezzie)

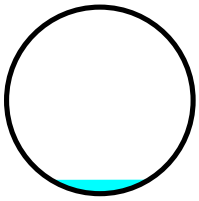
[52] Hint: Inlet/Outlet conditions not evaluated

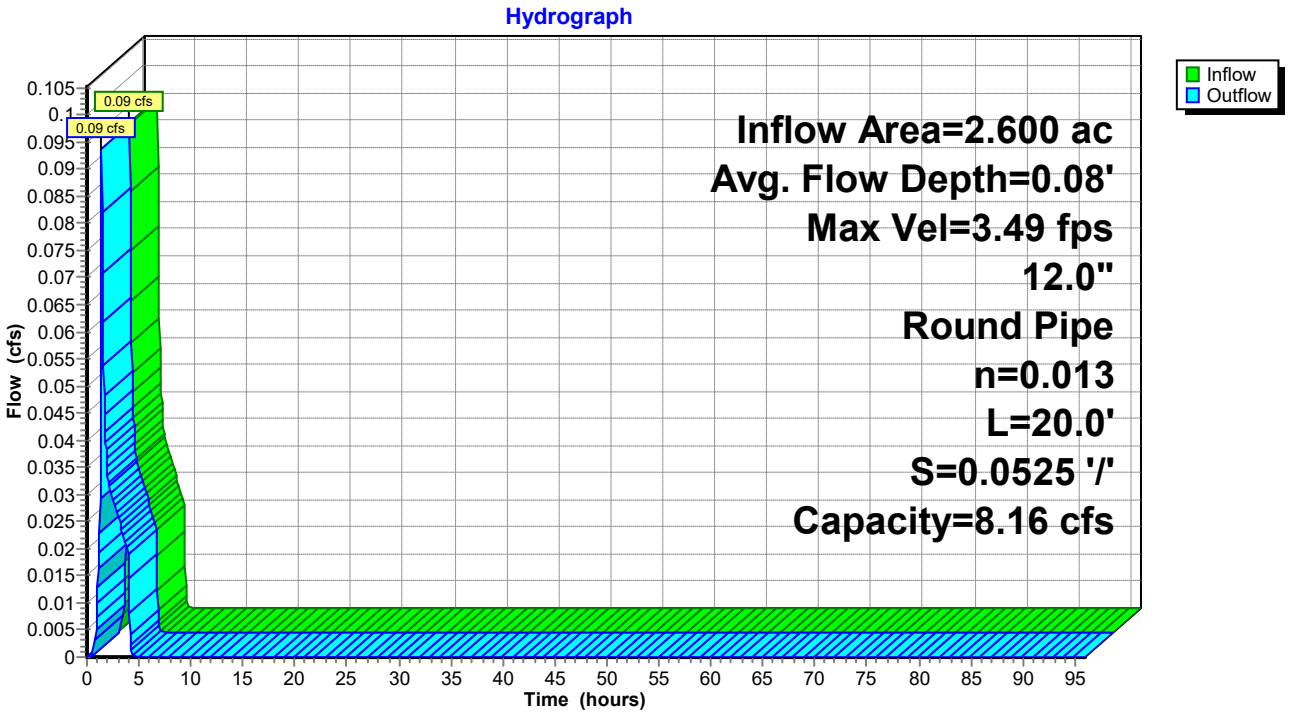
Inflow Area = 2.600 ac, 19.62% Impervious, Inflow Depth = 0.04" for WQ year event
Inflow = 0.09 cfs @ 1.39 hrs, Volume= 0.008 af
Outflow = 0.09 cfs @ 1.39 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.49 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 1.39 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.16 cfs

12.0" Round Pipe
n= 0.013
Length= 20.0' Slope= 0.0525 '/'
Inlet Invert= 1.05', Outlet Invert= 0.00'





Summary for Reach 3R: To Ex. MH (Hezzie & North Valley)

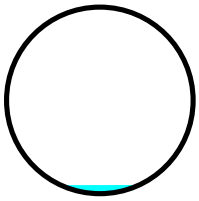
[52] Hint: Inlet/Outlet conditions not evaluated

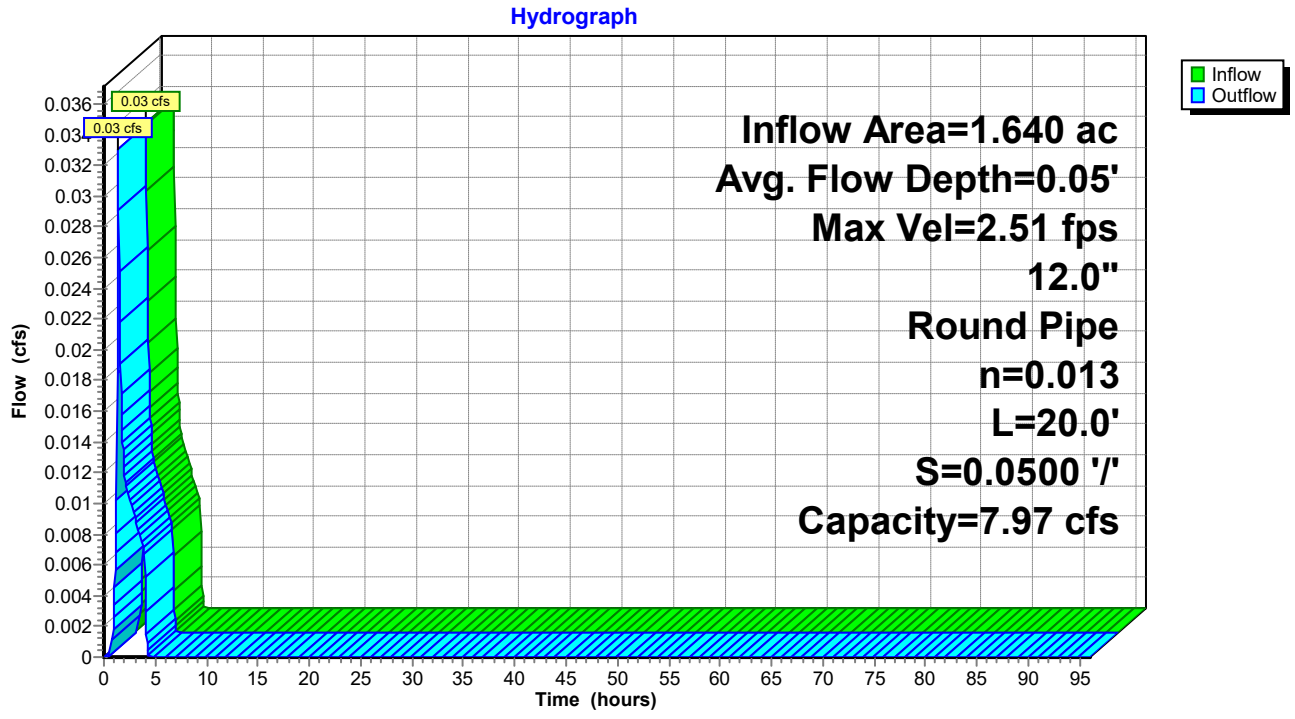
Inflow Area = 1.640 ac, 22.56% Impervious, Inflow Depth = 0.02" for WQ year event
Inflow = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af
Outflow = 0.03 cfs @ 1.40 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.51 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.2 min

Peak Storage= 0 cf @ 1.39 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.97 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0500 '/'
Inlet Invert= 1.00', Outlet Invert= 0.00'





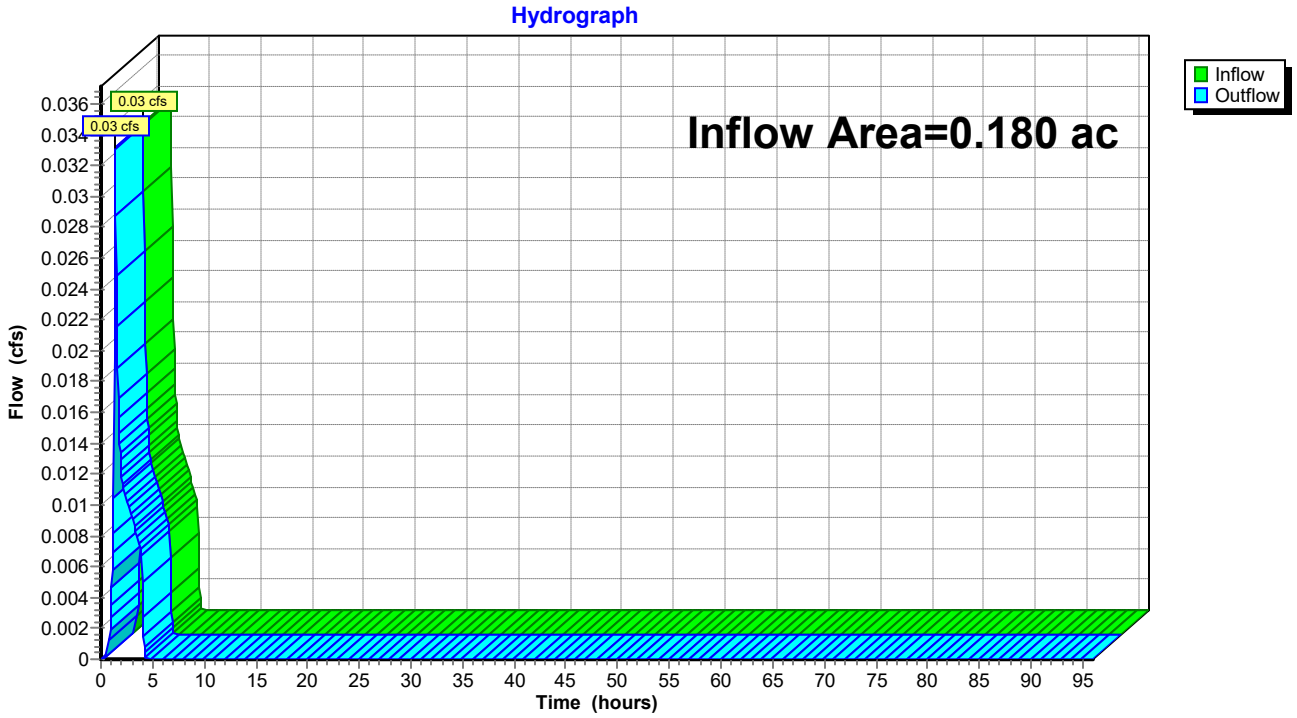
Summary for Reach C14: Filter CB 11

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af
Outflow = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C14: Filter CB 11



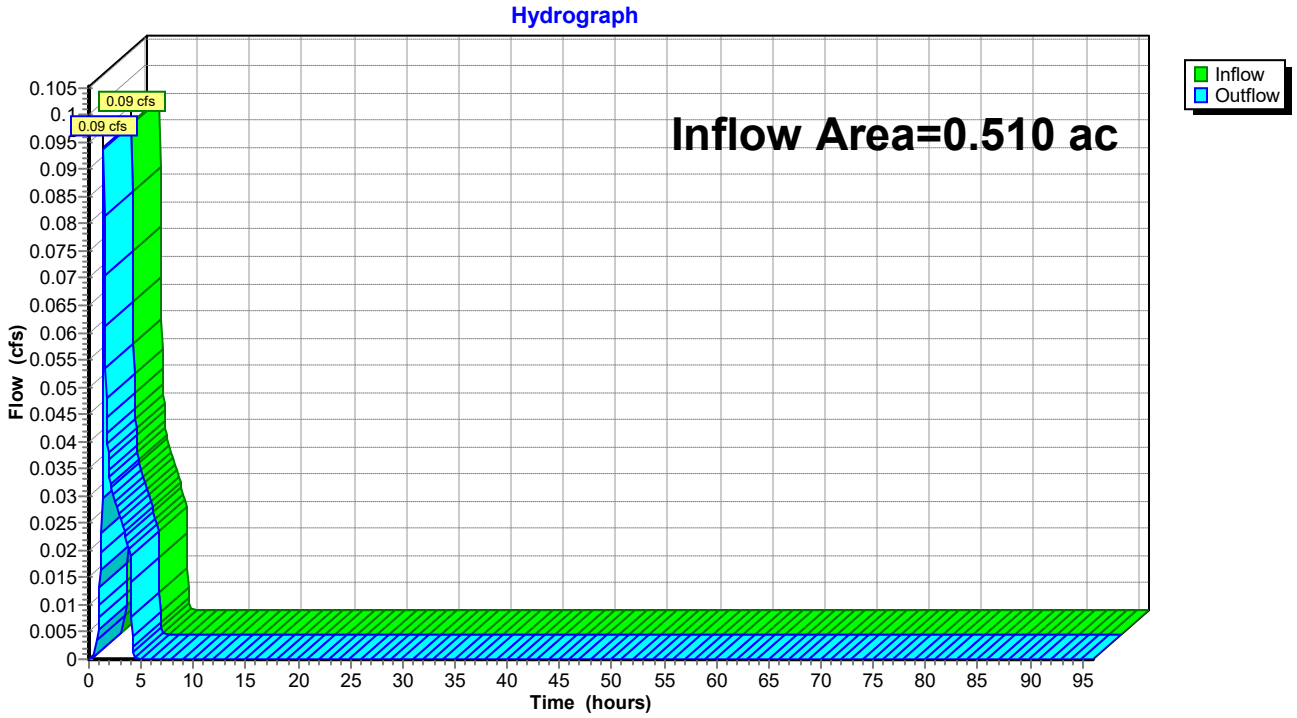
Summary for Reach C15: Filter CB 12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.510 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.09 cfs @ 1.39 hrs, Volume= 0.008 af
Outflow = 0.09 cfs @ 1.39 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C15: Filter CB 12



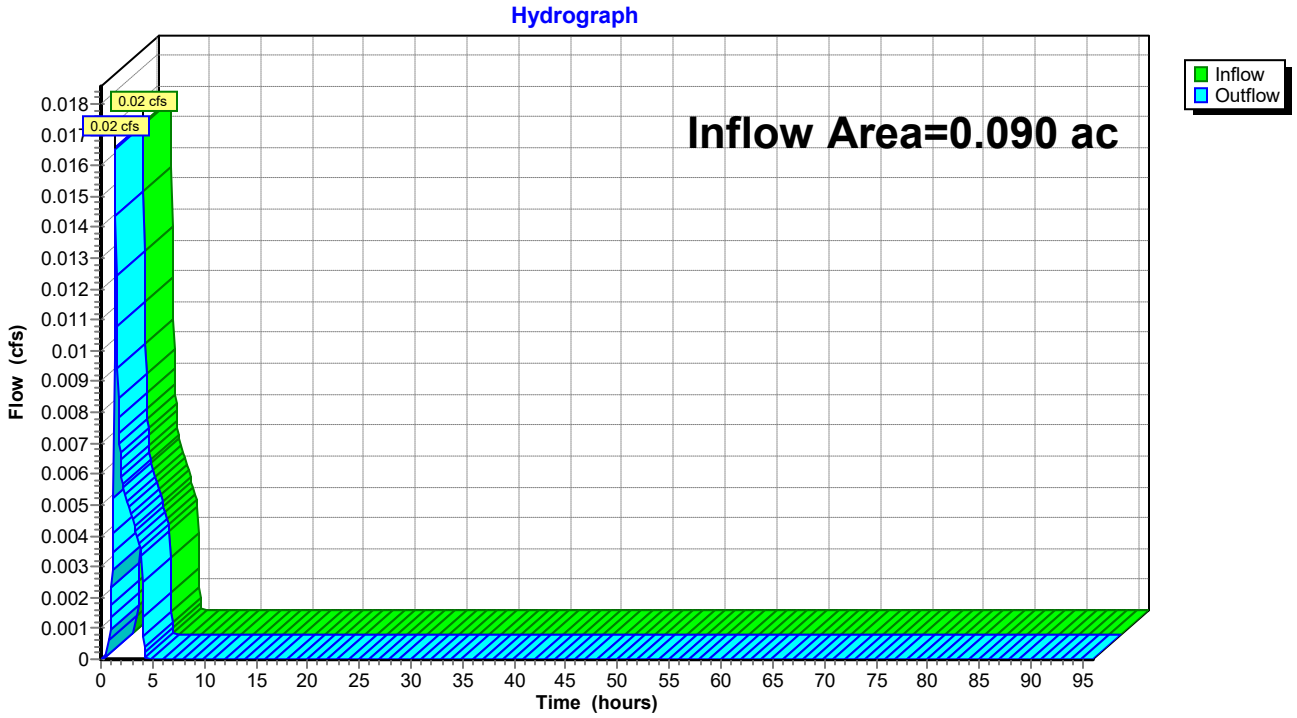
Summary for Reach C16: Filter CB 14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.02 cfs @ 1.39 hrs, Volume= 0.001 af
Outflow = 0.02 cfs @ 1.39 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C16: Filter CB 14



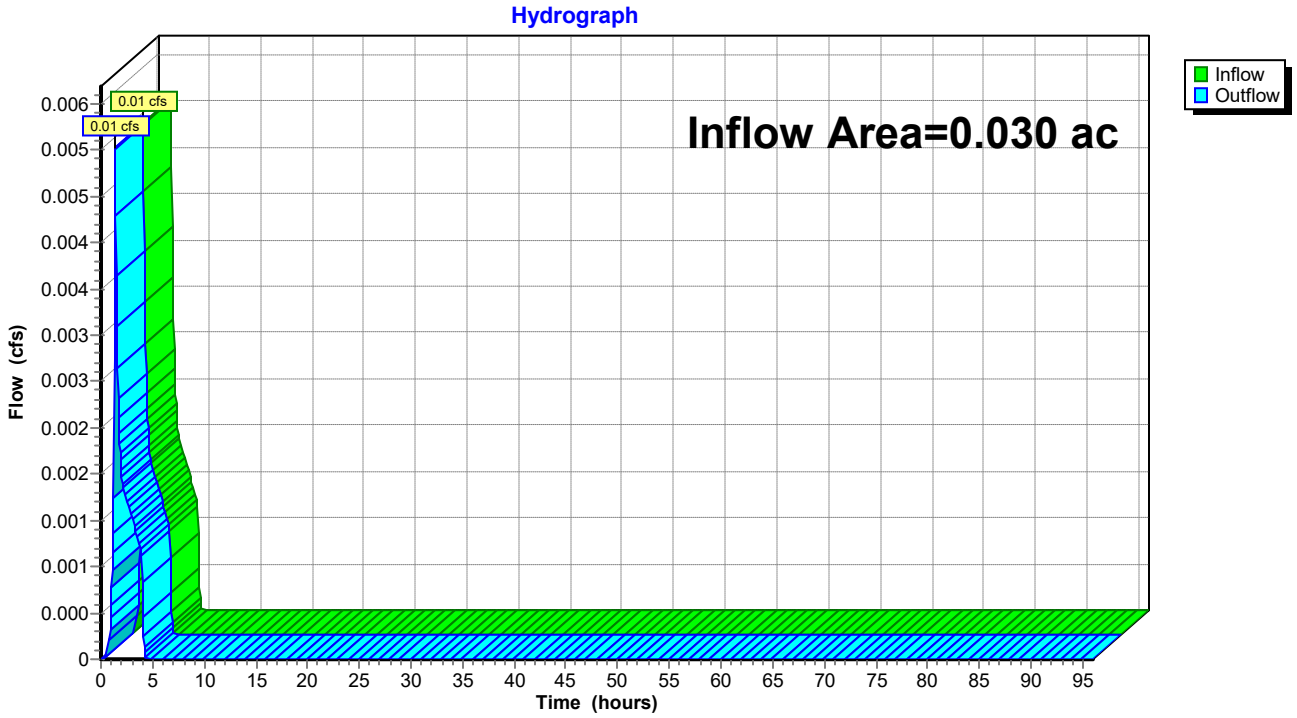
Summary for Reach C17: Filter CB 15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.030 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.01 cfs @ 1.39 hrs, Volume= 0.000 af
Outflow = 0.01 cfs @ 1.39 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C17: Filter CB 15



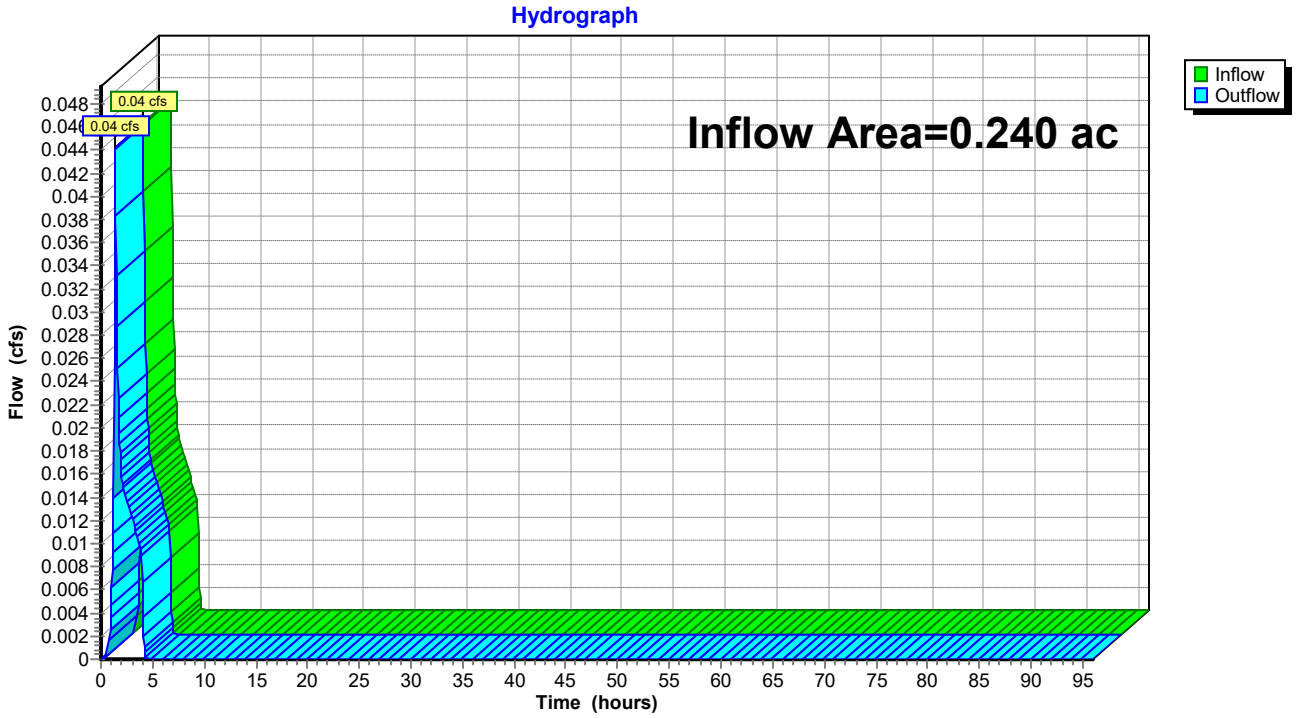
Summary for Reach C18: Filter CB 16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.240 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.04 cfs @ 1.39 hrs, Volume= 0.004 af
Outflow = 0.04 cfs @ 1.39 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C18: Filter CB 16



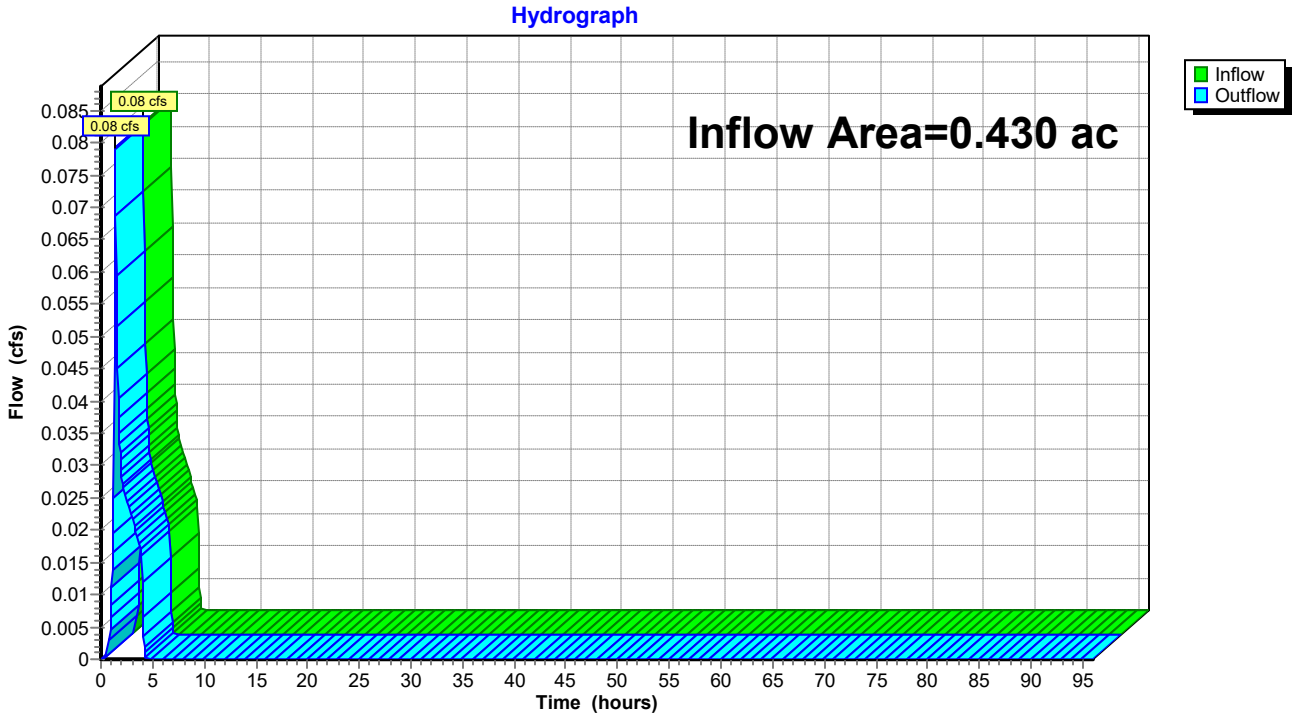
Summary for Reach C19: Filter CB 17

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.430 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.08 cfs @ 1.39 hrs, Volume= 0.007 af
Outflow = 0.08 cfs @ 1.39 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C19: Filter CB 17



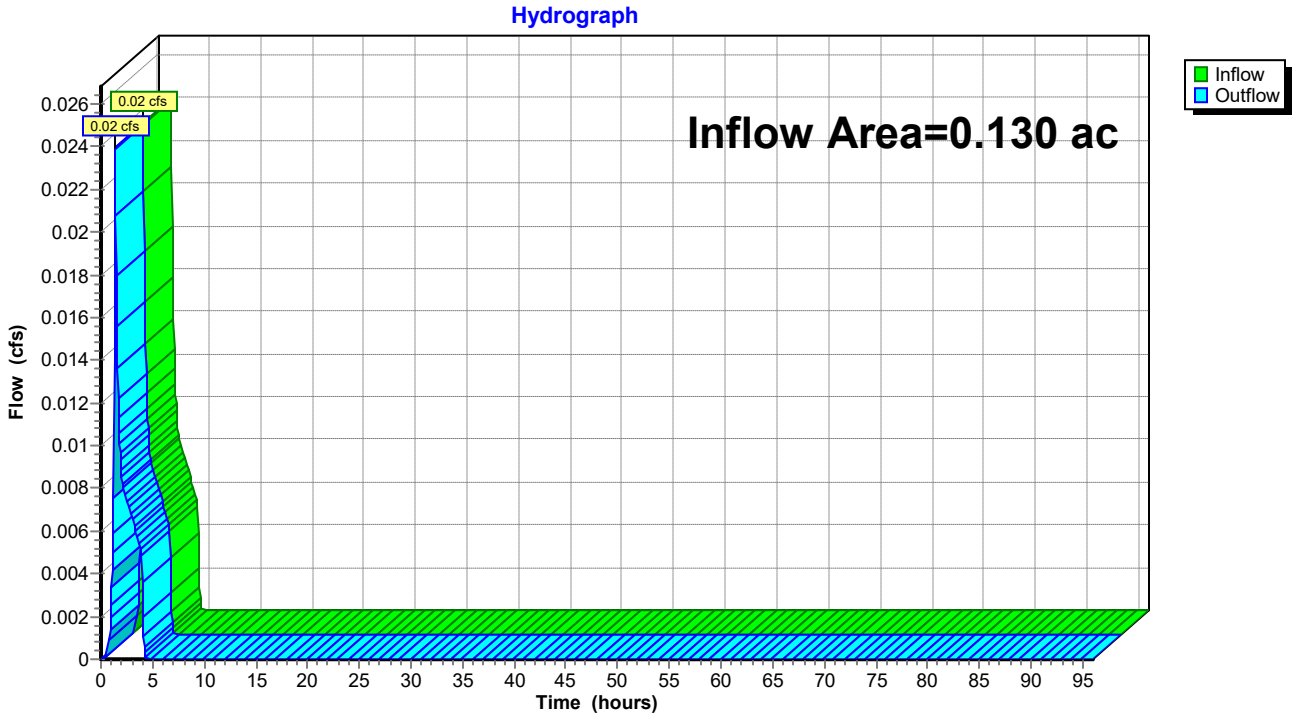
Summary for Reach C20: Filter CB 18

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.130 ac,100.00% Impervious, Inflow Depth = 0.19" for WQ year event
Inflow = 0.02 cfs @ 1.39 hrs, Volume= 0.002 af
Outflow = 0.02 cfs @ 1.39 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach C20: Filter CB 18



Summary for Pond 6P: Wet Pond- Basin 1

Inflow Area = 13.140 ac, 46.04% Impervious, Inflow Depth = 0.09" for WQ year event
Inflow = 1.18 cfs @ 1.39 hrs, Volume= 0.104 af
Outflow = 0.26 cfs @ 3.73 hrs, Volume= 0.103 af, Atten= 78%, Lag= 140.5 min
Primary = 0.26 cfs @ 3.73 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Starting Elev= 340.66' Surf.Area= 0.163 ac Storage= 0.100 af
Peak Elev= 341.00' @ 3.73 hrs Surf.Area= 0.175 ac Storage= 0.158 af (0.058 af above start)

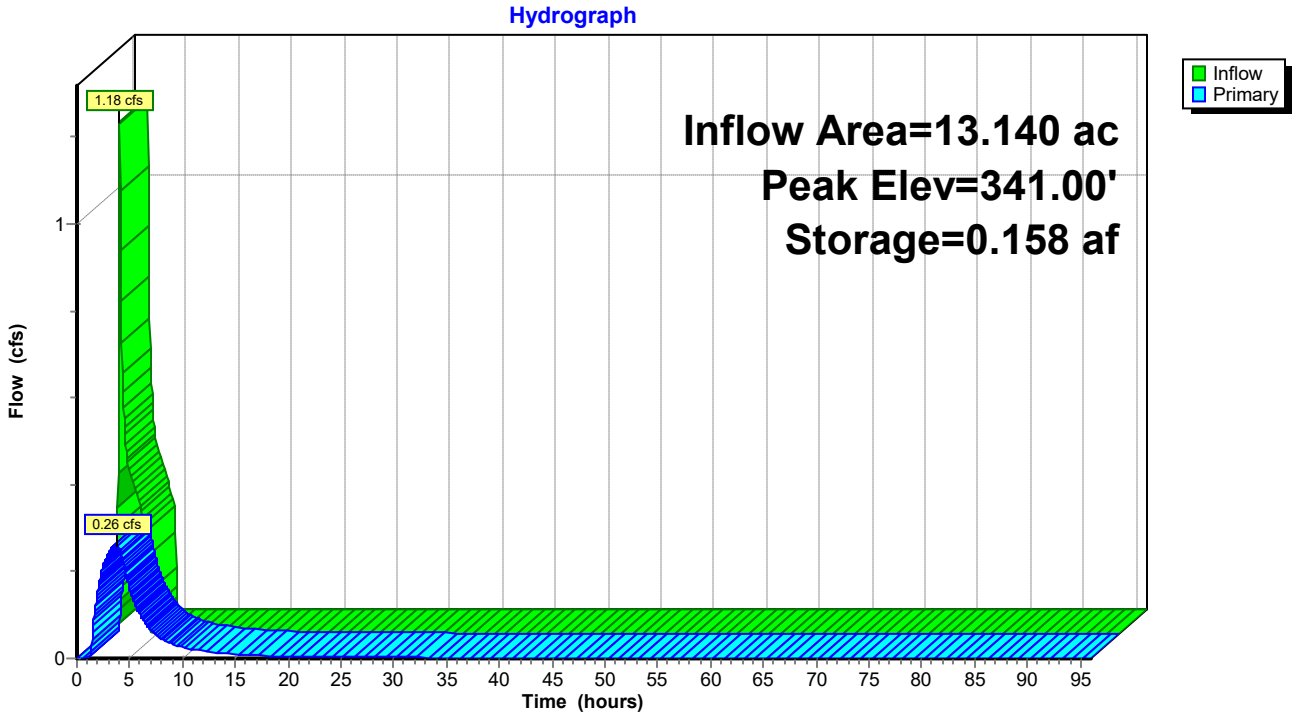
Plug-Flow detention time= 2,654.6 min calculated for 0.003 af (3% of inflow)
Center-of-Mass det. time= 286.5 min (423.5 - 137.0)

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	1.179 af	**45.00'W x 136.00'L x 5.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices		
#1	Primary	340.66'	**5.4" Vert. Orifice/Grate**	C= 0.600	
#2	Primary	342.88'	**7.9" Vert. Orifice/Grate**	C= 0.600	
#3	Primary	343.62'	**4.9" Vert. Orifice/Grate**	C= 0.600	
#4	Primary	344.00'	**8.0" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.26 cfs @ 3.73 hrs HW=341.00' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.26 cfs @ 1.99 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Wet Pond- Basin 1



Summary for Pond P1: Planter 1

Inflow Area = 1.480 ac, 58.11% Impervious, Inflow Depth = 0.11" for WQ year event
Inflow = 0.16 cfs @ 1.39 hrs, Volume= 0.014 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 346.61' @ 6.05 hrs Surf.Area= 0.134 ac Storage= 0.014 af

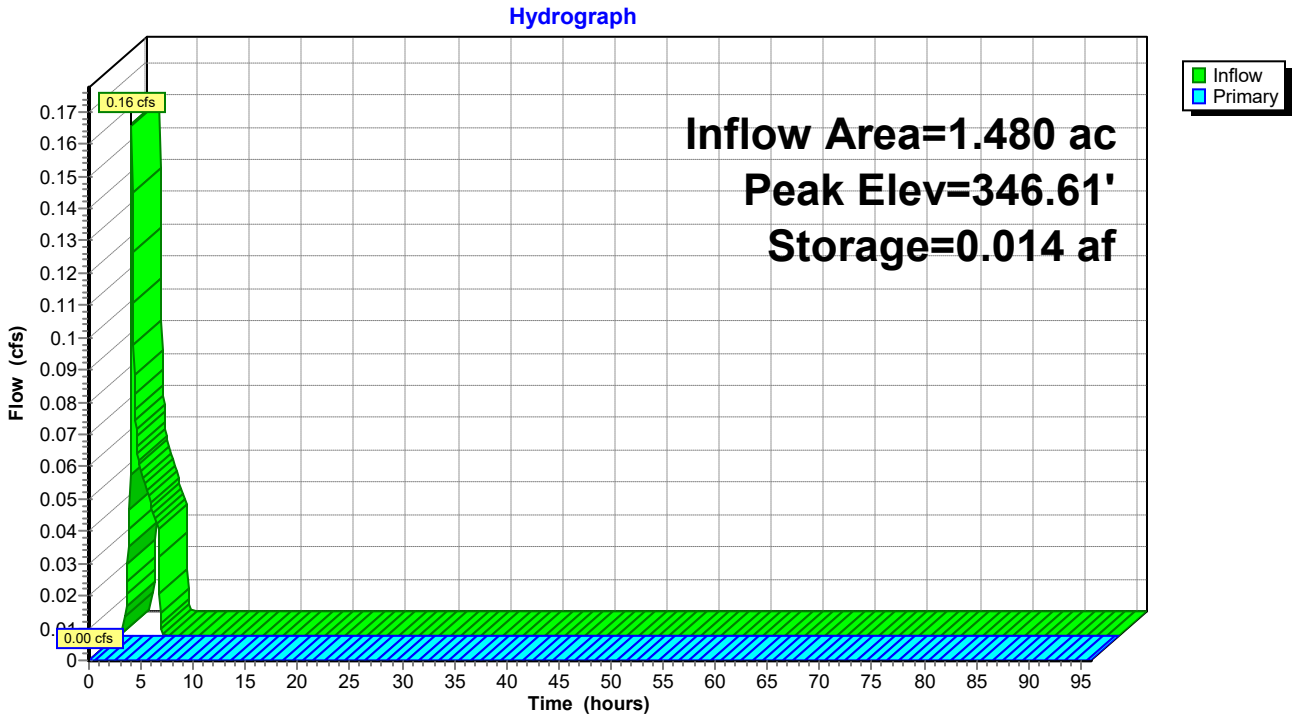
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	346.50'	0.154 af	**16.00'W x 350.00'L x 1.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	347.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=346.50' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Pond P1: Planter 1



Summary for Pond P2: Planter 2

Inflow Area = 1.460 ac, 13.01% Impervious, Inflow Depth = 0.03" for WQ year event
Inflow = 0.03 cfs @ 1.39 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 344.06' @ 6.05 hrs Surf.Area= 0.056 ac Storage= 0.003 af

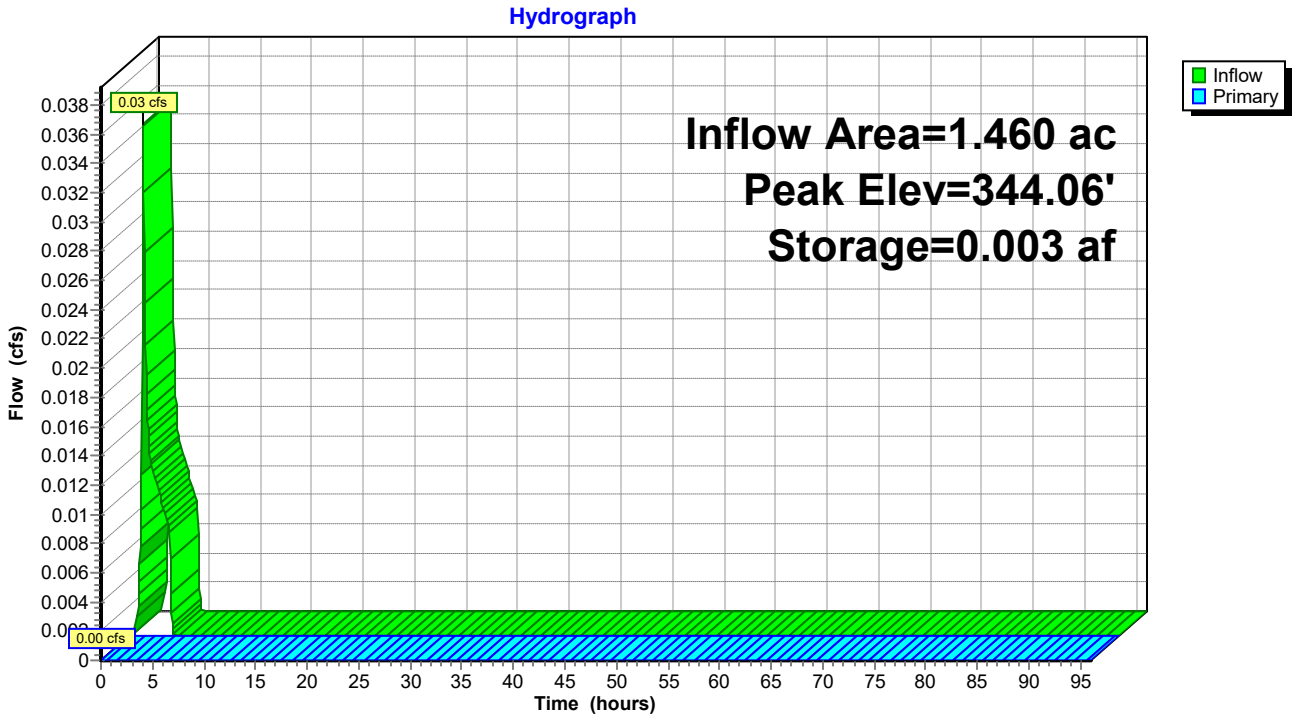
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	344.00'	0.065 af	**50.00'W x 48.00'L x 1.00'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	344.50'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=344.00' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)

Pond P2: Planter 2



STANDRIDGE
PLANNING | ENGINEERING | SURVEYING

Project: Molalla Middle School
Date: May 19, 2025
Subject: Water Quality Calculations
Prepared By: Standridge Inc.

Pond Calculations

Water Quality Volume Calculations

Treated Impervious Surface	**6.050**	**Ac**	Basin 1 - Excluding Area of Wet Pond & East Parking Area
Water Quality Storm Depth	0.36	in	
Volume = Depth * New Imp. Surface =	2.18	Acre-Inch	
=	**7906**	**cf**	

Water Quality Flow Calculations

Volume =	7906	cf	
Duration =	96	hr	
Q = Volume / Duration =	82.4	cf/hr	
=	**0.0229**	**cfs**	

Water Quality Orifice Calculations

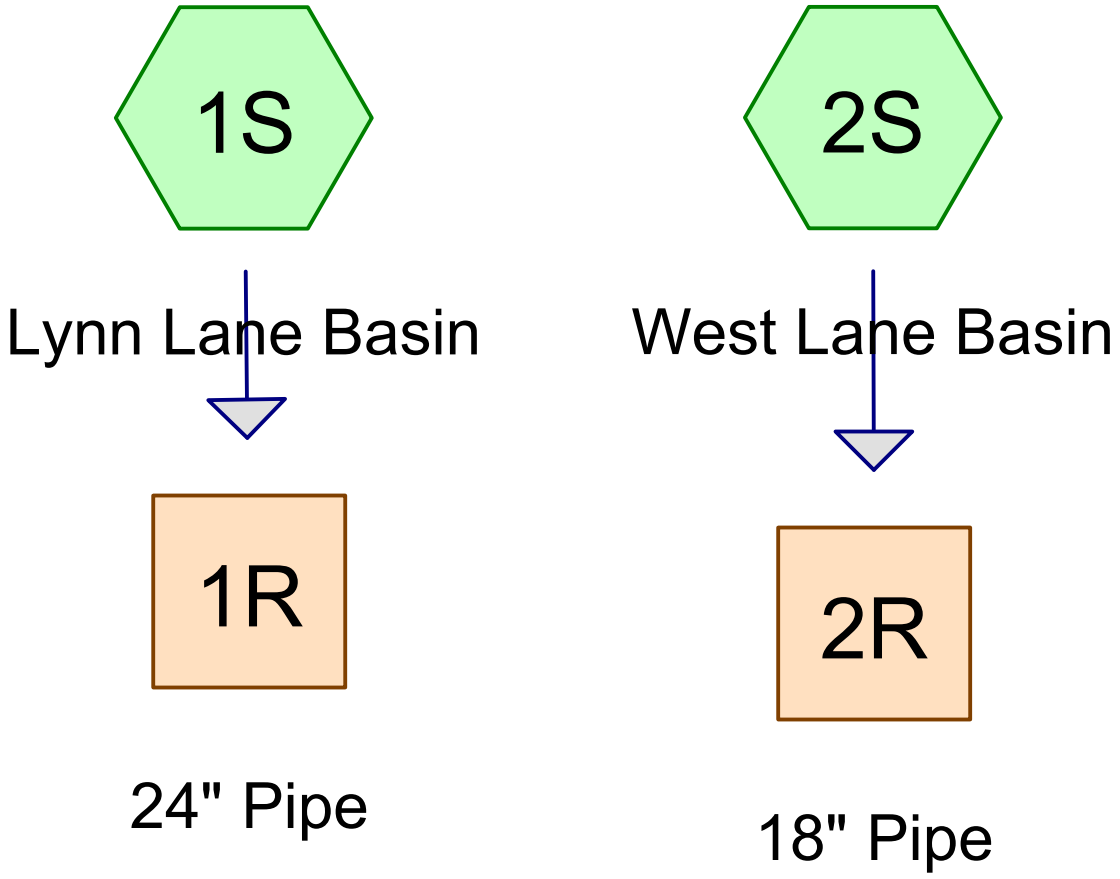
Q=	0.0229	cfs	
C = Orifice Coeficient =	0.62		Constant
g = gravitational acceleration =	32.2	ft/sec/sec	Constant
H = temporary Detention height to CL of Orifice =	0.66	ft	From Hydrocad
h = 2/3 H =	0.44	ft	
= Orifice Dia. = 24*(Q / (C * (2 * g * h)^ 0.5) / pi)^ 0.5 =	**1.13**	in	

Water Quality Manhole Design

WQ Manhole Dia	72	inches	(60", 72", or 84")
25 Year Q	5.05	cfs	From Hydrocad
Sump Depth Required	**101**	**cf**	(20 x Q-25yr)
Manhole Area	**28.3**	**ft2**	
Sump Required	**3.6**	**ft**	(3ft min, 5ft max)

Basin 1 - Excluding Flow from Lynn, Wet Pond & East Parking Area

Appendix F: Conveyance Calculations



Subcat Reach Pond Link

Routing Diagram for 2025-05-21_Prelim Public Conveyance
Prepared by Standridge Inc., Printed 5/21/2025
HydroCAD® 10.00-26 s/n 08941 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Lynn Lane Basin

[49] Hint: Tc<2dt may require smaller dt

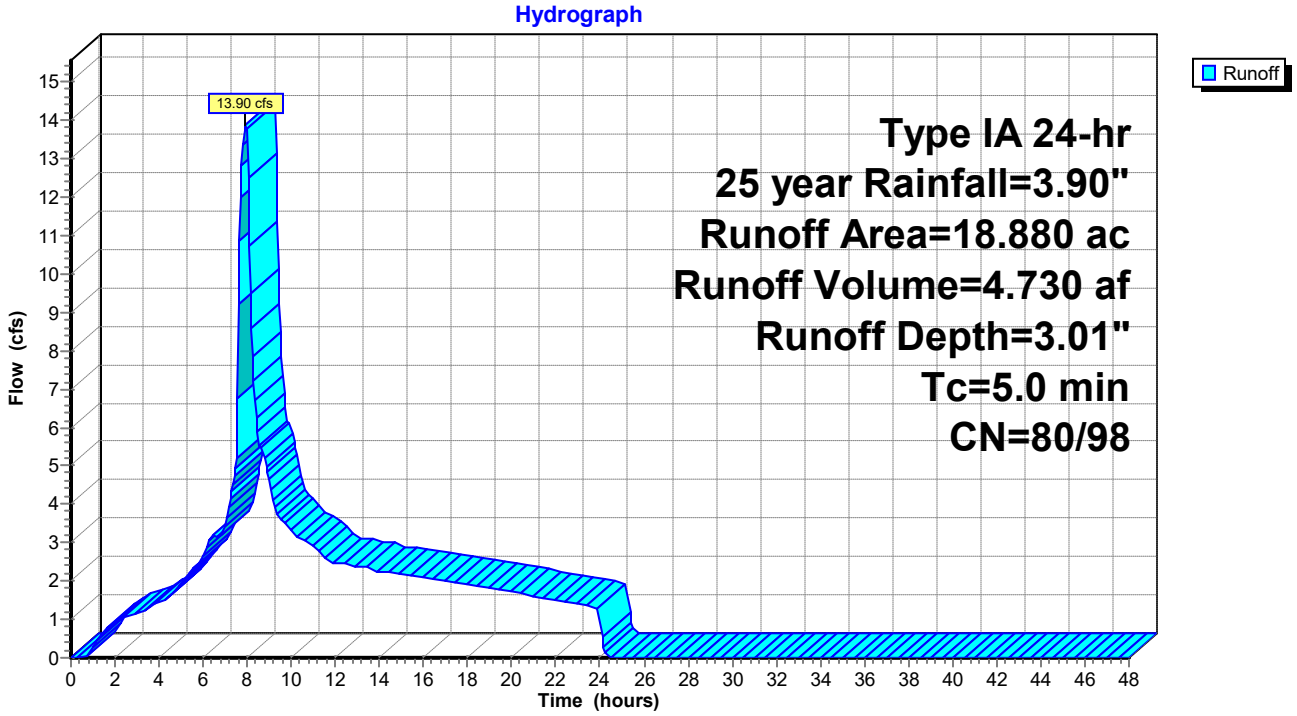
Runoff = 13.90 cfs @ 7.92 hrs, Volume= 4.730 af, Depth= 3.01"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
11.590	98	Paved parking, HSG D
7.290	80	>75% Grass cover, Good, HSG D
18.880	91	Weighted Average
7.290	80	38.61% Pervious Area
11.590	98	61.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Lynn Lane Basin



Summary for Subcatchment 2S: West Lane Basin

[49] Hint: Tc<2dt may require smaller dt

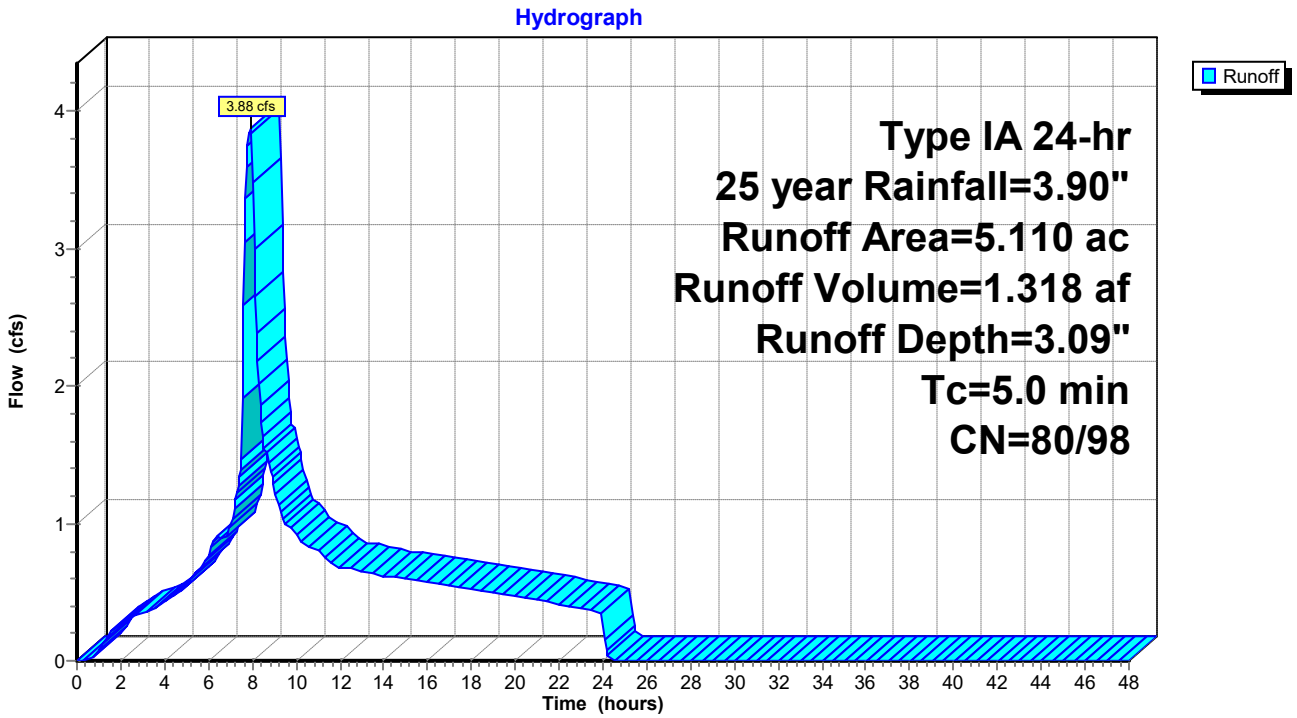
Runoff = 3.88 cfs @ 7.92 hrs, Volume= 1.318 af, Depth= 3.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 year Rainfall=3.90"

Area (ac)	CN	Description
3.400	98	Paved parking, HSG D
1.710	80	>75% Grass cover, Good, HSG D
5.110	92	Weighted Average
1.710	80	33.46% Pervious Area
3.400	98	66.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: West Lane Basin



Summary for Reach 1R: 24" Pipe

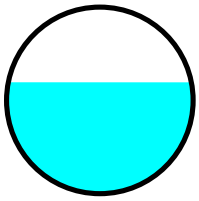
[52] Hint: Inlet/Outlet conditions not evaluated

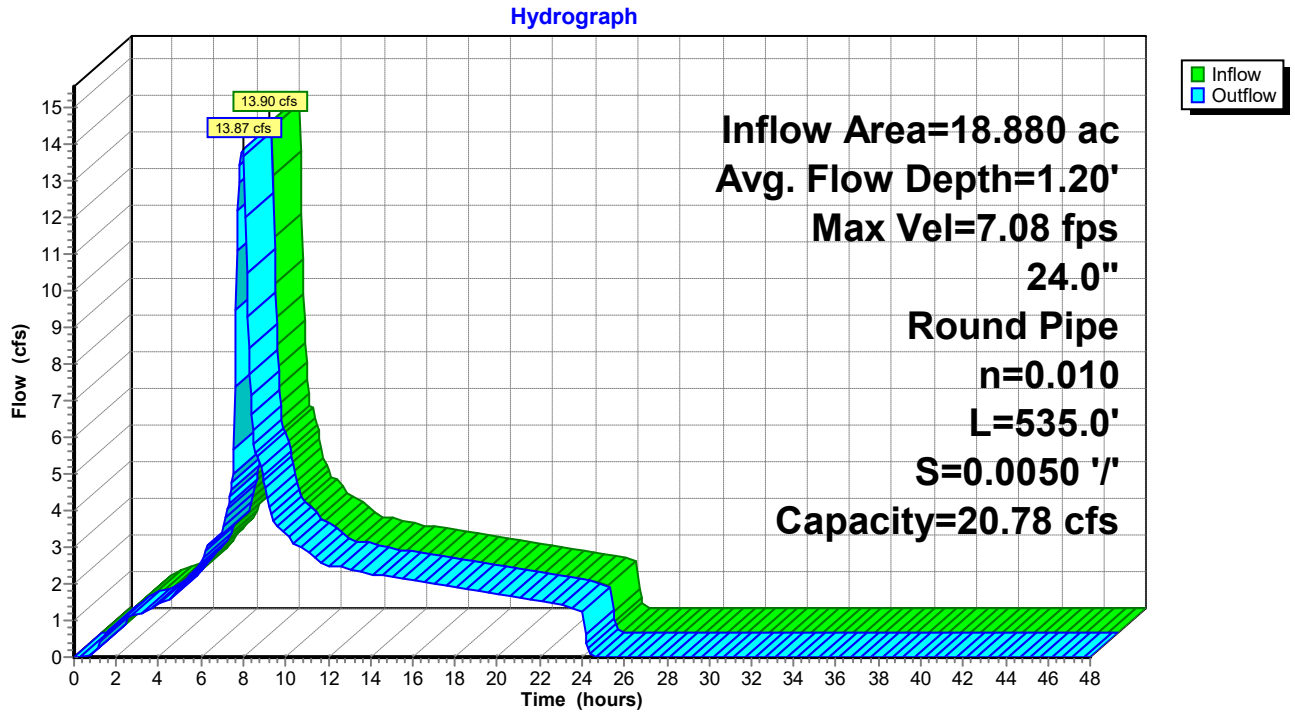
Inflow Area = 18.880 ac, 61.39% Impervious, Inflow Depth = 3.01" for 25 year event
Inflow = 13.90 cfs @ 7.92 hrs, Volume= 4.730 af
Outflow = 13.87 cfs @ 7.96 hrs, Volume= 4.730 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.08 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 4.00 fps, Avg. Travel Time= 2.2 min

Peak Storage= 1,049 cf @ 7.94 hrs
Average Depth at Peak Storage= 1.20'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 20.78 cfs

24.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 535.0' Slope= 0.0050 '/'
Inlet Invert= 100.00', Outlet Invert= 97.33'





Summary for Reach 2R: 18" Pipe

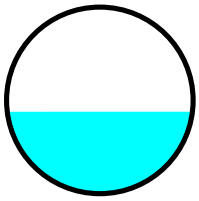
[52] Hint: Inlet/Outlet conditions not evaluated

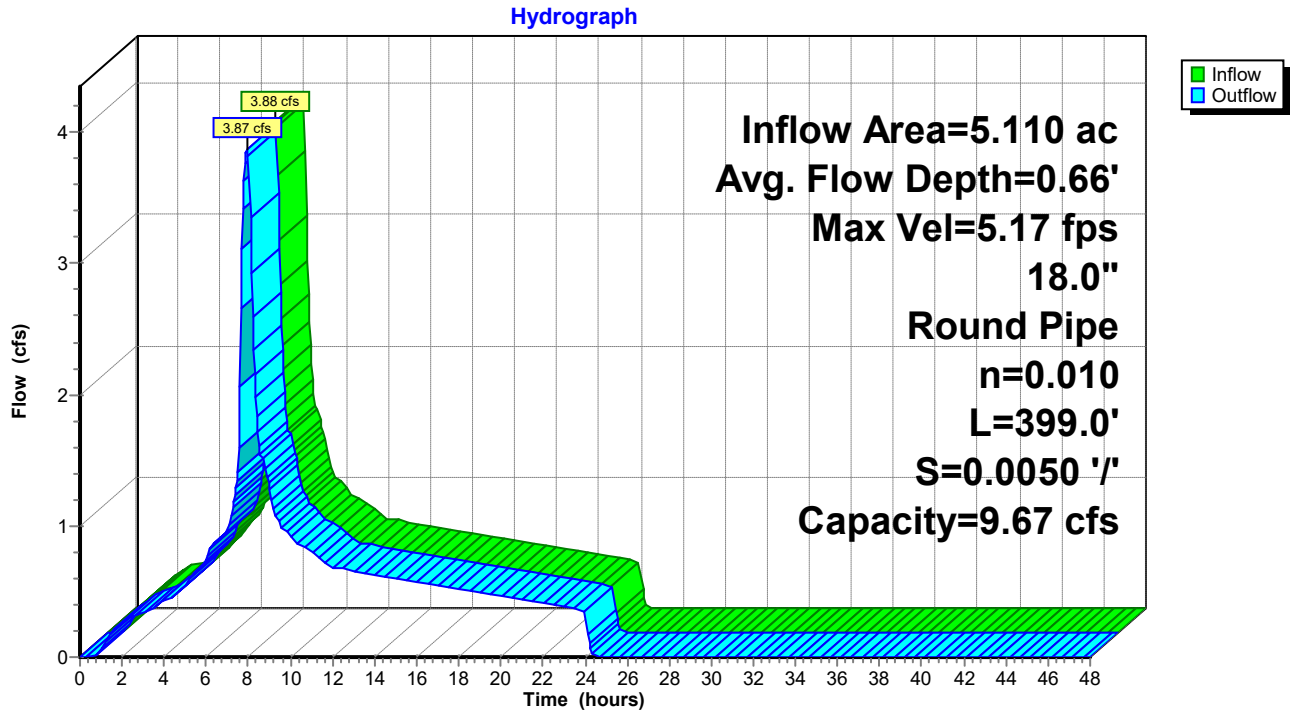
Inflow Area = 5.110 ac, 66.54% Impervious, Inflow Depth = 3.09" for 25 year event
Inflow = 3.88 cfs @ 7.92 hrs, Volume= 1.318 af
Outflow = 3.87 cfs @ 7.95 hrs, Volume= 1.318 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.17 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.89 fps, Avg. Travel Time= 2.3 min

Peak Storage= 299 cf @ 7.93 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 9.67 cfs

18.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 399.0' Slope= 0.0050 '/'
Inlet Invert= 100.00', Outlet Invert= 98.00'





Appendix G: Geotechnical Report

Geotechnical Engineering Report

Molalla River Middle School Replacement
318 Leroy Avenue
Molalla, Oregon

Prepared for:
Molalla River School District 35
PO Box 188
Molalla, Oregon 97038

January 14, 2025
PBS Project 24010734

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Geotechnical Engineering Report

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Prepared by:

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Appendix A: Field Explorations

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1 INTRODUCTION

1.1 General

This report presents results of PBS Engineering and Environmental LLC (PBS) geotechnical engineering services for the proposed new middle school located at 318 Leroy Avenue in Molalla, Oregon (site). The general site location is shown on the Vicinity Map, Figure 1. The locations of PBS' explorations in relation to existing and proposed site features are shown on the Site Plan, Figure 2.

1.2 Purpose and Scope

The purpose of PBS' services was to develop geotechnical design and construction recommendations in support of the planned new Molalla River Middle School. This was accomplished by performing the following scope of services.

1.2.1 Literature and Records Review

PBS reviewed various published geologic maps of the area for information regarding geologic conditions and hazards at or near the site. PBS also reviewed previously completed reports for the project vicinity.

1.2.2 Subsurface Explorations

Six borings were advanced to depths ranging from approximately 11 to 26.5 feet below the existing ground surface (bgs) within the development footprint. The borings were logged and representative soil samples collected by a member of the PBS geotechnical engineering staff. The approximate boring locations are shown on the Site Plan, Figure 2. The interpreted boring logs are presented as Figures A1 through A6 in Appendix A, Field Explorations.

1.2.3 Field Infiltration Testing

One cased-hole, falling-head field infiltration test was completed in boring B-1 at a depth of approximately 5 feet bgs. Infiltration testing was monitored by PBS geotechnical engineering staff.

1.2.4 Soils Testing

Soil samples were returned to our laboratory and classified in general accordance with the Unified Soil Classification System (ASTM D2487) and/or the Visual-Manual Procedure (ASTM D2488). Laboratory tests included natural moisture contents, grain-size analyses, and Atterberg limits. Laboratory test results are included in the exploration logs in Appendix A, Field Explorations; and in Appendix B, Laboratory Testing.

1.2.5 Geotechnical Engineering Analysis

Data collected during the subsurface exploration, literature research, and testing were used to develop site-specific geotechnical design parameters and construction recommendations.

1.2.6 Report Preparation

This Geotechnical Engineering Report summarizes the results of our explorations, testing, and analyses, including information relating to the following:

- Field exploration logs and site plan showing approximate exploration locations
- Laboratory test results
- Infiltration test results
- Groundwater levels and considerations
- Seismic site hazard assessment that includes:
    - Discussion of geologic and seismic hazards impacting the site

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  - Location, extent, and seismic characteristics of local and regional faults
  - Liquefaction potential
- Building slab recommendations, including:
  - Subgrade preparation
  - Moisture mitigation
  - Modulus of subgrade reaction
- Shallow foundation design recommendations:
  - Minimum embedment
  - Allowable bearing pressure
  - Estimated settlement (total and differential)
  - Sliding coefficient
- Lateral earth pressures for embedded/retaining wall design, including:
  - Active, passive, and at-rest earth pressures
  - Sliding coefficient
  - Groundwater and drainage considerations
- Earthwork and grading, cut, and fill recommendations:
  - Structural fill materials and preparation, and reuse of on-site soils
  - Utility trench excavation and backfill requirements
  - Temporary and permanent slope inclinations
  - Wet weather considerations
- Seismic design criteria in accordance with the 2022 Oregon Structural Specialty Code (OSSC)
- Asphalt concrete (AC) pavement section recommendations

1.3 Project Understanding

This project is part of the Molalla River Middle School Replacement bond measure passed in May 2024 and will include construction of a new 115,000-square-foot middle school along with a new parking lot, driveways, bus loop, play structure, and play fields. The project will also include removing the existing 70-year-old middle school and associated parking lot, driveways, and site structures.

Based on our experience with similar projects, PBS estimates maximum building loads will be on the order of 100 to 200 kips for columns, 5 to 10 kips per linear foot for walls, and less than 250 pounds per square foot (psf) for floors. Based on the relatively flat site topography, PBS anticipates grading will be limited to shallow cuts and fills of less than about 2 feet, with locally deeper excavations for new utilities.

2 SITE CONDITIONS

2.1 Surface Description

The site is roughly rectangular and is bordered to the east by Leroy Avenue, to the south by the existing Molalla Elementary School and West Lane, to the west by N Hezzie Lane, school track, and sports fields, and to the north by Lynn Lane and scattered residential homesites. The site of the new school is currently in use as sports fields, landscaping, and asphalt paved drive lanes and parking areas. The existing Molalla River Middle School occupies the southeast corner of the site, with the new school planned near the northeast corner of the site, while the remaining west half of the site consists of grass athletic fields. Based on review of available Oregon Department of Geology and Mineral Industries (DOGAMI) topographic and lidar data, the site is

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generally flat, with ground surface elevations ranging from a maximum of about 355 feet along the eastern edge of the site to a minimum of about 345 feet near the northwest corner of the site feet (NAVD88; DOGAMI, 2024). Outside of the site, the ground surface remains relatively flat and continues to slope gently down to the west/northwest.

2.2 Geologic Setting

The site is located within the southeastern extent of the Portland-Vancouver Basin, near the western edge of the foothills of the Western Cascades geologic province. The Portland-Vancouver Basin consists of a tectonic depression within the physiographic province of the Puget-Willamette Lowland that separates the Cascade Range from the Coast Range, and extends from the Puget Sound, Washington, to Eugene, Oregon (Yeats et al., 1996). The Western Cascades are an older, broader, and much more deeply eroded volcanic region of uplifted Miocene and older tuffs and lavas than the younger, more easterly post-Miocene volcanoes and volcanic rocks of the taller High Cascades region. These provinces are all situated along the Cascadia Subduction Zone (CSZ), where oceanic rocks of the Juan de Fuca Plate are subducting beneath the North American Plate, resulting in deformation and uplift of the Coast Range and volcanism in the Cascade Range. Northwest-trending faults accommodating clockwise rotation of the North American Plate are found throughout the Puget-Willamette Lowland (Brocher et al., 2017; USGS, 2024).

The greater Portland Basin is underlain by Columbia River Basalt Group (CRBG) flows consisting of numerous fine-grained volcanic eruptions between approximately 17 million years ago (Ma) and 6 Ma from fissures located in eastern Oregon, eastern Washington, and western Idaho (Beeson et al., 1991). These fissures released thousands of square kilometers of lava, inundating areas east of the Cascade Range and entering western Oregon through a Miocene gap in the Cascade Range (present day Columbia Gorge) before reaching the ocean. Magmatic compositions of the CRBG allow the flows to be subdivided into distinct formations that can be further divided into members-based geochemical, paleomagnetic, and lithological properties.

Numerous northwest-trending faults govern the topography within the basin. Uplift and down dropping of crustal blocks have created topographic high points by offsetting regional scale flood basalts and down dropping basement rocks, creating depressions and sediment basins that accommodate the fluvial deposition of Miocene to Pliocene age terrestrial sedimentary rocks (commonly Troutdale Formation or Sandy River Mudstone) over the older CRBG basalt flows (Beeson et al., 1991; Evarts et al., 2004). Of these sedimentary deposits, the Troutdale Formation is the most widespread unit within the basin. These friable to moderately strong conglomerates, with minor interbeds of sandstone and claystone, consist of well-rounded CRBG clasts and other exotic metamorphic and plutonic clasts. Above these conglomerates, younger quaternary deposits have accumulated.

Cyclical Pleistocene age cataclysmic glacial floods deposited sediments and recarved the landscape within the Portland Basin more than 40 times over a 3,000-year timespan (Burns and Coe, 2012). As floodwaters entered the basin from the Columbia River Gorge, they slowed, depositing suspended sediments and bed loads. Topographic highpoints within the basin deflected floodwaters and generated areas that were scoured and eroded into older sediments and bedrock. These geomorphic features dominate the modern-day landscape and are indistinguishable within the Portland Basin lidar.

2.3 Local Geology

The site is mapped as underlain by Pleistocene to Pliocene aged Troutdale Formation (O'Connor et al., 2001). This unit is primarily described as sand, gravel, sandstone, conglomerate, siltstone, and mudstone and can be up to 150 meters thick. Around the city of Molalla, the formation is generally described as weathered terrace gravel.

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2.4 Subsurface Conditions

The site was explored by drilling six borings, designated B-1 through B-6, to depths of 11 to 26.5 feet bgs. B-1 was terminated due to refusal on the gravel using the hollow-stem auger. The drilling was performed by Western States Soil Conservation, Inc., of Hubbard, Oregon, using an ATV-mounted CME-55 drill rig and mud rotary and hollow-stem auger drilling techniques.

PBS has summarized the subsurface units as follows:

Topsoil:	Approximately 6 inches of brown silty topsoil with roots was encountered at the ground surface in all explorations.
Lean CLAY (CL) and Fat CLAY (CH):	Brown-gray to orange, lean clay with varying amounts of fine- to coarse-grained sand and fine to coarse, subangular to subrounded gravel was encountered below the topsoil and continued to approximately 5 to 7.5 feet bgs in all explorations, except boring B-3, which encountered sandy fat clay. The clay was very stiff to hard, with high plasticity, and was primarily moist.
Clayey SAND (SC):	Brown-gray to orange, clayey sand with subangular to subrounded gravel was encountered below the clay in borings B-1, B-2, B-3, and B-6, continuing to 7.5 to 10 feet bgs. The clayey sand was generally medium dense to very dense, with medium to high plasticity, and was moist.
Clayey GRAVEL (GC):	Below the clay/clayey sand in all borings, clayey gravel with sand was encountered. The gravel was generally brown-gray to orange, fine to coarse, and rounded to subrounded. This deposit extended to the termination depth in all the explorations and generally increased in relative density with increasing depth, from dense to very dense. The gravel was interpreted as weathered terrace gravels from the Troutdale Formation based on the geologic mapping.

2.5 Groundwater

Static groundwater was encountered at approximately 10 feet bgs in boring B-4, which was flushed, bailed, and left open after completion. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors.

2.6 Infiltration Testing

PBS completed a cased-hole, falling-head infiltration test in boring B-1 at a depth of 5 feet bgs within the 4.25-inch inside diameter, hollow-stem auger used to drill the boring. The auger was filled with water to achieve a minimum 1-foot-high column of water. After a period of saturation, the height of the water column in the pipe was then measured initially and at regular, timed intervals. Results of our field infiltration testing are presented in Table 1.

Table 1. Infiltration Test Results

Test Location	Depth (feet bgs)	Field Measured Infiltration Rate (in/hr)	Soil Classification
B-1	5	0	Lean CLAY (CL)

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The infiltration rate listed in Table 1 is not a permeability/hydraulic conductivity, but a field-measured rate, and does not include correction factors related to long-term infiltration rates. The design engineer should determine the appropriate correction factors to account for the planned level of pre-treatment, maintenance, vegetation, siltation, etc. Field-measured infiltration rates are typically reduced by a minimum factor of 2 to 4 for use in design.

Soil types can vary significantly over relatively short distances. The infiltration rates noted above are representative of one discrete location and depth. Installation of infiltration systems within the layer the field rate was measured is considered critical to proper performance of the systems.

3 GEOLOGIC HAZARDS

Geologic and seismic hazards are defined as conditions associated with the geologic and seismic environment that could influence existing and/or proposed improvements. Geologic and seismic hazards that could affect the site's development are identified below and should be considered during the planning process. PBS reviewed GIS layers within the Oregon HazVu Statewide Geozhazards Viewer and associated reports to assess potential geologic hazards for the study area (DOGAMI, 2024). In general, the geologic and seismic hazards most commonly associated with the physical and chemical characteristics of near-surface soil, rock, and groundwater include the following:

- Slope stability
- Adverse soils
- Land subsidence
- Subsurface voids
- Hydrology and drainage
- Hazardous minerals
- Erosion and sedimentation
- Hydrogeology and groundwater
- Volcanic hazards
- Permafrost and freeze-thaw
- Seismic hazards (liquefaction, lateral spreading, earthquake-induced landslides, **ground shaking**, fault ground rupture, tsunamis, and seiches)

Those shown in bold above are geologic and seismic hazards that could affect the site development and should be considered in the planning process. Ground shaking is a geologic hazard at the site related to seismicity, which is discussed further in the following sections.

3.1 Seismicity and Faulting

3.1.1 Seismic Sources

Several types of seismic sources exist in the Pacific Northwest, which are outlined below. Volcanic sources beneath the Cascade Range are not considered further in this study, as they rarely exceed about M=5.0 in size and are not considered to pose a significant ground-shaking hazard to the project site.

3.1.1.1 Historical Seismicity

Regional historical seismicity information was acquired from the Advanced National Seismic System (ANSS) Comprehensive Catalog, hosted by the Northern California Earthquake Data Center (NCEDC), and is presented on Figure 3. These data include earthquakes with magnitudes exceeding M 2.5, within a 150-km radius of the city of Portland, Oregon, and recorded between 1963 and 2017 (NCEDC, 2017). Magnitudes within the ANSS dataset are recorded as local magnitude, surface-wave magnitude, body-wave magnitude, moment magnitude, and magnitude of completeness.

3.1.1.2 Cascadia Subduction Zone (CSZ) – Interface Earthquakes

The CSZ represents the boundary between the subducting Juan de Fuca tectonic plate and the overriding North American tectonic plate (Figure 4). Recurrence intervals for subduction zone earthquakes are based on

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studies of the geologic record, with studies estimating a recurrence interval between 500 to 530 years (Goldfinger et al., 2012). Geologic evidence and written records from Japan suggest the most recent earthquake occurred in January 1700. The 1700 earthquake probably ruptured much of the approximate 620-mile (1,000 km) length of the CSZ and was estimated at moment magnitudes of MW 9.0. The horizontal distance from the edge of the CSZ megathrust is located approximately 139 miles (223 km) from Portland, Oregon. The current US Geological Survey risk-based maximum credible earthquake for CSZ megathrust is MW 9.0±0.2 (USGS, 2008).

3.1.1.3 Intraslab Earthquakes

Intraslab earthquakes occur within the subducting slab. They are problematic in the sense that they do not have a surface expression or rupture the ground surface and their seismicity generates deformation along many faults within the slab (Kirby et al., 2002). The CSZ has generated significant intraslab destructive earthquakes including the 2001 MW 6.8 Nisqually earthquake in the Puget lowland. The estimated depth to the subducting Juan de Fuca plate under Portland, Oregon, is approximately 28 miles (40 km) and should therefore be considered as a seismic source (Blair et al., 2011).

3.1.1.4 Crustal Earthquakes and Faults

Review of the US Geological Survey Quaternary Fault and Fold Database (USGS, 2024) indicates the site is within close proximity (less than 25 km) to Quaternary faults (Figure 5), including less than 1 km from the Canby-Molalla fault. Due to their proximity, the crustal faults are significant seismic sources for ground motion and shaking within the Portland metropolitan area. These faults are identified in Table 2 below.

Table 2. Faults within the Site Vicinity

Fault Zone Name	Fault ID	Approximate Distance to Site (Surface Projection in km)
Canby-Molalla fault	716	1
Bolton fault	874	19
Mount Angel fault	873	20
Oatfield fault	875	24
Portland Hills fault	877	24

3.1.2 Seismic Hazards

Other site-specific seismic hazards considered include slope stability, earthquake-induced landslides, fault rupture, seiche and tsunami inundation, and earthquake shaking. Based on the generally gentle surface topography and geology at the site, the risk from landslides and earthquake-induced landslides is low. Due to the location of the site, the risks of seiche and tsunami inundation are absent. Due to the existence of a mapped fault within 1 km of the site, the risk of fault rupture at the site is present. Strong to very strong earthquake ground shaking will occur during a code-based seismic event on the CSZ as well as from local faults. Shaking duration during a CSZ event is expected to last for 5 to 7 minutes along the coast, decreasing inland to around 2 minutes, closer to Portland and Seattle (Oregon Emergency Management, 2024; Hickey, 2017). Based on our current project understanding, our opinion is that effects of earthquake ground motions can be accounted for by using code-based design procedures and the code-based design response spectrum.

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3.1.3 Liquefaction Potential

Liquefaction is defined as a decrease in the shear resistance of loose, saturated, cohesionless soil (e.g., sand) or low plasticity silt soils, due to the buildup of excess pore pressures generated during an earthquake. This results in a temporary transformation of the soil deposit into a viscous fluid. Liquefaction can result in ground settlement, foundation bearing capacity failure, and lateral spreading of ground.

Based on a review of the Oregon Statewide Geohazard Viewer (HazVu), the site is not mapped within a zone of liquefaction susceptibility. Based on soil types, plasticity, and depth of groundwater, our current opinion is that the risk of structurally damaging liquefaction settlement at the site is low.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Geotechnical Design Considerations

The subsurface conditions at the site consist of very stiff to hard clay and clayey sand over clayey gravel. Based on our observations and analyses, conventional foundation support on shallow spread footings is feasible for the proposed new building.

- Fine-grained soils or granular soil containing fine-grained soils encountered at the site are sensitive to disturbance, particularly when wet or when moisture contents are above optimum. Without careful planning, this can result in disturbance to the subgrades that impact the project budget and schedule.
- Clay soils or soils containing clay should be covered within 4 hours of exposure by a minimum of 4 inches of crushed rock or plastic sheeting during the dry season. Exposure of these materials should be coordinated with the geotechnical engineer so that the subgrade suitability can be evaluated prior to being covered. Failure to do so could result in negative impacts to structure foundations, flatwork, and pavements.
- Excavation with conventional equipment is feasible at the site, though larger equipment may be required for excavation into dense to very dense gravel.
- The grading and final development plans for the project had not been completed when this report was prepared. Once completed, PBS should be engaged to review the project plans and update our recommendations as necessary.

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4.2 Shallow Foundations

Shallow spread footings bearing on native very stiff clay may be used to support loads associated with the proposed development, provided the recommendations in this report are followed. Footings should not be supported on undocumented fill.

4.2.1 Minimum Footing Widths and Design Bearing Pressure

Continuous wall and isolated spread footings should be at least 18 and 24 inches wide, respectively. Footings should be sized using a maximum allowable bearing pressure of 2,500 psf. This is a net bearing pressure and the weight of the footing and overlying backfill can be disregarded in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads. Allowable bearing pressures may be increased by one-third for seismic and wind loads.

Footings will settle in response to column and wall loads. Based on our evaluation of the subsurface conditions and our analysis, we estimate post-construction settlement will be less than 1 inch for the column and perimeter foundation loads. Differential settlement will be on the order of one-half of the total settlement.

4.2.2 Footing Embedment Depths

PBS recommends that all footings be founded a minimum of 18 inches below the lowest, adjacent grade. The footings should be founded below an imaginary line projecting upward at a 1H:1V (horizontal to vertical) slope from the base of any adjacent, parallel utility trenches or deeper excavations.

4.2.3 Footing Preparation

Excavations for footings should be carefully prepared to a neat and undisturbed state and compacted until stiff. A representative from PBS should confirm suitable bearing conditions and evaluate all exposed footing subgrades. Observations should also confirm that loose or soft materials have been removed from new footing excavations and concrete slab-on-grade areas. Localized deepening of footing excavations may be required to penetrate loose, wet, or deleterious materials.

PBS recommends a 4-inch-thick layer of compacted, crushed rock be placed over the footing subgrades to help protect them from disturbance.

4.2.4 Lateral Resistance

Lateral loads can be resisted by passive earth pressure on the sides of footings and grade beams, and by friction at the base of the footings. A passive earth pressure calculated using an equivalent fluid weight (EFW) of 250 pounds per cubic foot (pcf) may be used for footings confined by native soils and new structural fills. The allowable passive pressure has been reduced by a factor of two to account for the large amount of deformation required to mobilize full passive resistance. Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent unpaved areas should not be considered when calculating passive resistance. For footings supported on native soils or new structural fills, use a coefficient of friction equal to 0.3 when calculating resistance to sliding. These values do not include a factor of safety (FS).

4.3 Floor Slabs

Satisfactory subgrade support for building floor slabs can be obtained from the native clay subgrade prepared in accordance with our recommendations presented in the Site Preparation, Wet/Freezing Weather and Wet Soil Conditions, and Select Granular Fill sections of this report. A minimum 6-inch-thick layer of imported granular material should be placed and compacted over the prepared subgrade. Thicker aggregate sections may be necessary where undocumented fill is present, soft/loose soils are present at subgrade elevation, and/or during wet conditions. Imported granular material should be composed of crushed rock or crushed gravel that is relatively well graded between coarse and fine, contains no deleterious materials, has a maximum particle size of 1 inch, and has less than 5% by dry weight passing the US Standard No. 200 Sieve.

Floor slabs supported on a subgrade and base course prepared in accordance with the preceding recommendations may be designed using a modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci).

4.4 Retaining Walls

The proposed new development may include retaining walls of less than 6 feet tall. The following recommendations are based on the assumption of flat conditions in front of and behind the wall and fully drained backfill. For unrestrained walls allowed to rotate at least 0.005H about the base, where H is the height of the wall, we recommend using an active earth pressure calculated using an EFW of 35 pcf. Where walls are constrained against rotation, we recommend using an at-rest earth pressure calculated using an EFW of 55 pcf. We recommend any retaining walls founded on native soil or compacted structural fill be provided with adequate drainage and backfilled with clean, angular, crushed rock fill, in accordance with the recommendations provided in section 5.3.

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Per section 1803.5.12 of the 2022 Oregon Structural Specialty Code (OSSC), the determination of dynamic seismic lateral earth pressures on site retaining walls less than 6 feet tall is not required.

If vertical surcharge loads, q, are present within 0.5H of the wall, a lateral surcharge of 0.3q (for walls allowed to rotate) and 0.5q (for restrained walls) should be applied as a uniform horizontal surcharge active over the full height of the wall. These values assume that the wall is vertical and the backfill behind the wall is horizontal. Additional lateral pressures due to surcharge loads can be estimated using the guidelines shown on Figure 6, Lateral Surcharge Detail.

Lateral loads can also be resisted by a passive resistance using an EFW of 250 pcf acting against retaining walls and foundations, and by friction acting on the base of spread footings or mats using a friction coefficient of 0.3.

4.4.1 Drainage

Recommended lateral earth pressures assume that walls are fully drained and no hydrostatic pressures develop. For cantilevered concrete walls, a minimum 1-foot-wide zone of free-draining material meeting the requirements of Oregon Department of Transportation standard specification (ODOT SS) 00430.11 – Granular Drain Backfill Material should be installed immediately behind the wall. A 4-inch diameter, perforated drainpipe should be installed at the base of the drain rock and routed to a suitable discharge point approved by the civil engineer.

4.5 Seismic Design Considerations

4.5.1 Code-Based Seismic Design Parameters

The current seismic design criteria for this project are based on the 2022 OSSC. Utilizing standard penetration test (SPT) N-values, Site Class D is appropriate for use in design. The seismic design criteria, in accordance with the 2022 OSSC, are summarized in Table 3.

Table 3. 2022 OSSC Seismic Design Parameters

Parameter	Short Period	1 Second
Maximum Credible Earthquake Spectral Acceleration	S_s = 0.73 g	S_1 = 0.34 g
Site Class	D	
Site Coefficient	F_a = 1.22	F_v = 1.96*
Adjusted Spectral Acceleration	S_{MS} = 0.89 g	S_{M1} = **
Design Spectral Response Acceleration Parameters	S_{DS} = 0.59 g	S_{D1} = **
MCEG Peak Ground Surface Acceleration	PGA = 0.33 g	
Site Amplification Factor at PGA	F_{PGA} = 1.27	
Site-Modified Peak Ground Acceleration	PGA_M = 0.42 g	

g= Acceleration due to gravity

* This value of Fv shall only be used to calculate Ts.

** Site-specific site response analysis is not required for structures on Site Class D sites with S_1 greater than or equal to 0.2, provided the value of the seismic response coefficient Cs is determined by Eq. (12.8-2) for values of T ≤ 1.5Ts and taken as equal to 1.5 times the value computed in accordance with either Eq. (12.8-3) for $T_L \geq T > 1.5Ts$ or Eq. (12.8-4) for $T > T_L$.

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4.6 Temporary and Permanent Slopes

All temporary cut slopes should be excavated with a smooth-bucket excavator, with the slope surface repaired if disturbed. In addition, upslope surface runoff should be rerouted to not run down the face of the slopes. Equipment should not be allowed to induce vibration or infiltrate water above the slopes, and no surcharges are allowed within 25 feet of the slope crest.

No permanent cut or fill slopes are currently planned for this project.

4.7 Ground Moisture

4.7.1 General

The perimeter ground surface and hard-scape should be sloped to drain away from all structures and away from adjacent slopes. Gutters should be tight-lined to a suitable discharge and maintained as free-flowing. All crawl spaces should be adequately ventilated and sloped to drain to a suitable, exterior discharge.

4.7.2 Perimeter Footing Drains

Due to the relatively low permeability of site soils and the potential for perched groundwater at the site, we recommend perimeter foundation drains be installed around all proposed structures.

The foundation subdrainage system should include a minimum 4-inch diameter perforated pipe in a drain rock envelope. A non-woven geotextile filter fabric, such as Mirafi 140N or equivalent, should be used to completely wrap the drain rock envelope, separating it from the native soil and footing backfill materials. The invert of the perimeter drain lines should be placed approximately at the bottom of footing elevation. Also, the subdrainage system should be sealed at the ground surface. The perforated subdrainage pipe should be laid to drain by gravity into a non-perforated solid pipe and finally connected to the site drainage stem at a suitable location. Water from downspouts and surface water should be independently collected and routed to a storm sewer or other positive outlet. This water must not be allowed to enter the bearing soils.

4.7.3 Vapor Flow Retarder

A continuous, impervious vapor flow retarder must be installed over the ground surface in the crawl space and under slabs of all structures. Vapor flow retarders are often required by flooring manufacturers to protect flooring and adhesives from moisture intrusion and mold. Many flooring manufacturers will warrant their product only if it is installed according to their recommendations. The PBS geotechnical team can provide additional information, as necessary, to assist with vapor flow retarder selection.

4.8 Asphalt Concrete Pavement

The provided pavement recommendations were developed using the American Association of State Highway and Transportation Officials (AASHTO) design methods and references the associated ODOT specifications for construction. Our evaluation considered eight buses, two times per day (80 bus trips per week). The estimated number of design equivalent 18-kip single axle loads (ESALs) over the 20-year design life is 125,000. An ESAL is a standard traffic load used in pavement design. Depending on the size of a vehicle, the load may correspond to more than one ESAL per vehicle.

The minimum recommended pavement section thicknesses are provided in Table 4. Depending on weather conditions at the time of construction, a thicker aggregate base course section could be required to support construction traffic during preparation and placement of the pavement section.

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Table 4. Minimum AC Pavement Sections

Traffic Loading	AC (inches)	Base Course (inches)	Subgrade
Pull-in Car Parking Only	3	9	Stiff subgrade as verified by PBS personnel*
Drive Lanes and Access Roads	4	12	

* Subgrade must pass proofroll

The asphalt cement binder should be selected following ODOT SS 00744.11 – Asphalt Cement and Additives. The AC should consist of ½-inch hot mix asphalt concrete (HMAC) with a maximum lift thickness of 3 inches. The AC should conform to ODOT SS 00744.13 and 00744.14 and be compacted to 91% of the maximum theoretical density (Rice value) of the mix, as determined in accordance with ASTM D2041.

Heavy construction traffic on new pavements or partial pavement sections (such as base course over the prepared subgrade) will likely exceed the design loads and could potentially damage or shorten the pavement life; therefore, we recommend construction traffic not be allowed on new pavements, or that the contractor take appropriate precautions to protect the subgrade and pavement during construction.

If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

5 CONSTRUCTION RECOMMENDATIONS

5.1 Site Preparation

Construction of the proposed structure will involve clearing and grubbing of the existing vegetation or demolition of possible existing structures. In vegetated areas, site stripping should include removing topsoil, roots, and other deleterious materials to a minimum depth of 6 inches bgs. Demolition should include removing existing pavement, utilities, etc., throughout the proposed new development. Underground utility lines or other abandoned structural elements should also be removed. The voids resulting from removal of foundations or loose soil in utility lines should be backfilled with compacted structural fill. The base of these excavations should be excavated to stiff native subgrade before filling, with sides sloped at a minimum of 1H:1V to allow for uniform compaction. Materials generated during demolition should be transported off site or stockpiled in areas designated by the owner's representative.

5.1.1 Proofrolling/Subgrade Verification

Following site preparation and prior to placing aggregate base over shallow foundation, floor slab, and pavement subgrades, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. The subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If evaluation of the subgrades occurs during wet conditions, or if proofrolling the subgrades will result in disturbance, they should be evaluated by PBS using a steel foundation probe. We recommend that PBS be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be compacted to a stiff condition or be excavated and replaced with structural fill.

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5.1.2 Wet/Freezing Weather and Wet Soil Conditions

Due to the presence of fine-grained clay and sands in the near-surface materials at the site, construction equipment may have difficulty operating on the near-surface soils when the moisture content of the surface soil is more than a few percentage points above the optimum moisture required for compaction. Soils disturbed during site preparation activities, or unsuitable areas identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

Site earthwork and subgrade preparation should not be completed during freezing conditions, except for mass excavation to the subgrade design elevations.

Protection of the subgrade is the responsibility of the contractor. Construction of granular haul roads to the project site entrance may help reduce further damage to the pavement and disturbance of site soils. The actual thickness of haul roads and staging areas should be based on the contractors' approach to site development, and the amount and type of construction traffic. The imported granular material should be placed in one lift over the prepared undisturbed subgrade and compacted using a smooth-drum, non-vibratory roller. A geotextile fabric should be used to separate the subgrade from the imported granular material in areas of repeated construction traffic. The geotextile should meet the specifications of ODOT SS Section 02320.10 and SS 02320.20, Table 02320-4 for soil separation. The geotextile should be installed in conformance with ODOT SS Section 00350 – Geosynthetic Installation.

5.1.3 Dry Weather Conditions

Clay soils should be covered within 4 hours of exposure by a minimum of 4 inches of crushed rock or plastic sheeting during the dry season. Exposure of these materials should be coordinated with the geotechnical engineer so that the subgrade suitability can be evaluated prior to being covered.

5.2 Excavation

The near-surface soils at the site can be excavated with conventional earthwork equipment. Sloughing and caving should be anticipated. All excavations should be made in accordance with applicable Occupational Safety and Health Administration (OSHA) and state regulations. The contractor is solely responsible for adherence to the OSHA requirements. Trench cuts should stand relatively vertical to a depth of approximately 4 feet bgs, provided no groundwater seepage is present in the trench walls. Open excavation techniques may be used provided the excavation is configured in accordance with the OSHA requirements, groundwater seepage is not present, and with the understanding that some sloughing may occur. Trenches/excavations should be flattened if sloughing occurs or seepage is present. Use of a trench shield or other approved temporary shoring is recommended if vertical walls are desired for cuts deeper than 4 feet bgs. If dewatering is used, we recommend that the type and design of the dewatering system be the responsibility of the contractor, who is in the best position to choose systems that fit the overall plan of operation.

5.3 Structural Fill

The extent of site grading is currently unknown; however, given the relatively flat site topography, PBS estimates that cuts and fills will be less than about 2 feet. Structural fill should be placed over subgrade that has been prepared in conformance with the Site Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. Structural fill material should consist of relatively well-graded soil, or an approved rock product that is free of organic material and debris, and contains particles not greater than 4 inches nominal dimension.

The suitability of soil for use as compacted structural fill will depend on the gradation and moisture content of the soil when it is placed. As the amount of fines (material finer than the US Standard No. 200 Sieve) increases,

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soil becomes increasingly sensitive to small changes in moisture content and compaction becomes more difficult to achieve. Soils containing more than about 5% fines cannot consistently be compacted to a dense, non-yielding condition when the water content is significantly greater (or significantly less) than optimum.

5.3.1 On-Site Soil

On-site soils encountered in our explorations consist primarily of clay and soils containing clay, which may be difficult to use as structural fill, except during extended periods of dry weather. Even with construction during the dry summer grading season, several days of frequent aeration may be required to dry soils to near the optimum moisture content for compaction. Subsequently, reuse of on-site soils as structural fill may not be economically feasible. If on-site soils are used as structural fill, they should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to not less than 92% of the maximum dry density, as determined by ASTM D1557.

5.3.2 Borrow Material

Borrow material for general structural fill construction should meet the requirements set forth in ODOT SS 00330.12 – Borrow Material. When used as structural fill, borrow material should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to not less than 92% of the maximum dry density, as determined by ASTM D1557.

5.3.3 Select Granular Fill

Selected granular backfill used during periods of wet weather for structural fill construction should meet the specifications provided in ODOT SS 00330.14 – Selected Granular Backfill. The imported granular material should be uniformly moisture conditioned to within about 2% of the optimum moisture content and compacted in relatively thin lifts using suitable mechanical compaction equipment. Selected granular backfill should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to not less than 95% of the maximum dry density, as determined by ASTM D1557.

5.3.4 Crushed Aggregate Base

Crushed aggregate base course below floor slabs, spread footings, and asphalt concrete pavements should be clean crushed rock or crushed gravel that contains no deleterious materials and meets the specifications provided in ODOT SS 02630.10 – Dense-Graded Aggregate, and has less than 5% by dry weight passing the US Standard No. 200 Sieve. The crushed aggregate base course should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to at least 95% of the maximum dry density, as determined by ASTM D1557.

5.3.5 Utility Trench Backfill

Pipe bedding placed to uniformly support the barrel of pipe should meet specifications provided in ODOT SS 00405.12 – Bedding. The pipe zone that extends from the top of the bedding to at least 8 inches above utility lines should consist of material prescribed by ODOT SS 00405.13 – Pipe Zone Material. The pipe zone material should be compacted to at least 90% of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer.

Under pavements, paths, slabs, or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with less than 10% by dry weight passing the US Standard No. 200 Sieve, and should meet standards prescribed by ODOT SS 00405.14 – Trench Backfill, Class B or D. This material should be compacted to at least 92% of the maximum dry density, as determined by ASTM D1557 or as required by the pipe manufacturer. The upper 2 feet of the trench backfill should be compacted to at least 95% of the

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maximum dry density, as determined by ASTM D1557. Controlled low-strength material (CLSM), ODOT SS 00405.14 – Trench Backfill, Class E, can be used as an alternative.

Outside of structural improvement areas (e.g., pavements, sidewalks, or building pads), trench material placed above the pipe zone may consist of general structural fill materials that are free of organics and meet ODOT SS 00405.14 – Trench Backfill, Class A. This general trench backfill should be compacted to at least 90% of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local jurisdictions.

5.3.6 Retaining Wall Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of 0.5H should consist of granular material meeting ODOT SS 00510.12 – Granular Wall Backfill, which recommends ODOT SS 02630.11 – Open-Graded Aggregate. We recommend the granular wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the requirements provided in ODOT SS 02320.10 – Geosynthetics, Acceptance, and ODOT SS 02320.20 – Geotextile Property Values, Table 02320-4 for separation geotextile. The geotextile should be installed in conformance with ODOT SS Section 00350 – Geosynthetic Installation.

The wall backfill should be compacted to a minimum of 92% of the maximum dry density, as determined by ASTM D1557. However, backfill located within a horizontal distance of 3 feet from the retaining walls should only be compacted to approximately 90% of the maximum dry density, as determined by ASTM D1557. Backfill placed within 3 feet of the wall should be compacted in lifts less than 6 inches thick using hand-operated tamping equipment (such as jumping jack or vibratory plate compactors).

5.3.7 Stabilization Material

Stabilization rock should consist of pit or quarry run rock that is well-graded, angular, crushed rock consisting of 4- or 6-inch-minus material with less than 5% passing the US Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material. ODOT SS 00330.16 – Stone Embankment Material can be used as a general specification for this material with the stipulation of limiting the maximum size to 6 inches.

6 ADDITIONAL SERVICES AND CONSTRUCTION OBSERVATIONS

In most cases, other services beyond completion of a final geotechnical engineering report are necessary or desirable to complete the project. Occasionally, conditions or circumstances arise that require additional work that was not anticipated when the geotechnical report was written. PBS offers a range of environmental, geological, geotechnical, and construction services to suit the varying needs of our clients.

PBS should be retained to review the plans and specifications for this project before they are finalized. Such a review allows us to verify that our recommendations and concerns have been adequately addressed in the design.

Satisfactory earthwork performance depends on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. We recommend that PBS be retained to observe site stripping, fill area, footing, slab and pavement subgrades and fill placement and compaction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

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7 LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without express written consent of the client and PBS. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, field explorations, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that PBS is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated fill, soil and rock conditions, and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples or completing explorations such as soil borings. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project; therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on and off site), or other factors may change over time and could materially affect our findings; therefore, this report should not be relied upon after three years from its issue, or in the event that the site conditions change.

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

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The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

PREVIEW DRAFT

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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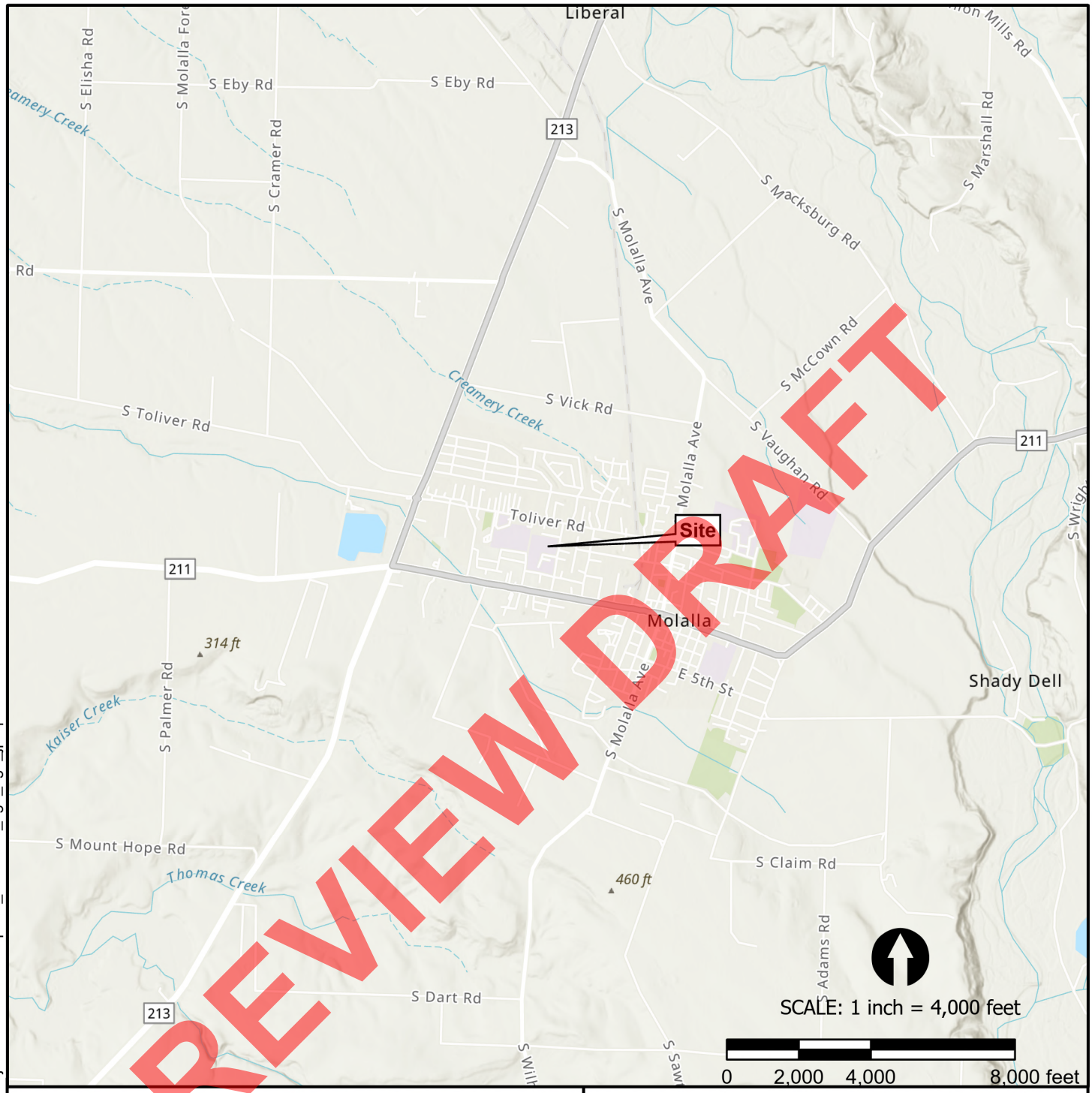
Figures

REVIEW DRAFT



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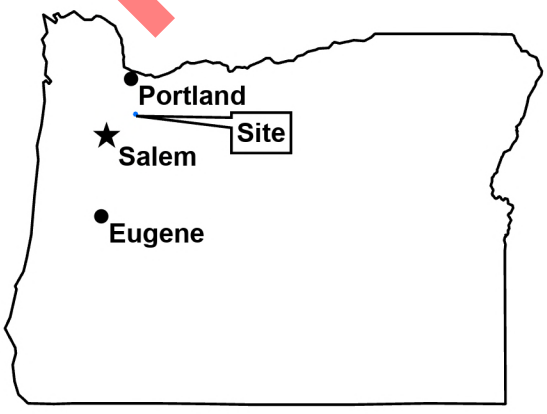

VICINITY MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT MOLALLA, OREGON

DATE: JAN 2025 · PROJECT: 24010734

PBS

FIGURE 1

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EXPLANATION

- Approximate boring location with infiltration test
- Approximate boring location
- Approximate new building perimeter

Notes: Google Earth 2023 imagery

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 150 feet

0 75 150 300 feet

SITE PLAN

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT MOLALLA, OREGON

DATE: JAN 2025 · PROJECT: 24010734

PBS

FIGURE 2

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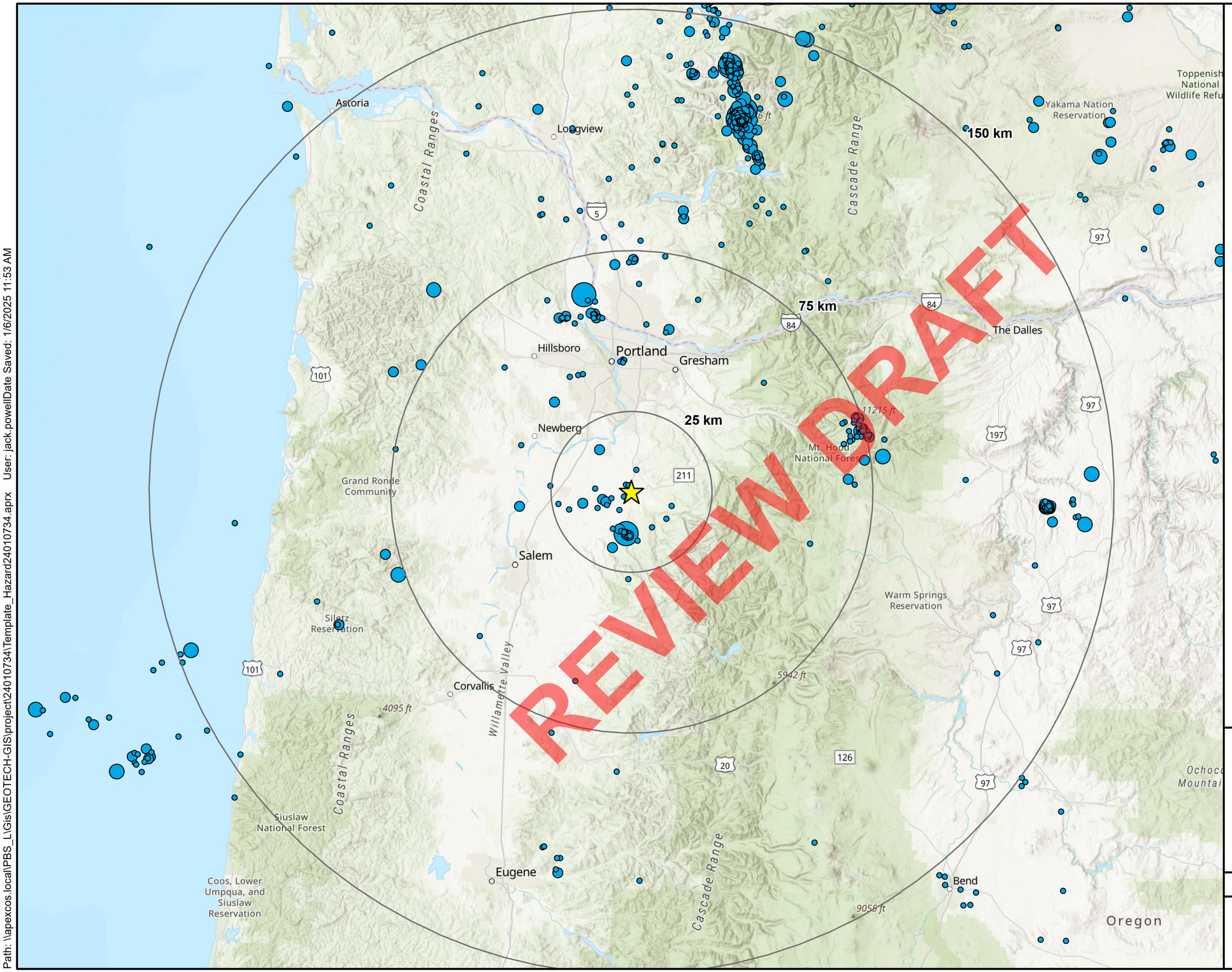

REVIEW DRAFT

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EXPLANATION

Site location

Site proximity buffer (km)

Independent seismicity (1963 - 2017)

- M 2.5 - 3.0
- M 3.1 - 4.0
- M 4.1 - 5.0
- M >5.1

Notes: Historical seismicity compiled from ANSS Comprehensive Earthquake Catalog

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 30 km

0 15 30 60 km

HISTORICAL SEISMICITY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

DATE: JAN 2025 · PROJECT: 24010734

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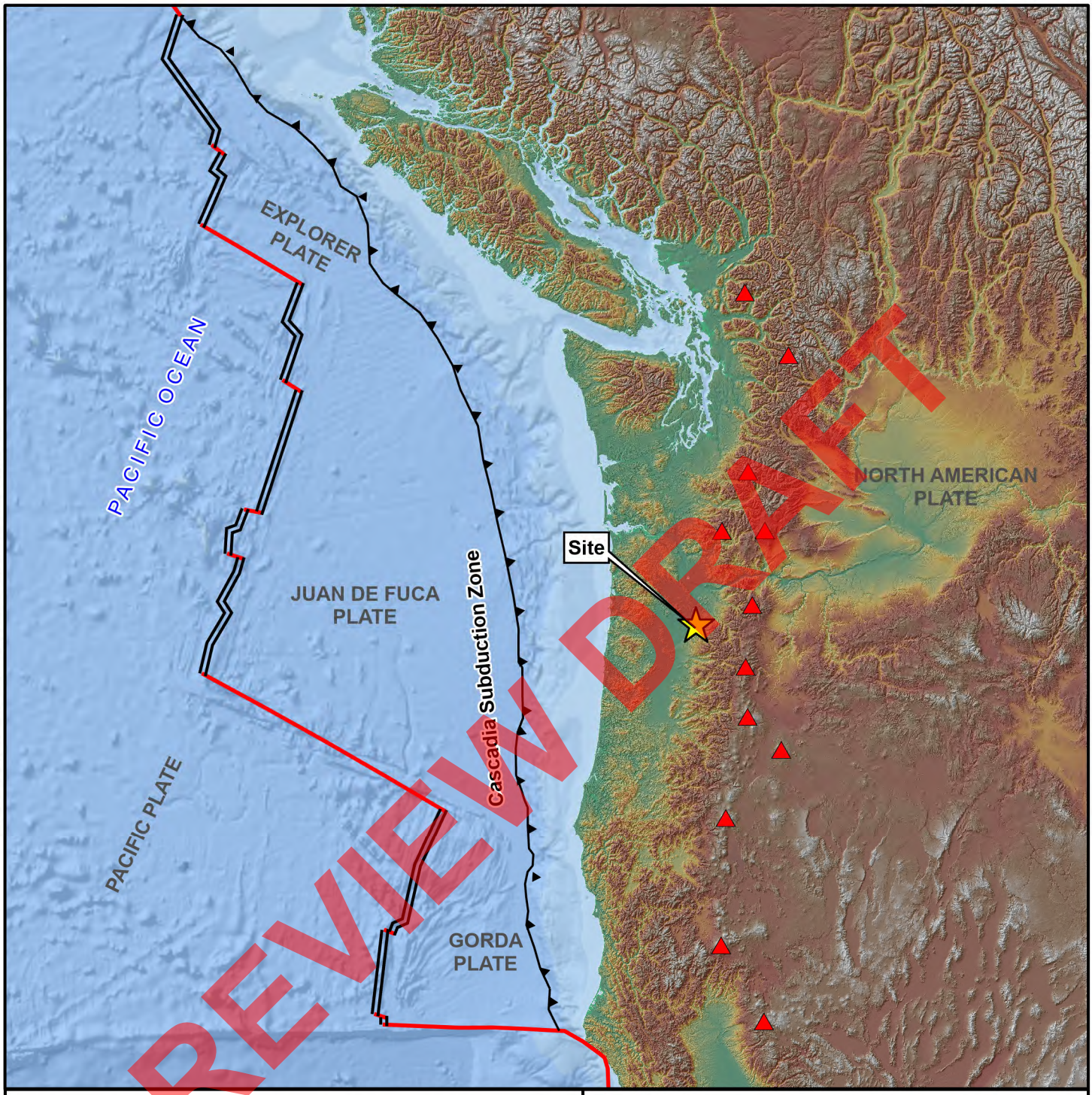
FIGURE 3



REVIEW DRAFT

EXPLANATION

- Active volcano
- Transform boundary
- Spreading ridge
- Thrust fault

Notes: SRTM 30-meter DEM, ESRI World Oceans Basemap, USGS Tectonic Plate Boundaries

TECTONIC SETTING OF THE PACIFIC NORTHWEST

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

DATE: JAN 2025 · PROJECT: 24010734

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FIGURE
4

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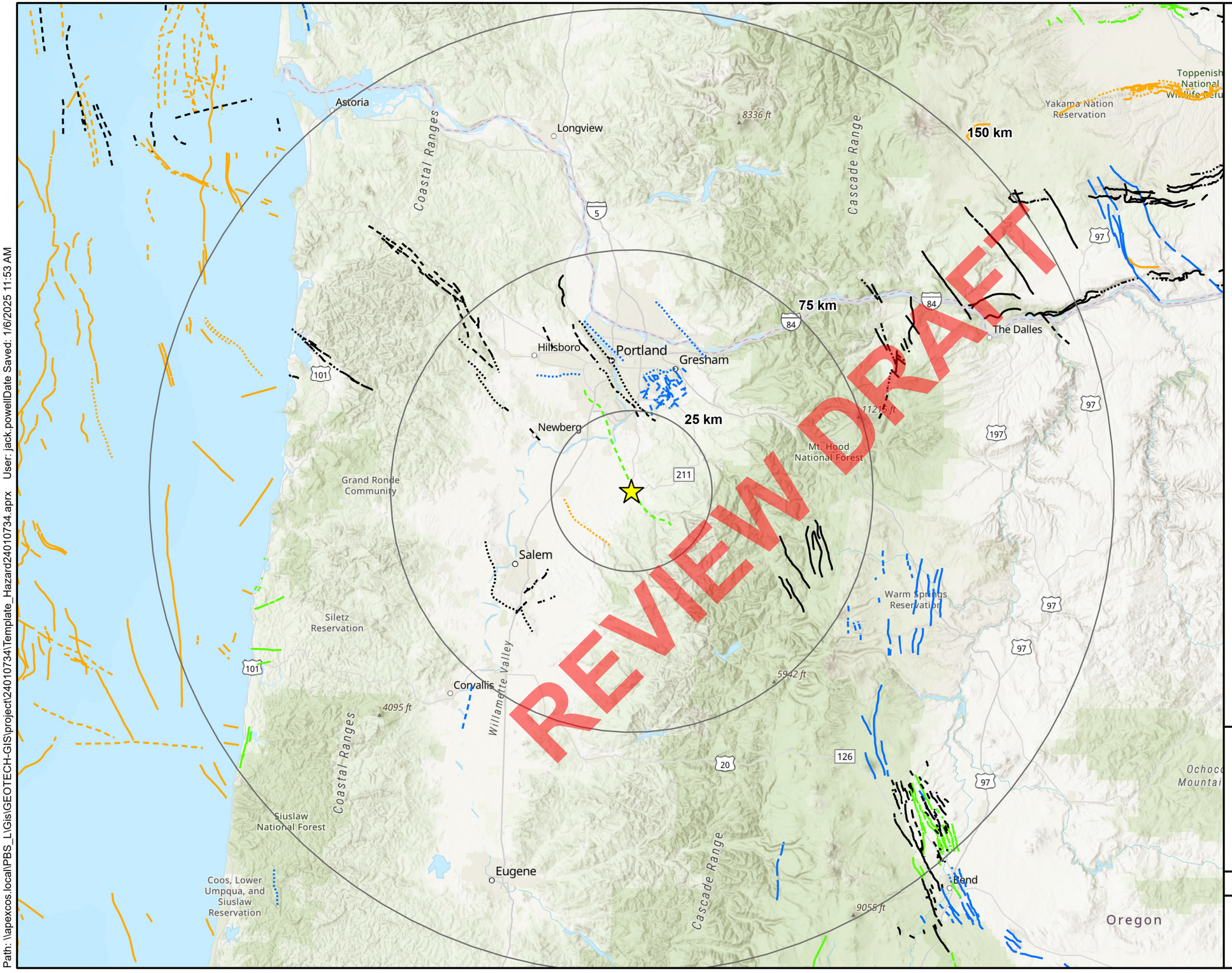

EXPLANATION

Site location

Site proximity buffer (km)

Fault trace - solid where well constrained, dashed where moderately constrained, and dotted where inferred

- <15,000 years - latest Quaternary
- <130,000 years - late Quaternary
- <750,000 years - middle and late Quaternary
- <1.6 million years - undifferentiated Quaternary

Notes: ESRI World Topographic basemap, USGS Quaternary Faults and Fold Database

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 30 km

0 15 30 60 km

REGIONAL FAULT MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT MOLALLA, OREGON

DATE: JAN 2025 · PROJECT: 24010734

PBS

FIGURE 5

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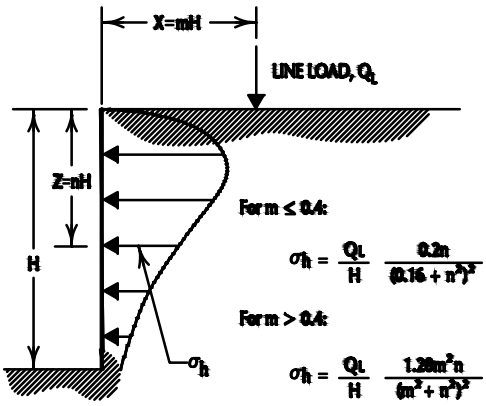
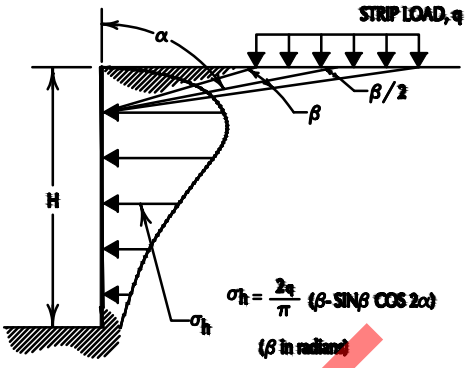
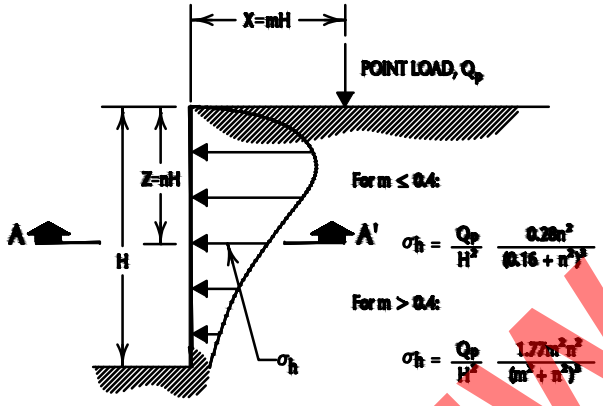
LATERAL SURCHARGE DETAIL

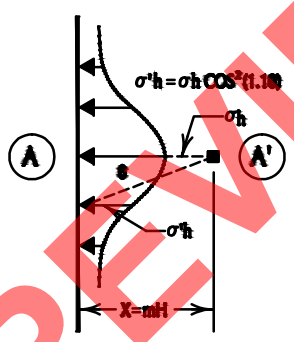


LINE LOAD PARALLEL TO WALL



STRIP LOAD PARALLEL TO WALL





DISTRIBUTION OF HORIZONTAL PRESSURES

VERTICAL POINT LOAD

NOTES:

1. THESE GUIDELINES APPLY TO RIGID WALLS WITH POISSON'S RATIO ASSUMED TO BE 0.5 FOR BACKFILL MATERIALS.
2. LATERAL PRESSURES FROM ANY COMBINATION OF ABOVE LOADS MAY BE DETERMINED BY THE PRINCIPLE OF SUPERPOSITION.

REVIEW DRAFT

Legend

NOT TO SCALE

H	=	HEIGHT OF RETAINED SOIL (FEET)
σ_h	=	LATERAL SURCHARGE PRESSURE
σ'_h	=	LATERAL SURCHARGE PRESSURE AT ANGLE θ

PBS

LATERAL SURCHARGE DETAIL

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT

MOLALLA, OREGON

JAN 2025
24010734

FIGURE
6

Appendix A
Field Explorations

REVIEW DRAFT

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Table A-1
Terminology Used to Describe Soil
1 of 2

Soil Descriptions

Soils exist in mixtures with varying proportions of components. The predominant soil, i.e., greater than 50% based on total dry weight, is the primary soil type and is capitalized in our log descriptions (SAND, GRAVEL, SILT, or CLAY). Smaller percentages of other constituents in the soil mixture are indicated by modifier words in general accordance with the ASTM D2488 Visual-Manual Procedure. "General Accordance" means that certain local and common descriptive practices may have been followed. In accordance with ASTM D2488, group symbols (such as GP or CH) are applied on the portion of soil passing the 3-inch (75mm) sieve based on visual examination. The following explains the soil names and modifying terms used to describe fine- and coarse-grained soils.

Fine-Grained Soils (50% or greater fines passing 0.075mm, No. 200 sieve)
The primary soil type, i.e., SILT or CLAY, is designated through visual-manual procedures to evaluate soil toughness, dilatancy, dry strength, and plasticity. The following outlines the terminology used to describe fine-grained soils and may vary from ASTM D2488 terminology in the use of some common terms.

Primary Soil NAME, Symbols, and Adjectives			Plasticity Description	Plasticity Index (PI)
SILT (ML & MH)	**CLAY (CL & CH)**	**ORGANIC SOIL (OL & OH)**		
SILT		Organic SILT	Non-plastic	0 – 3
SILT		Organic SILT	Low plasticity	4 – 10
SILT/Elastic SILT	Lean CLAY	Organic SILT/ Organic CLAY	Medium Plasticity	10 – 20
Elastic SILT	Lean/Fat CLAY	Organic CLAY	High Plasticity	20 – 40
Elastic SILT	Fat CLAY	Organic CLAY	Very Plastic	>40

Modifying terms describing secondary constituents, estimated to 5% increments, are applied as follows:

Description	% Composition	
With Sand	% Sand ≥ % Gravel	15% to 25% plus No. 200
With Gravel	% Sand < % Gravel	
Sandy	% Sand ≥ % Gravel	≤30% to 50% plus No. 200
Gravelly	% Sand < % Gravel	

Borderline Symbols, for example, CH/MH, are used when soils are not distinctly in one category or when variable soil units contain more than one soil type. **Dual Symbols,** for example, CL-ML, are used when two symbols are required in accordance with ASTM D2488.

Soil Consistency terms are applied to fine-grained, plastic soils (i.e., PI ≥ 7). Descriptive terms are based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586, as follows. SILT soils with low to non-plastic behavior (i.e., PI < 7) may be classified using relative density.

Consistency Term	SPT N-value	Unconfined Compressive Strength	
		tsf	kPa
Very soft	Less than 2	Less than 0.25	Less than 24
Soft	2 – 4	0.25 – 0.5	24 – 48
Medium stiff	5 – 8	0.5 – 1.0	48 – 96
Stiff	9 – 15	1.0 – 2.0	96 – 192
Very stiff	16 – 30	2.0 – 4.0	192 – 383
Hard	Over 30	Over 4.0	Over 383

REVIEW DRAFT

Soil Descriptions

Coarse-Grained Soils (less than 50% fines)

Coarse-grained soil descriptions, i.e., SAND or GRAVEL, are based on the portion of materials passing a 3-inch (75mm) sieve. Coarse-grained soil group symbols are applied in accordance with ASTM D2488 based on the degree of grading, or distribution of grain sizes of the soil. For example, well-graded sand containing a wide range of grain sizes is designated SW; poorly graded gravel, GP, contains high percentages of only certain grain sizes. Terms applied to grain sizes follow.

Material NAME	Particle Diameter	
	Inches	Millimeters
SAND (SW or SP)	0.003 – 0.19	0.075 – 4.8
GRAVEL (GW or GP)	0.19 – 3	4.8 – 75
Additional Constituents:		
Cobble	3 – 12	75 – 300
Boulder	12 – 120	300 – 3050

The primary soil type is capitalized and the fines content in the soil are described as indicated by the following examples. Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%. Other soil mixtures will have similar descriptive names.

Example: Coarse-Grained Soil Descriptions with Fines

>5% to < 15% fines (Dual Symbols)	≥15% to < 50% fines
Well-graded GRAVEL with silt: GW-GM	Silty GRAVEL: GM
Poorly graded SAND with clay: SP-SC	Silty SAND: SM

Additional descriptive terminology applied to coarse-grained soils follow.

Example: Coarse-Grained Soil Descriptions with Other Coarse-Grained Constituents

Coarse-Grained Soil Containing Secondary Constituents	
With sand or with gravel	≥ 15% sand or gravel
With cobbles; with boulders	Any amount of cobbles or boulders.

Cobble and boulder deposits may include a description of the matrix soils, as defined above.

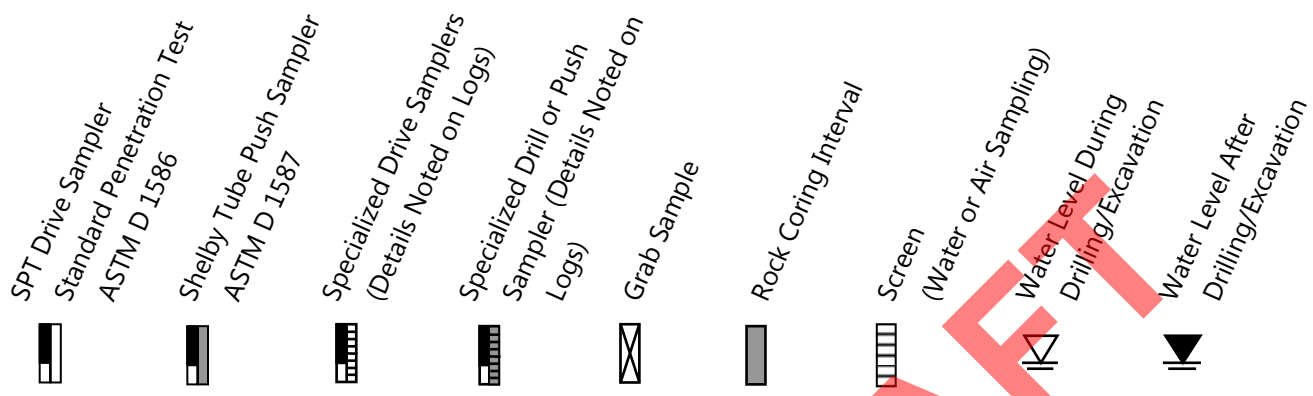
Relative Density terms are applied to granular, non-plastic soils based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586.

Relative Density Term	SPT N-value
Very loose	0 – 4
Loose	5 – 10
Medium dense	11 – 30
Dense	31 – 50
Very dense	> 50

REVIEW DRAFT

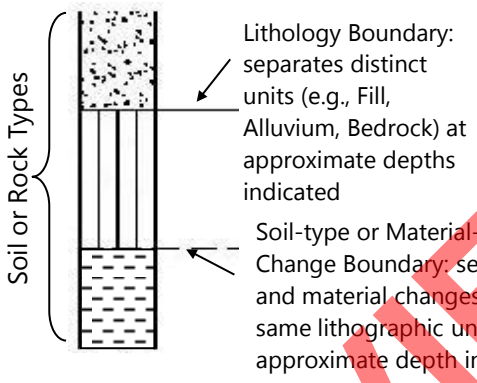
Table A-2
Key To Test Pit and Boring Log Symbols

SAMPLING DESCRIPTIONS

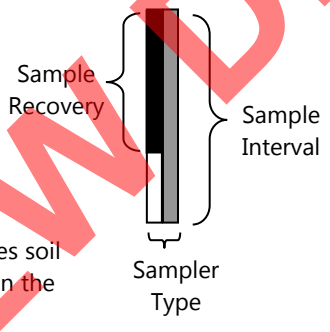


LOG GRAPHICS

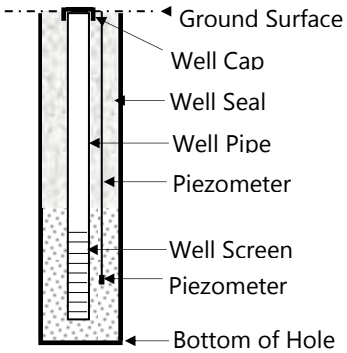
Soil and Rock



Sampling Symbols



Instrumentation Detail



Geotechnical Testing Acronym Explanations

PP	Pocket Penetrometer	HYD	Hydrometer Gradation
TOR	Torvane	SIEV	Sieve Gradation
DCP	Dynamic Cone Penetrometer	DS	Direct Shear
ATT	Atterberg Limits	DD	Dry Density
PL	Plasticity Limit	CBR	California Bearing Ratio
LL	Liquid Limit	RES	Resilient Modulus
PI	Plasticity Index	VS	Vane Shear
P200	Percent Passing US Standard No. 200 Sieve	bgs	Below ground surface
OC	Organic Content	amsl	Above Mean Sea Level
CON	Consolidation	HCL	Hydrochloric Acid
UC	Unconfined Compressive Strength		

REVIEW DRAFT

Details of soil and rock classification systems are available upon request.

Appendix A: Field Explorations

A1 GENERAL

PBS explored subsurface conditions at the project site by advancing six borings to depths of up to approximately 26.5 feet bgs on December 12 and 13, 2024. The approximate locations of the explorations are shown on Figure 2, Site Plan. The procedures used to advance the borings, collect samples, and other field techniques are described in detail in the following paragraphs. Unless otherwise noted, all soil sampling and classification procedures followed engineering practices in general accordance with relevant ASTM procedures. "General accordance" means that certain local drilling/excavation and descriptive practices and methodologies have been followed.

A2 BORINGS

A2.1 Drilling

Borings were advanced using an ATV-mounted CME-55 drill rig provided and operated by Western States Soil Conservation, Inc., of Hubbard, Oregon. Borings B-2 through B-6 were advanced using mud rotary drilling techniques. Boring B-1 was advanced using hollow-stem auger drilling techniques for the purpose of infiltration testing. The borings were observed by a member of the PBS geotechnical staff, who maintained a detailed log of the subsurface conditions and materials encountered during the course of the work.

A2.2 Sampling

Disturbed soil samples were taken in the borings at selected depth intervals. The samples were obtained using a standard 2-inch outside diameter, split-spoon sampler following procedures prescribed for the standard penetration test (SPT). Using the SPT, the sampler is driven 18 inches into the soil using a 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler the last 12 inches is defined as the standard penetration resistance (N-value). The N-value provides a measure of the relative density of granular soils such as sands and gravels, and the consistency of cohesive soils such as clays and plastic silts. The disturbed soil samples were examined by a member of the PBS geotechnical staff and then sealed in plastic bags for further examination and physical testing in our laboratory.

A2.3 Boring Logs

The boring logs show the various types of materials that were encountered in the borings and the depths where the materials and/or characteristics of these materials changed, although the changes may be gradual. Where material types and descriptions changed between samples, the contacts were interpreted. The types of samples taken during drilling, along with their sample identification number, are shown to the right of the classification of materials. The N-values and natural water (moisture) contents are shown farther to the right.

A3 MATERIAL DESCRIPTION

Initially, samples were classified visually in the field. Consistency, color, relative moisture, degree of plasticity, and other distinguishing characteristics of the soil samples were noted. Afterward, the samples were reexamined in the PBS laboratory, various standard classification tests were conducted, and the field classifications were modified where necessary. The terminology used in the soil classifications and other modifiers are defined in Table A-1, Terminology Used to Describe Soil.

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MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-1

APPROX. BORING B-1 LOCATION:
(See Site Plan)
Lat: 45.15307 Long: -122.58906

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
0.0		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.					Surface Conditions: Grass
0.0		TOPSOIL (~6 inches) with roots	0.0				
		Very stiff, brown, gray, and orange, sandy lean CLAY (CL) with gravel and trace organics; high plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	0.5		S-1	23	
4.0		becomes wet		P200	S-2	17	Rig chatter P200 = 28% Infiltration testing completed at 5 feet bgs
		Very dense, brown, gray, and orange, clayey SAND (SC) with gravel; medium plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist to wet	7.5		S-3	55	
10.0		Very dense, brown, gray, and black, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	10.0		S-4	13-50/5	
		Final depth 11.0 feet bgs due to refusal; boring backfilled with bentonite and soil cuttings. Groundwater not encountered at time of exploration.	11.0				
30.0							

REVIEW DRAFT

DRILLING METHOD: Hollow-Stem Auger
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 8 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A1
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

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AN APEX COMPANY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-2

APPROX. BORING B-2 LOCATION:
(See Site Plan)
Lat: 45.15203 Long: -122.58966

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC% (0 50 100)	INSTALLATION AND COMMENTS
0.0		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.					Surface Conditions: Grass
0.0		TOPSOIL (~6 inches) with roots	0.0				
		Hard, brown, gray, and orange, sandy lean CLAY (CL) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist	0.5		S-1	36	
5.0		Medium dense, brown, gray, and orange, clayey SAND (SC) with trace gravel; medium plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist	5.0	ATT	S-2	25	LL = 48 PL = 29 PI = 19 Rig chatter to bottom of boring
7.5		Dense, brown-gray, clayey GRAVEL (GC) with sand; medium plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	7.5		S-3	35	
10.0		becomes very dense; low plasticity			S-4	18-42-50/5	Driller notes boulder at 12 feet bgs
15.0		becomes brown, gray, and orange			S-5	93	
20.0		becomes brown, red, and gray; moist to wet			S-6	16-20-50/5	
25.0		becomes orange, brown, and gray			S-7	80	
26.5		Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.	26.5				
30.0							

REVIEW DRAFT

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A2
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

PBS
AN APEX COMPANY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-3

APPROX. BORING B-3 LOCATION:
(See Site Plan)
Lat: 45.15255 Long: -122.59040

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
0.0		TOPSOIL (~6 inches) with roots	0.0				Surface Conditions: Grass
		Very stiff, brown, orange, and gray, sandy fat CLAY (CH) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist	0.5	ATT	S-1	29	LL = 52 PL = 20 PI = 32
5.0		Medium dense, gray-brown, clayey SAND (SC); medium plasticity; fine to coarse sand; moist	5.0		S-2	22	Rig chatter to 20 feet bgs
7.5		Very dense, gray-brown, clayey SAND (SC) with gravel; medium plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	7.5		S-3	56	
10.0		Very dense, gray, brown, and orange, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	10.0		S-4	35-50/6	
					S-5	50/5	
		becomes brown-gray; rounded to subangular gravel			S-6	20-50/1	
		becomes orange, brown, and gray subrounded to subangular gravel; moist to wet			S-7	70	
26.5		Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.	26.5				

REVIEW DRAFT

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A3
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

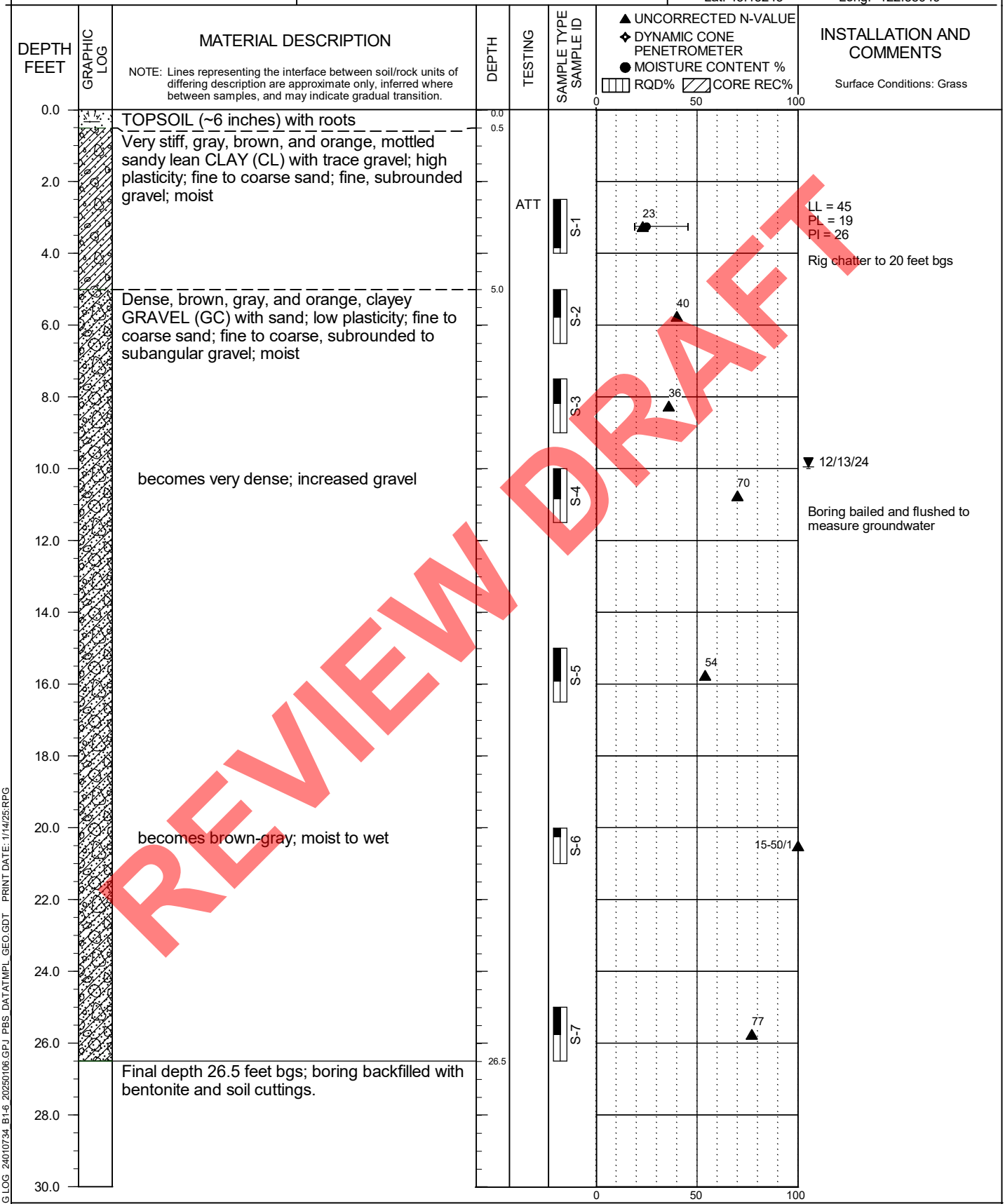
PBS
AN APEX COMPANY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-4

APPROX. BORING B-4 LOCATION:
(See Site Plan)
Lat: 45.15243 Long: -122.58949



REVIEW DRAFT

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A4
Page 1 of 1

PBS
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MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-5

APPROX. BORING B-5 LOCATION:
(See Site Plan)
Lat: 45.15202 Long: -122.59041

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	0.0			0 50 100	Surface Conditions: Grass
		TOPSOIL (~6 inches) with roots	0.5				
2.0		Very stiff, brown, orange, and gray, sandy lean CLAY (CL) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, rounded to subangular gravel; moist			S-1	26	
4.0							
6.0		Dense, brown, orange, and gray, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	5.5		S-2	31	Rig chatter to 20 feet bgs
8.0					S-3	35	
10.0		becomes very dense			S-4	50/4	
12.0							
14.0							
16.0					S-5	85	
18.0							
20.0					S-6	30-50/5	
22.0							
24.0							
26.0		increased orange fines; low plasticity; moist to wet			S-7	41	
			26.5				
28.0		Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.					
30.0						0 50 100	

REVIEW DRAFT

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A5
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

PBS
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MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-6

APPROX. BORING B-6 LOCATION:
(See Site Plan)
Lat: 45.15209 Long: -122.58901

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC% (0 – 50 – 100)	INSTALLATION AND COMMENTS
0.0		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	0.0				Surface Conditions: Grass
		TOPSOIL (~6 inches) with roots	0.5				
2.0		Very stiff, brown, orange, and gray, sandy lean CLAY (CL) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist			S-1	17	
4.0							
6.0		Medium dense, brown, orange, and gray, clayey SAND (SC) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist	5.0	ATT	S-2	18	LL = 47 PL = 21 PI = 26 Rig chatter to 18 feet bgs
8.0		Dense, brown-gray, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	7.5		S-3	33	
10.0		becomes very dense			S-4	50/6	
12.0							
14.0							
16.0					S-5	20-50/5	
18.0							
20.0		becomes dense, orange, black, and brown; increased fines; moist to wet			S-6	50	
22.0							
24.0					S-7	45	
26.0		Final depth 25.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.	25.5				
28.0							
30.0							

REVIEW DRAFT

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A6
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

Appendix B
Laboratory Testing

REVIEW DRAFT

Appendix B: Laboratory Testing

B1 GENERAL

Samples obtained during the field explorations were examined in the PBS laboratory. The physical characteristics of the samples were noted and field classifications were modified where necessary. During the course of examination, representative samples were selected for further testing. The testing program for the soil samples included standard classification tests, which yield certain index properties of the soils important to an evaluation of soil behavior. The testing procedures are described in the following paragraphs. Unless noted otherwise, all test procedures are in general accordance with applicable ASTM standards. "General accordance" means that certain local and common descriptive practices and methodologies have been followed.

B2 CLASSIFICATION TESTS

B2.1 Visual Classification

The soils were classified in accordance with the Unified Soil Classification System with certain other terminology, such as the relative density or consistency of the soil deposits, in general accordance with engineering practice. In determining the soil type (that is, gravel, sand, silt, or clay) the term that best described the major portion of the sample is used. Modifying terminology to further describe the samples is defined in Table A-1, Terminology Used to Describe Soil, in Appendix A.

B2.2 Moisture (Water) Contents

Natural moisture content determinations were made on samples of the fine-grained soils (that is, silts, clays, and silty sands). The natural moisture content is defined as the ratio of the weight of water to dry weight of soil, expressed as a percentage. The results of the moisture content determinations are presented on the exploration logs in Appendix A and on Figure B2, Summary of Laboratory Data, in Appendix B.

B2.3 Atterberg Limits

Atterberg limits were determined on select samples for the purpose of classifying soils into various groups for correlation. The results of the Atterberg limits test, which included liquid and plastic limits, are plotted on Figure B1, Atterberg Limits Test Results, and on the exploration logs in Appendix A, where applicable.

B2.4 Grain-Size Analyses (P200 Wash)

Washed sieve analyses (P200) were completed on samples to determine the portion of soil samples passing the No. 200 Sieve (i.e., silt and clay). The P200 test results are presented on the exploration logs in Appendix A and on Figure B2, Summary of Laboratory Data, in Appendix B.

REVIEW DRAFT

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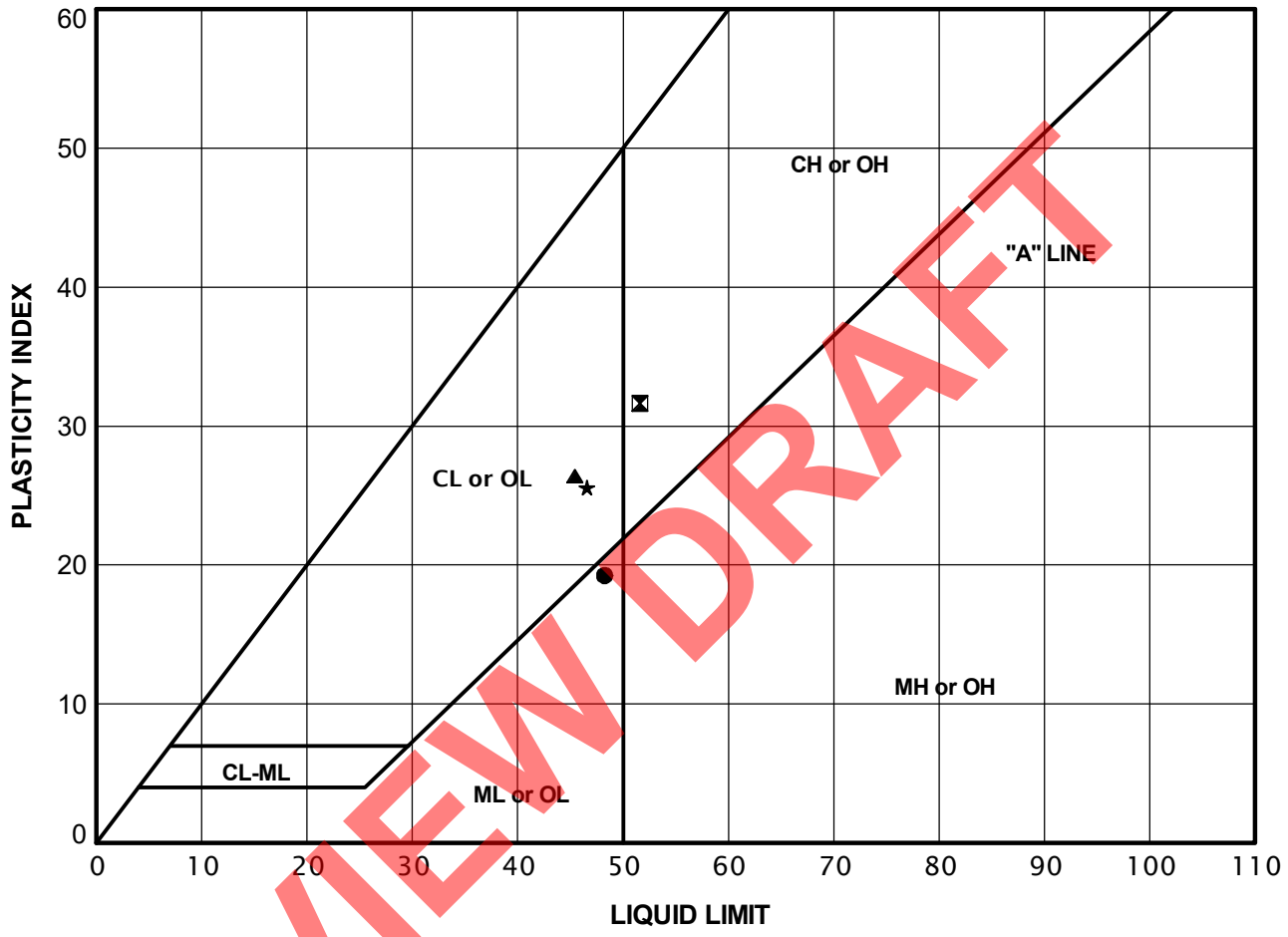
ATTERBERG LIMITS TEST RESULTS

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

TEST METHOD: ASTM D4318



REVIEW DRAFT

KEY	EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	PERCENT PASSING NO. 40 SIEVE (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-2	S-2	5.0	35.6	NA	48	29	19
⊠	B-3	S-1	2.5	24.4	NA	52	20	32
▲	B-4	S-1	2.5	25.0	NA	45	19	26
★	B-6	S-2	5.0	28.9	NA	47	21	26

FIGURE B1
Page 1 of 1

_ATTERBERG LIMITS 24010734_B1-6_20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

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SUMMARY OF LABORATORY DATA

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

SAMPLE INFORMATION				MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-1	S-1	2.5		47.6							
B-1	S-2	5		46.3				28			
B-2	S-1	2.5		27.1							
B-2	S-2	5		35.6					48	29	19
B-3	S-1	2.5		24.4					52	20	32
B-4	S-1	2.5		25.0					45	19	26
B-5	S-1	2.5		25.7							
B-6	S-1	2.5		28.9							
B-6	S-2	5		28.9					47	21	26

REVIEW DRAFT

_LAB SUMMARY 24010734_B1-6_20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

FIGURE B2

Appendix H: Wetland Delineation Report

Molalla River Middle School Replacement
Molalla, Clackamas County, Oregon
Wetland and Water Delineation Report

Date: May 2025

Prepared for:
Molalla River School District
318 Leroy Avenue
Molalla, Oregon 97038

Prepared by:
AKS Engineering & Forestry, LLC
Allison Law, Natural Resource Specialist
Sonya Davis, PWS, Wetland Scientist

Study Area:
Clackamas County Assessor's Map 5 2 E 08B
Tax Lot 3000 and portion of right-of-way
Molalla, Oregon

AKS Job Number: 11540

AKS ENGINEERING & FORESTRY
12965 SW Herman Road, Suite 100
Tualatin, OR 97062
(503) 563-6151

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Figure 1: USGS Vicinity Map
Figure 2: Clackamas County Assessor's Map (5 2 E 08B))
Figure 3: NRCS Soil Survey Map
Figure 4: Local Wetlands Inventory (LWI) Map
Figure 5: Wetland and Water Delineation Map
Appendix B: Wetland Determination Data Forms
Appendix C: Representative Site Photographs
Appendix D: APT Report
Appendix E: SDAM Data Form
Appendix F: Literature Cited and Referenced

Introduction

This report was prepared by AKS Engineering & Forestry, LLC (AKS) in accordance with Oregon Administrative Rules (OAR) 141-090-0030 and 141-090-0035 and describes the results of a wetland and water delineation conducted on Tax Lot 3000 and a portion of public right-of-way of Clackamas County Assessor's Map 5 2 E 08B, which is consists of the Molalla River Middle School located at 318 Leroy Avenue in Molalla, Oregon (Figures 1 and 2 in Appendix A). The study area for the wetland and water delineation is ±22 acres and is shown in Figures 1 through 5 in Appendix A.

AKS conducted site visits on February 11 and April 9, 2025, and delineated the boundaries of one potentially jurisdictional Palustrine emergent (PEM) wetland (referred to as Wetland A) and one Palustrine scrub-shrub (PSS) wetland (referred to as Wetland B), and a partially ephemeral and partially intermittent drainage within the study area, as described in further detail below and summarized in Table 1 of this report. Additionally, two roadside ditches were observed within the study area.

A wetland delineation was conducted on the adjacent site to the south (Tax Lot 4300) by Schott & Associates in 2002 and received concurrence from the Oregon Department of State Lands (DSL) under File No. WD2002-0316. Per WD2002-0316, wetland conditions did not extend within the 2025 AKS study area boundary of the West Lane right-of-way. In 2003, a removal-fill permit was issued by DSL for permanent impacts to the off-site wetland for the construction of the Molalla Medical Offices (DSL Permit 31430-FP). Wetland impacts were mitigated through the on-site creation of 0.269 acres of Palustrine forested (PFO) wetland and the enhancement of 0.54 acres of PSS wetland. Wetland creation mitigation did not extend within the West Lane right-of-way. Therefore, Wetland B delineated under this study is not considered a wetland mitigation site per 31430-FP.

A. Landscape Setting and Land Use

The study area consists of the Molalla River Middle School located in the southeastern portion of the site with associated parking lots and athletic fields (three baseball fields and multiple soccer fields). The study area is dominant in mowed bentgass (*Agrostis* spp., FAC) and bluegrass (*Poa* spp., FAC). A channelized drainage boarders the northern study area boundary. The surrounding land use consists primarily of residential development with Molalla Elementary School and athletic track to the west and some commercial to the south. Topography is generally flat (less than 3 percent slopes) throughout the study area.

The hydric Dayton silt loam (Unit 29) soil unit is mapped within the study area, according to the Natural Resources Conservation Service (NRCS) Clackamas County Area Soil Survey Map (Figure 3 in Appendix A).

B. Site Alterations

Historical aerial imagery dating from 2000 to 2023 was reviewed via Google Earth to determine if any site alterations may have affected the presence, location, or geographic boundaries of any wetlands or non-wetland waters within the study area. According to aerial imagery, the current Molalla River Middle School and associated buildings, parking lots, and athletic fields have existed since prior to 2000. Potential saturation signatures were observed in the northern portion of the study area within the athletic fields beginning May 2010 and persisting through the spring of subsequent years. It is likely these areas are irrigated during the summer months.

Since July 2000, the study area has remained relatively unchanged with no apparent site alterations that would impact the extent of wetlands and non-wetlands water delineated under this study.

C. Precipitation Data and Analysis

Fieldwork was conducted on February 11 and April 9, 2025. The Applied Climate Information System (ACIS) Climate Analysis for Wetlands Tables (WETS) station closest to the study area is the Estacada 2SE station. The Estacada 2SE station WETS growing season is between March 31 and November 15. The February 11, 2025, site visit was conducted outside of the WETS growing season while the April 9, 2025, site visit was conducted within the WETS growing season.

According to the USACE Antecedent Precipitation Tool (APT), Version 1.0.20 (USACE 2022), both the February 11 and April 9, 2025, site visits were conducted during normal precipitation conditions. However, incipient wetness was noted for the April 2025 site visit per the drought index. Observed precipitation data was obtained from multiple weather stations to calculate antecedent rainfall more accurately. Results of the APT are included in Appendix D.

Per the Estacada 2SE station, no rain was recorded on the day of February 11, 2025, and 2.01 inches were recorded in the two weeks prior. The observed water year to date for the February 11 , 2025, site visit (starting October 1, 2024) was 27.44 inches, which is 86 percent of normal. Climatic conditions for the three-month periods leading up to the February 11, 2025, site visit was determined to be within normal.

According to the Estacada 2SE station, 0.43 inches of rain was recorded on the day of April 9, 2025, and 2.76 inches were recorded in the two weeks prior. The observed water year to date for the April 9, 2025, site visit (starting October 1, 2024) was 44.27 inches, which is 100% percent of normal. Climatic conditions for the three-month periods leading up to the April 9, 2025, site visit was determined to be wetter than normal. Due to the heavy rainfall received two weeks prior to the site visit, a high groundwater table was observed at upland Plots 11 and 12; however, this did not affect the results of the wetland delineation as Plots 11 and 12 did not meet hydric soil indicators.

D. Site-Specific Methods

The methodology used to determine the presence of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010). The *National Wetland Plant List* (USACE 2022) was used to assign wetland indicator status for the appropriate region. The US Fish & Wildlife Service (USFWS) Cowardin classification system (Cowardin, et al. 1979) was used to describe wetland vegetation communities. The DSL *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles* (Adamus 2001) was used to assign HGM class.

The ordinary high water (OHW) of the intermittent drainage was delineated based on physical field indicators in accordance with Oregon Administrative Rule (OAR) 141-085-0515(3), which consisted of a distinct break in topography and change in sediment characteristics. Flow duration data using the Environmental Protection Agency (EPA) *Streamflow Duration Assessment Method for Oregon* (SDAM) was collected to determine flow regimes for the drainage within the study area (Appendix E).

Fieldwork was conducted on February 11, 2025, by AKS Wetland Scientist Sonya Davis, PWS, and Natural Resource Specialist Allison Law and a follow-up site visit was conducted on April 9, 2025. Soils, vegetation, and indicators of hydrology were recorded at 15 sample plot locations on standardized wetland determination data forms (Appendix B) to document site conditions.

During the delineation, plots were established in NRCS mapped hydric soil, within LWI mapped wetlands, and in areas of potential saturation signatures observed on aerial images. Seven standalone sample plots (Plots 5 through 9, 12, and 13) were established to confirm upland conditions within the study area. Additionally, eight paired sample plots (Plots 1 through 4, 10, 11, 14, and 15) were established along the wetland boundary to confirm that a subtle change in topography was consistent with the wetland/upland interface. Sample plots were left open for approximately twenty minutes to allow for sufficient time for any potential groundwater table to seep in.

The vegetation within the athletic field had been planted and mowed and the *Regional Supplement's* Chapter 5, Problematic Hydrophytic Vegetation was reviewed; however, upland plots lacked hydric soils and indicators of wetland hydrology, therefore vegetation was not problematic in determining wetland presence. Additionally, a high groundwater table was observed at Plots 11 and 12 likely due to almost 3 inches of rain received within the two weeks prior to the April 2025 site visit. Plots 11 and 12 did not have hydric soil and therefore were determined to be upland.

Representative ground-level site photographs are included in Appendix C. References cited and literature used are included in Appendix F.

E. Description of Wetlands and Non-Wetland Waters

Wetlands

Wetland A

The PEM wetland is located in the northwestern portion of the study area and does not continue off-site. The wetland was dominant in bentgrass (FAC), and bluegrass (FAC) as documented at Plots 1 and 3. Wetland A is fed mainly by a seasonally high groundwater table and direct precipitation and secondarily by surface runoff. Therefore, the wetland belongs to the Slope Valley (SV) Hydrogeomorphic (HGM) subclass. The wetland boundary was delineated based on a change in landform, from a subtle concave depression in the wetland to a slightly higher elevation in the upland. The paired upland plots lacked hydric soils and indicators of wetland hydrology.

Wetland B

Wetland B is a PSS wetland located in the southern portion of the study area within the West Lane right-of-way and continues off-site to the south. The wetland was dominant in reed canary grass (*Phalaris arundinacea*, FACW), Himalayan blackberry (*Rubus armeniacus*, FAC), and Douglas' meadowsweet (*Spirea douglasii,* FACW) as documented at Plots 10 and 15. Wetland B is fed mainly by a seasonally high groundwater table and upland surface runoff. Therefore, the wetland belongs to the Slope Valley (SV) Hydrogeomorphic (HGM) subclass. The wetland boundary was delineated based on a change in landform, from a subtle concave depression in the wetland to a slightly higher elevation in the upland. The paired upland plots lacked hydric soils. A high groundwater table was observed at paired upland Plot 11 likely due to heavy rainfall prior to the site visit.

Non-Wetland Waters

The OHW of one drainage was delineated along the northern study area boundary. The on-site flow regime of the drainage is documented by two SDAM field assessment forms. Based on the presence of reed canary grass (FACW), and lamp rush (*Juncus effusus*, FACW) along the channel banks, the lower segment of the drainage was determined to have an intermittent flow regime, while the upper segment was determined to have an ephemeral flow regime. The centerline of the ephemeral portion of the drainage was mapped as it lacked a well-defined OHW.

The drainage flows east to west, originating from a 16-inch concrete culvert in the northeast portion of the study area under Leroy Avenue and extends off-site to the west. No channel was observed off-site to the east. The intermittent segment contained ±4 to 6 inches of surface water and had an average channel width of 2 to 3 feet with 5-foot-tall banks. The channel substrate consisted of a silty clay loam. The ephemeral segment of the drainage was approximately ±3 feet wide with ±3-foot-tall banks and consisted of a silty clay loam substrate with some cobbles and gravels. No surface water was present in the ephemeral segment of the drainage and the channel bed was mostly unvegetated with geranium (*Geranium* spp., assumed FAC), Himalayan blackberry (FAC), red dead-nettle (*Lamium purpureum*, FAC), bentgass, Fuller's teasel (*Dipsacus fullonum*, FAC), Queen Anne's-lace (*Daucus carota*, FAC), hairy cat's-ear (*Hypochaeris radicata*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FAC), and stinking willie (*Jacobaea vulgaris*, FACU) growing along its banks.

According to the Oregon Department of Fish and Wildlife (ODFW) Oregon Fish Habitat and Distribution Barriers Map, the drainage is not mapped as a fish bearing stream. Additionally, the drainage is not currently mapped by ODFW and DSL as Essential Salmonid Habitat (ESH).

Roadside Ditch 1 & 2

Two ephemeral roadside ditches were present within the study area. Ditch 1 was present along a portion of Leroy Avenue in the eastern portion of the study area. Ditch 2 was present along a portion of West Lane in the southern portion of the study area. The ditches were excavated to convey upland runoff from the adjacent roadways and lacked a defined OHW. Both ditches were approximately 2 feet wide with 1-foot-tall banks. Ditch 1 consisted of a silt loam substrate and was sparsely vegetated with FAC grasses such as bentgrass and bluegrass. Ditch 2 consisted of a silt loam substrate with angular cobbles and gravels and was vegetated with tall false rye grass (FAC) bentgrass (FAC) and Himalayan blackberry (FAC). Plot 13 documents upland conditions within Ditch 2. No flow or surface water was observed within the ditches during the February 11, 2025, site visit.

Upland

Plots 5 through 8 were recorded within the athletic field in potential saturation signature per Google Earth aerial imagery. Vegetation at the plots was dominated by FAC grasses, including bentgrass and bluegrass and weedy herbaceous species. All plots lacked hydric soils and indicators of wetland hydrology. Therefore, these areas were determined to be upland.

Plots 9 and 12 were recorded within West Lane right-of-way. Vegetation at the plots was dominated by FAC grasses, including bentgrass, bluegrass, and tall false rye grass (*Schedonorus arundinaceus,* FAC), and other weedy species. All plots lacked hydric soils however a high groundwater table was observed at Plot 12, likely due to heavy rainfall prior to the site visit; therefore, these areas were determined to be upland.

F. Deviation from LWI and SWI

According to the DSL-approved City of Molalla 2004 Local Wetland Inventory (LWI) map (Figure 4), a wetland is mapped in the northwestern portion of the study area and in the southern portion in the vicinity of Wetland A and Wetland B delineated by AKS under this study. Additionally, according to the LIW map, a drainage is mapped along the northern study area boundary in the vicinity of the Drainage Ditch observed by AKS under this study. No wetlands or waters are mapped on-site according to the Statewide Wetlands Inventory (SWI).

G. Mapping Method

Wetland and water boundaries and centerlines of the roadside ditches and ephemeral potion of the drainage were mapped with submeter accuracy using a Trimble R10 GPS Receiver and ArcGIS Field Maps during the February 11 and April 9, 2025, site visits. The wetland boundaries were flagged with orange wire whips and the sample plots with pink wire whips. The delineation map is included as Figure 5 in Appendix A.

H. Additional Information

DSL Preliminary Jurisdictional Determination

According to OAR 141-085-0515(5), Wetland A and B are naturally occurring wetland and, therefore, likely to be determined jurisdictional to DSL. Per DSL removal-fill permit 31430-FP, wetland mitigation did not extend off-site; therefore, Wetland B delineated under this study may not be considered a wetland mitigation site as it is located outside of the off-site wetland creation and enhancement footprint.

The ephemeral portion of the drainage may not be determined jurisdictional to DSL under OAR 141-085-0515 (3). However, the downstream intermittent portion of the drainage may be determined jurisdictional to DSL, as it appears to have a continuous surface connection to off-site Bear Creek based on potential saturation signatures on Google Earth Aerial images, which is mapped as containing coastal cutthroat trout, thus providing food for food and game fish.

According to OAR 141-085-0515(10), Roadside Ditch 1 and 2 within the study area may be considered non-jurisdictional to DSL because they are less than 10 feet wide, not created within or adjacent/contiguous to wetlands, and do not contain food or game fish.

USACE Preliminary Jurisdictional Determination

Under the U.S. Environmental Protection Agency's (EPA) September 8, 2023, amended Water of the United States (WOTUS), wetlands and tributaries with a continuous (and distinguishable) surface connection to Traditional Navigable Waters (TNW) are regulated. A joint memorandum prepared by the USACE and the EPA on March 12, 2025, provided new interpretation guidance for the 2023 Sackett revised definition for continuous surface connection. The March 2025 memorandum rescinds the interpretation that a discrete feature (i.e., a ditch/swale/pipe/culvert) establishes a continuous surface connection for jurisdictional status.

Wetland A drains northerly into the intermittent drainage, which continues off-site to the west. Wetland A and the drainage appear to have a continuous surface connection to Bear Creek located approximately one-half mile off-site to the southwest through distinguishable saturation signatures visible on aerial imagery. Bear Creek is a perennial tributary to the Pudding River and ultimately the Willamette River, a

Traditional Navigable Water (TNW). The PEM wetland and intermittent portion of the drainage may be jurisdictional to the USACE. The ephemeral portion of the drainage may be considered non-jurisdictional to the USACE because it does not carry a relatively permanent flow of water.

Wetland B continues off-site to the south and appears to be isolated with no distinguishable surface connection to a TNW; therefore, Wetland B may be considered non-jurisdictional to the USACE.

Roadside Ditch 1 and 2 within the study area may be considered non-jurisdictional to the USACE because they were excavated wholly in and draining only upland and do not carry a relatively permanent flow of water.

I. Summary of Results and Conclusions

Table 1 below provides a summary of the on-site sizes of the features, hydrologic connections to other nearby waters, the Cowardin and HGM classifications for the wetlands, and our prediction of whether each feature would likely be determined jurisdictional to DSL and USACE.

Table 1: Summary of Study Wetland and Waters Results and Conclusions

Potentially Jurisdictional Feature	Latitude/ Longitude	Size	Cowardin Class	HGM Class/Flow Regime	Connection to Other Waters	DSL/USACE Predicted Jurisdiction
Wetland A	45.153342, -122.591377	±0.11 acres	PEM	Slope Valley	Intermittent Drainage	DSL/USACE
Wetland B	45.150346, -122.590804	±0.03 acres	PSS	Slope Valley	Isolated	DSL
Ephemeral Drainage	45.153183, -122.588934	±348 LF	NA	Ephemeral	Bear Creek, Pudding River	None
Intermittent Drainage	45.153387, -122.590698	±0.03 acres/±486 LF	NA	Intermittent	Bear Creek, Pudding River	DSL/USACE
Roadside Ditch 1	45.152510, -122.588577	±457 LF	NA	Ephemeral	None	None
Roadside Ditch 2	45.150514, -122.591360	±324 LF	NA	Ephemeral	None	None

J. Required Disclaimer

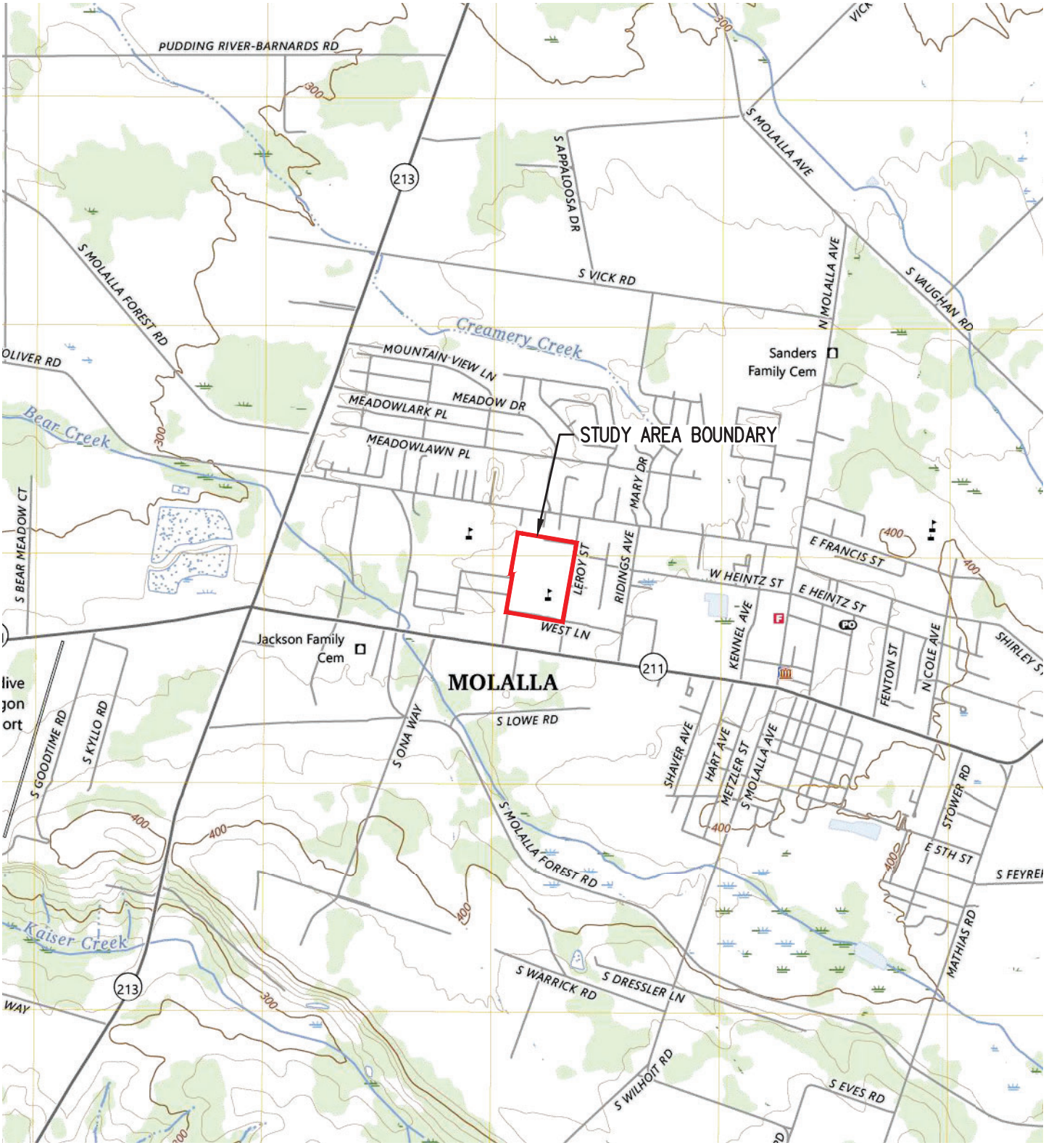
This report documents the investigation, BPJ, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk, unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with Oregon Administrative Rules (OAR) 141-090-0005 through 141-090-0055.

K. List of Preparers

Allison Law
Natural Resource Specialist
Fieldwork and Report Preparation

Sonya Davis, PWS
Wetland Scientist
Fieldwork and Report and Data Review

Appendix A: Maps



USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: MOLALLA, OR (2023)

N

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

USGS VICINITY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 1

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11540

CLACKAMAS COUNTY
TAX LOT 3000 AND PORTIONS
OF RIGHT OF WAY
TAX MAP 5 2 E 08B

N

SCALE: 1"= 300 FEET

300 0 60 150 300

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

TAX MAP (MAP 5 2 E 08B) MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT	FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: GPM CHKD: SKD AKS JOB: 11540

DWG: 11540 WDR BACKGROUND FIGURES | FIGURE 2

MAP UNIT SYMBOL	MAP UNIT NAME
29	DAYTON SILT LOAM; HYDRIC

N

SCALE: 1"= 200 FEET

200 0 40 100 200

ORIGINAL PAGE SIZE: 8.5" x 11"

NRCS WEB SOIL SURVEY FOR
CLACKAMAS COUNTY

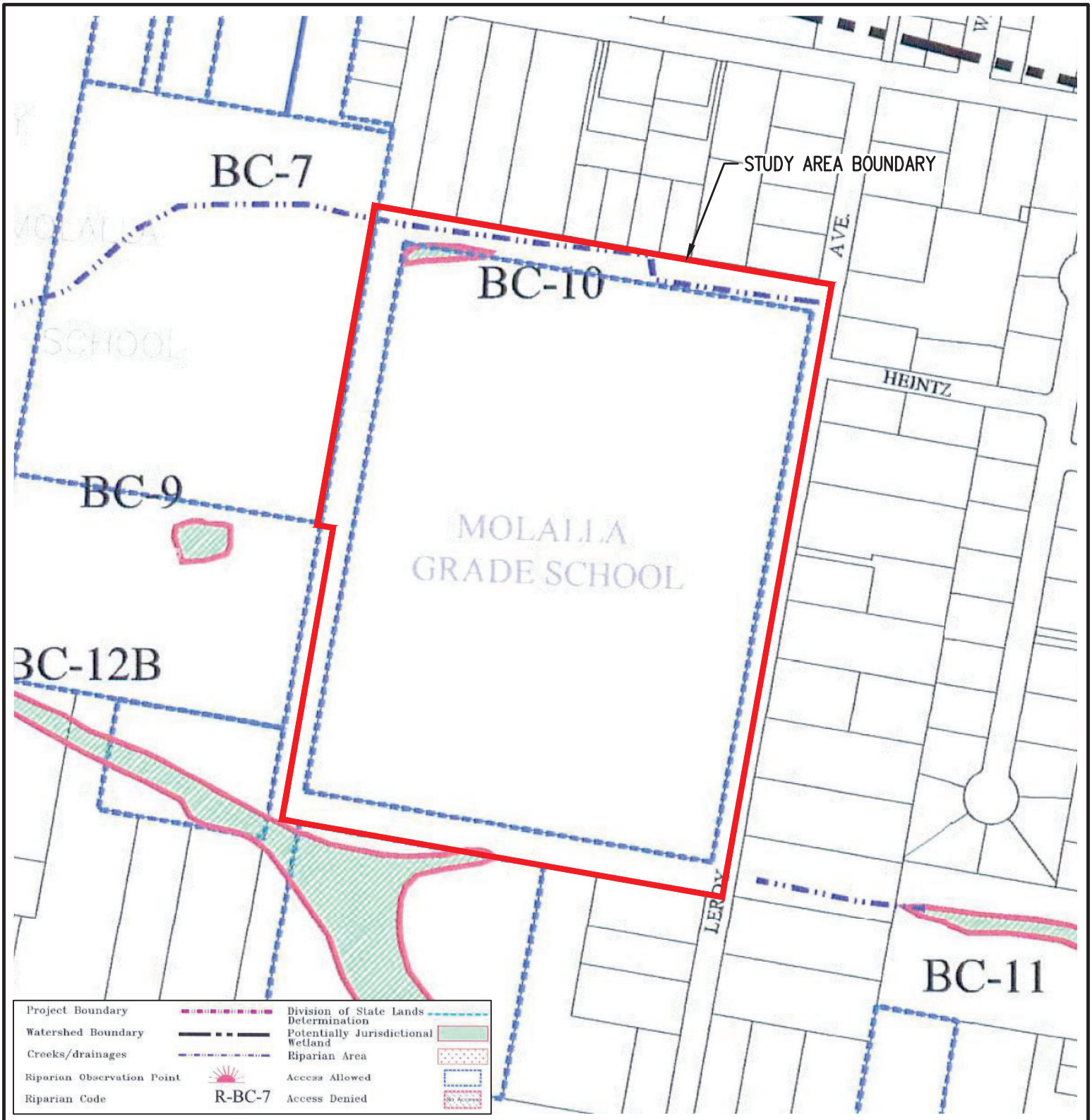
DATE: 04/11/2025

NRCS SOIL SURVEY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 3

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11540913



CITY OF MOLALLA
LOCAL WETLANDS INVENTORY (2004)

N

SCALE: 1"= 250 FEET

250 0 50 125 250

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

LOCAL WETLAND INVENTORY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 4

AKS ENGINEERING & FORESTRY, LLC
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TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11540

AERIAL DERIVED FROM NAIP (JUNE 2023)

N

SCALE: 1"= 200 FEET

200 0 40 100 200

ORIGINAL PAGE SIZE: 8.5" x 11"

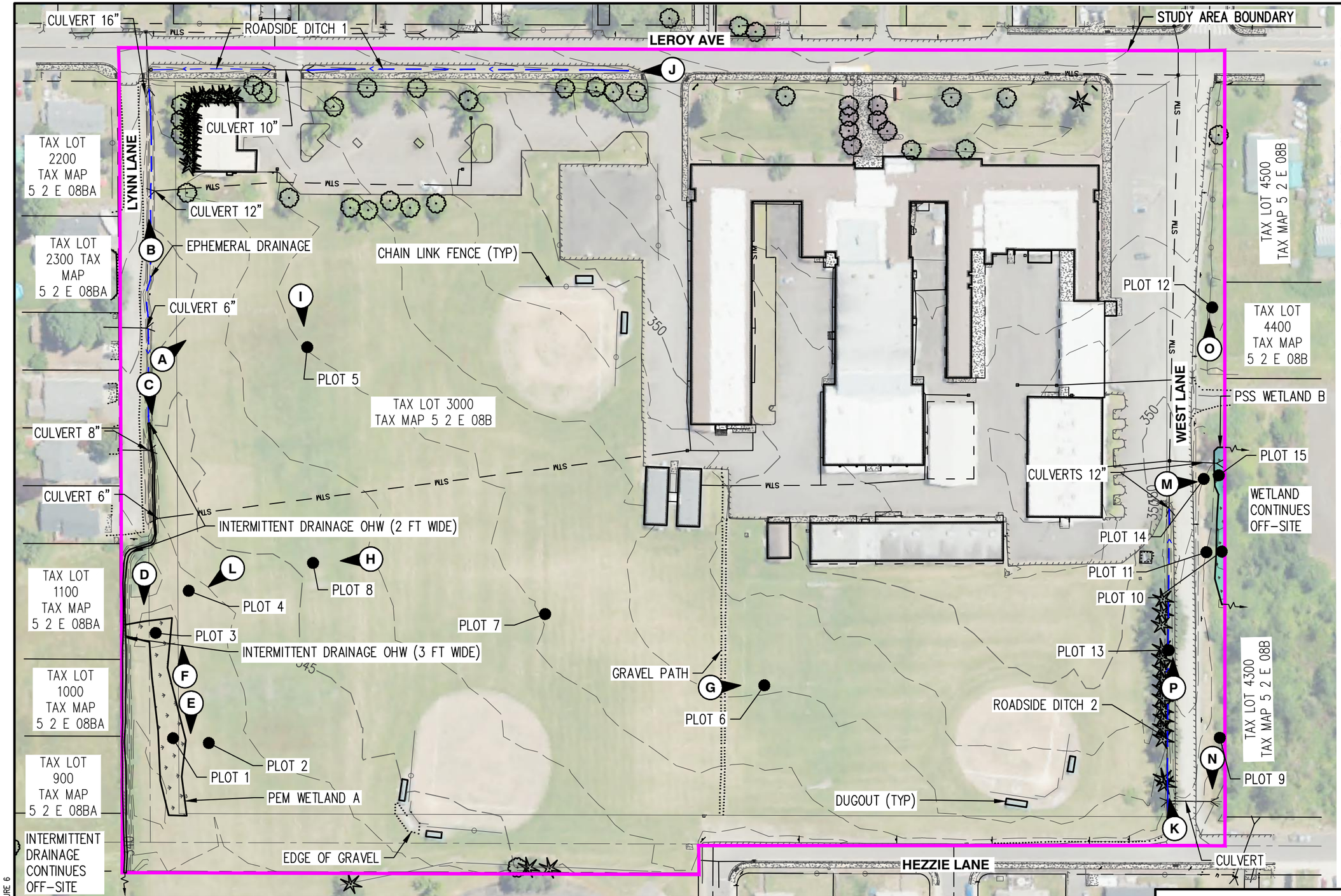
DATE: 04/11/2025

RECENT AERIAL IMAGE
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 5

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11540



WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON FEBRUARY 11, AND APRIL 09, 2025. WETLAND BOUNDARIES, CENTERLINES, AND PLOTS SHOWN WERE RECORDED WITH SUB-METER ACCURACY USING A TRIMBLE R10 GPS RECEIVER AND ARCGIS FIELD MAPS.

EXISTING CONDITIONS, TAX LOTS, STUDY AREA BOUNDARY, 1-FOOT INTERVAL GROUND CONTOURS, AND TREE SURVEY OF TREES >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY FROM OCTOBER 10 TO OCTOBER 23, 2024.

RECENT AERIAL IMAGE DERIVED FROM AKS AERIAL SURVEY ON OCTOBER 10, 2024.

N

SCALE: 1"=100 FEET

100 0 20 50 100

ORIGINAL PAGE SIZE: 11" x 17"

DATE: 04/26/2025

LEGEND (COLOR COPY):

TOTAL ON-SITE WETLAND AREA: 6,394 SF± (0.15 ACRES±
ON-SITE PEM/SV WETLAND A AREA: 4,971 SF± (0.11 ACRES±)

ON-SITE PSS/SV WETLAND B AREA: 1,423 SF± (0.03 ACRES±)

ON-SITE INTERMITTENT DRAINAGE:
1,226 SF± (0.03 ACRES±) / 486 LF± (2-3 FT WIDE±)

ON-SITE EPHEMERAL DRAINAGE: 348 LF± (3 FT WIDE±)
ON-SITE ROADSIDE DITCH 1: 457 LF± (2 FT WIDE±)
ON-SITE ROADSIDE DITCH 2: 324 LF± (2 FT WIDE±)

STM EXISTING STORMWATER LINE

SAN EXISTING SANITARY SEWER LINE

A PHOTO POINT LOCATION & ORIENTATION

WETLAND AND WATERS DELINEATION MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT

FIGURE 6

AKS ENGINEERING & FORESTRY, LLC
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TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11540

DWG: 11540 WDR EXCOND V2 | FIGURE 6

Appendix B: Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: 1

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15334030 Long: -122.59103940 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot located in LWI mapped wetland.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Size: 30' r or ____)			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 1

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-12	10YR 2/2	99	7.5YR 3/4	1	C	M	SiL	
12-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____	
Water Table Present?	Yes X	No _____	Depth (inches): 12	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 9	

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **2**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15324150 | Long: -122.59108030 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Poa species*	50%	Yes	FAC*
2. *Agrostis species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 2

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-13	10YR 2/2	100					SiL	
13-16	10YR 4/2	90	7.5YR 4/4	5	C	M	SiL	
			7.5YR 4/6	5	C	M		

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **3**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15334480 Long: -122.59061050 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes **X**	No ____		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	80%	Yes	FAC*
2. *Poa species*	15%	No	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 3

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-6	10YR 3/2	100					SiL	
6-10	10YR 3/2	90	7.5YR 4/6	10	C	M	SiL	
10-16	10YR 4/2	80	7.5YR 4/6	20	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 9

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **4**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15323380 | Long: -122.59046220 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 4

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-15	10YR 2/2	100					SiL	
15-16	10YR 4/2	90	7.5YR 4/4	10	C	M	SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **5**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15279900 | Long: -122.58956300 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	40%	Yes	FAC*
2. *Poa species*	40%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 5

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-2	10YR 3/1	98	5YR 3/4	2	C	M/PL	SiL	many fine roots
2-14	10YR 3/1	100					SiL	
14-16	10YR 4/2	95	7.5YR 4/4	5	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): 14

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **6**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15165400 | Long: -122.59118100 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 6

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-14	10YR 2/2	100					SiL	
14-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: 7

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15223900 | Long: -122.59076700 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 7

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-13	10YR 2/2	100					SiL	
13-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **8**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15287100 | Long: -122.59042400 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 8

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-14	10YR 3/2	100					SiL	
14-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **9**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15039395 Long: -122.59166117 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus ponderosa*	10%	Yes	FACU
2.			
3.			
4.			
	10% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rosa species*	10%	Yes	FAC*
2. *Rubus armeniacus*	5%	Yes	FAC
3. *Crataegus monogyna*	5%	Yes	FAC
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	50%	Yes	FAC
2. *Poa species*	20%	Yes	FAC*
3. *Poterium sanguisorba*	10%	No	UPL
4. *Alopecurus pratensis*	5%	No	FAC
5. *Daucus carota*	5%	No	FACU
6. *Dipsacus fullonum*	3%	No	FAC
7. *Geranium dissectum*	2%	No	FAC*
8.			
9.			
10.			
11.			
	95% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
* Assumed.

SOIL

Sampling Point: 9

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-18	10YR 3/2	100						SiL

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Soils dry throughout.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **10**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15031838 Long: -122.59091768 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes X** **No ____**
Hydric Soil Present?	Yes **X**	No ____		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	60%	Yes	FAC
2. *Rosa species*	20%	Yes	FAC*
3.			
4.			
5.			
	80% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	5%	Yes	FACW
2. *Alopecurus pratensis*	5%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 90%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No ____**

Remarks:
* Assumed.

SOIL

Sampling Point: 10

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-8	10YR 3/1	100					SiL	
8-16	10YR 3/1	98	7.5YR 3/4	2	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): Surface

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **11**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15035357 Long: -122.59091727 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Alopecurus pratensis*	95%	Yes	FAC
2. *Taraxacum officinale*	5%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 11

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-20	10YR 3/1	100					SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes X No ___ Depth (inches): 12
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology likely due to heavy rainfall prior to the site visit (2.76 inches within the two weeks prior).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **12**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15023395 Long: -122.58994491 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot taken within ditch.

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	30%	Yes	FAC
2. *Agrostis species*	20%	Yes	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 45%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 12

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-8	10YR 3/2	100					SiL	
8-16	10YR 3/3	100					SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology likely due to heavy rainfall prior to the site visit (2.76 inches within the two weeks prior).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **13**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15050647 Long: -122.59128386 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot located in roadside ditch.

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	60%	Yes	FAC
2. *Agrostis species*	20%	Yes	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 15%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
*Assumed

SOIL

Sampling Point: 13

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-16	10YR 3/2	100					SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **14**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15033450 Long: -122.59062172 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	50%	Yes	FAC
2. *Spiraea douglasii*	15%	Yes	FACW
3.			
4.			
5.			
	35% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	95%	Yes	FACW
2. *Agrostis species*	5%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
*Assumed

SOIL

Sampling Point: 14

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-16	10YR 2/2	100					SiCL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **15**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15029353 Long: -122.59661800 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No ____**
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	20%	Yes	FAC
2. *Spiraea douglasii*	15%	Yes	FACW
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	90%	Yes	FACW
2. *Juncus effusus*	10%	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No ____**

Remarks:

SOIL

Sampling Point: 15

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-7	10YR 2/1	100					SiCL	
7-14	10YR 4/2	80	7.5YR 4/4	20	C	M	SiCL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): 7
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): Surface

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C: Representative Site Photographs

Photo A. View of general study area site conditions and overall topography looking southeast.

Photo B. View east of the channelized ephemeral portion of the on-site water containing no surface flow.

Photo C. View west of intermittent portion of the channelized water containing approximately 2 inches of surface water flow.

Photo D. View west of channelized intermittent water with approximately 6 inches of surface water present and *Phalaris arundinacea* and *Juncus effusus* along the banks.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo E. View west of the wetland boundary and Plots 1 and 2 showing wetland situated in a subtle low topographic area in field.

Photo F. View east of the wetland boundary and Plots 3 and 4 showing wetland situated in a subtle low topographic area in

Photo G. View south from Plot 6 showing general site conditions in southern portion of study area.

Photo H. View north at Plot 8 showing general site conditions within the study area.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo I. View west of Plot 5 and general site conditions within study area.

Photo J. View north of Roadside Ditch 1.

Photo K. View east of Roadside Ditch 2.

Photo L. View northwest of the wetland boundary within subtle topographic low area from Plot 4 towards Plot 3.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo M. View south of Wetland B and Plot 15.

Photo N. View west from Plot 9 of general upland conditions within right of way.

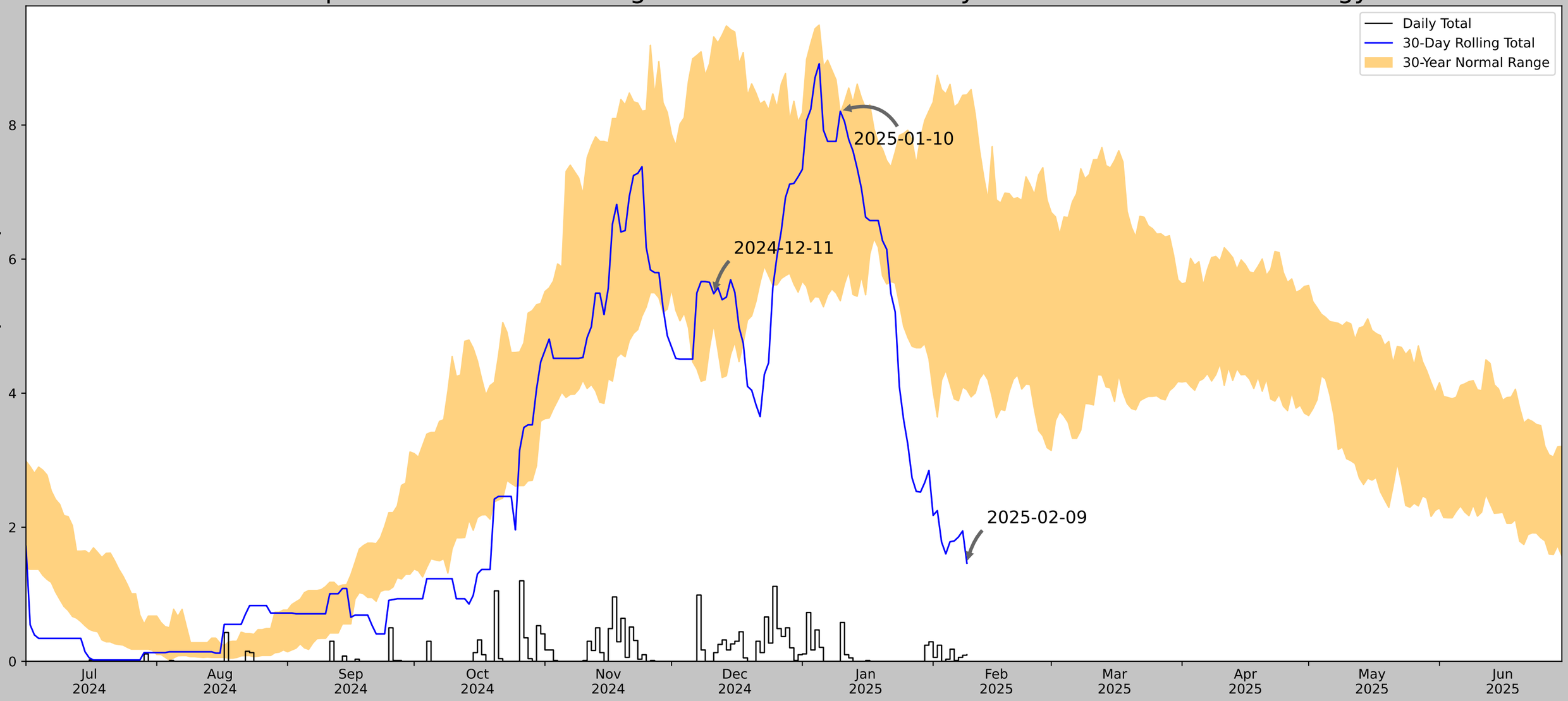
Photo O. View east from Plot 12 of general upland conditions within right of way.

Photo P. View east of upland Plot 13 within roadside ditch.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Appendix D: APT Reports

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.152549, -122.590420
Observation Date	2025-02-09
Elevation (ft)	346.754
Drought Index (PDSI)	Mild drought (2025-01)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-02-09	4.050788	8.449607	1.464567	Dry	1	3	3
2025-01-10	5.378347	8.176772	8.204725	Wet	3	2	6
2024-12-11	5.022835	9.316536	5.484252	Normal	2	1	2
Result							Normal Conditions - 11

US Army Corps of Engineers

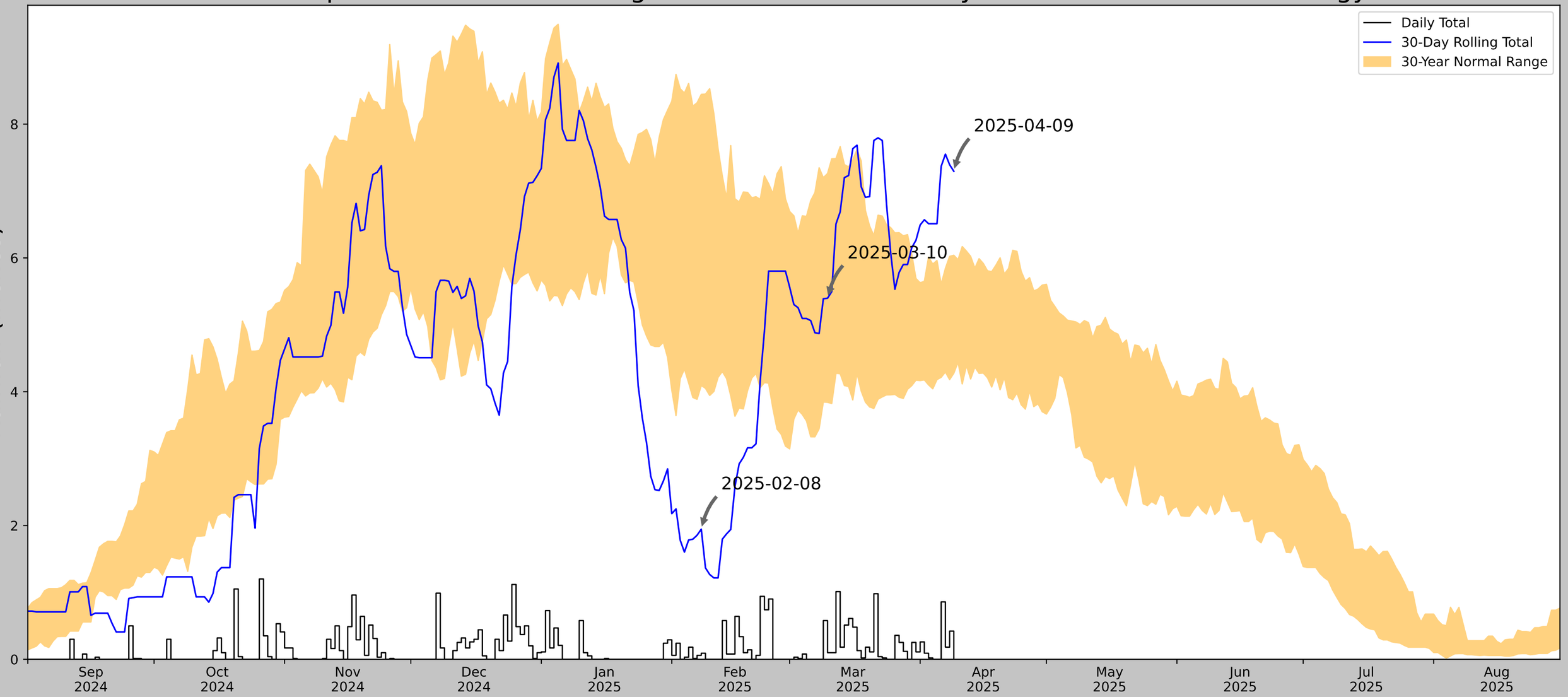
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MOLALLA 7NE	45.1783, -122.5064	646.982	4.463	300.228	3.348	6675	89
COLTON 1 E	45.1725, -122.4375	702.1	3.38	55.118	1.707	11	1
MULINO 1.8 SE	45.2041, -122.5536	359.908	2.909	287.074	2.144	1	0
ESTACADA 2 SE	45.2694, -122.3167	514.108	11.173	132.874	6.512	4610	0
EAGLE CREEK 9 SE	45.2761, -122.2019	925.853	16.286	278.871	11.87	54	0
SILVERTON	45.0058, -122.7739	408.136	17.672	238.846	12.173	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.151656, -122.590645
Observation Date	2025-04-09
Elevation (ft)	349.565
Drought Index (PDSI)	Incipient wetness (2025-03)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-04-09	4.276378	6.040158	7.295276	Wet	3	3	9
2025-03-10	3.840945	7.261811	5.397638	Normal	2	2	4
2025-02-08	4.093307	8.444882	1.944882	Dry	1	1	1
Result							Normal Conditions - 14

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MOLALLA 7NE	45.1783, -122.5064	646.982	4.498	297.417	3.362	6675	88
COLTON 1 E	45.1725, -122.4375	702.1	3.38	55.118	1.707	11	2
MULINO 1.8 SE	45.2041, -122.5536	359.908	2.909	287.074	2.144	1	0
ESTACADA 2 SE	45.2694, -122.3167	514.108	11.173	132.874	6.512	4610	0
EAGLE CREEK 9 SE	45.2761, -122.2019	925.853	16.286	278.871	11.87	54	0
SILVERTON	45.0058, -122.7739	408.136	17.672	238.846	12.173	2	0

Appendix E: SDAM Form

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name	Job 11540 - Molalla River Middle School Replacement	Assessor	Sonya Davis, PWS, and Allison Law
Address	318 Leroy Avenue, Molalla, OR 97038	Date	2/11/2025
Waterway Name	Ephemeral Drainage	Coordinates at downstream end (ddd.mm.ss)	Lat. 45.153232 N
Reach Boundaries	From a 16" culvert in the northeast boundary to the north central portion of the study area.		Long. -122.589331 W
Precipitation w/in 48 hours (cm)	0.00	Channel Width (m)	0.91
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status):

None observed

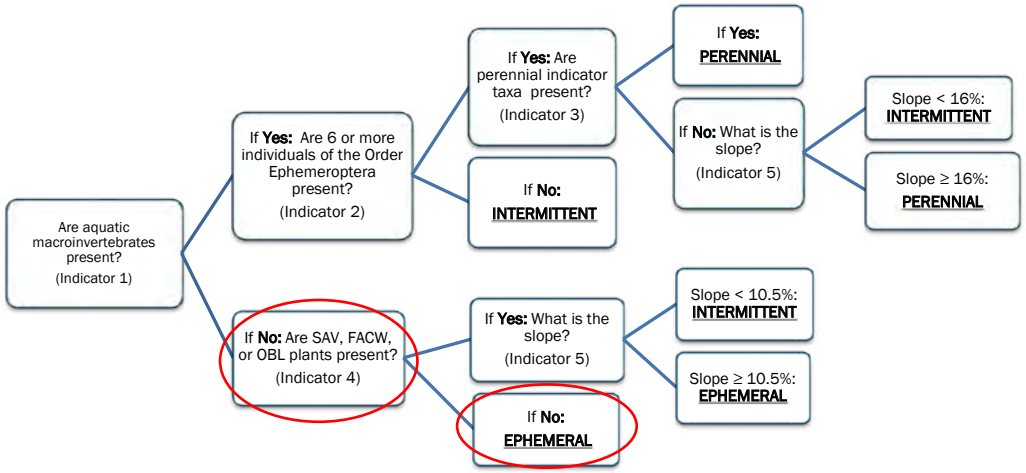
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None observed			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	< 5 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

The stream enters the study area from a 16-inch concrete convert on the northeast end of the study area. The channel width is approximately 3-feet with 3-foot-tall banks and a substrate consisting of silt, rocks, and cobbles. The channel bed was dry and consisted primarily of leaf litter and cobbles. No defined ordinary high water mark was present throughout the drainage. The banks were vegetated primarily by Geranium species (*Geranium* spp., assumed FAC), Himalayan blackberry (*Rubus armeniacus*, FAC), red dead-nettle (*Lamium purpureum*, FAC), bentgass species (*Agrostis* spp., FAC), Fuller's teasel (*Dipsacus fullonum*, FAC), Queen Anne's-lace (*Daucus carota*, FAC), hairy cat's-ear (*Hypochaeris radicata*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FAC), and stinking willie (*Jacobaea vulgaris*, FACU).

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name	Job 11540 - Molalla River Middle School Replacement	Assessor	Sonya Davis, PWS, and Allison Law
Address	318 Leroy Avenue, Molalla, OR 97038	Date	2/11/2025
Waterway Name	Intermittent Drainage	Coordinates at downstream end (ddd.mm.ss)	Lat. 45.153427 N
Reach Boundaries	From a 8" culvert in the north central boundary to the northwestern boundary of the study area.		Long. -122.591531 W
Precipitation w/in 48 hours (cm)	0.00	Channel Width (m)	1.21
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow 100%

% of reach w/any flow (surface or hyporheic) 100%

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status):

Phalaris arundinacea, FACW

Juncas patens, FACW

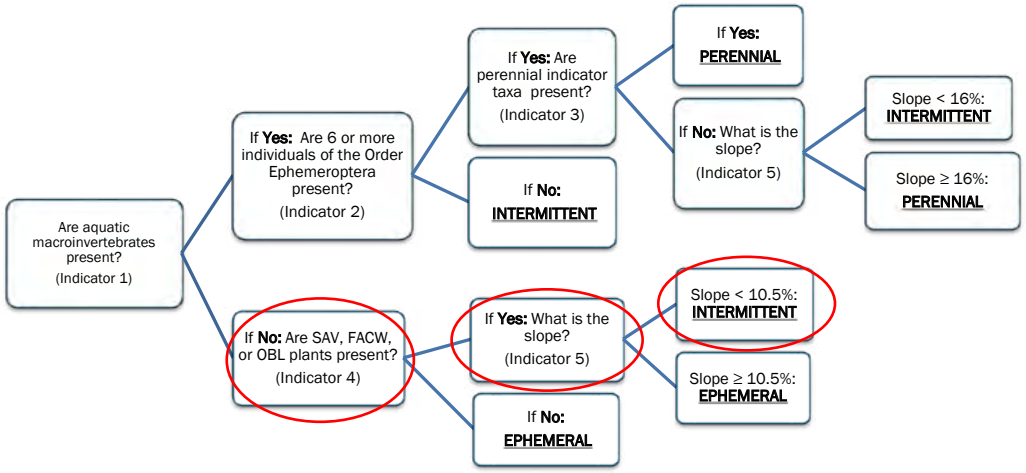
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None observed			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☒ Yes	☐ No
5. What is the slope? (In percent, measured for the valley, not the stream)	< 5 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☐ Ephemeral
☒ Intermittent
☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

The stream enters the study area from a 16-inch concrete convert on the northeast end of the study area. The channel width is approximately 3-feet with 3-foot-tall banks and a substrate consisting of silt, rocks, and cobbles. No defined ordinary high water mark was present throughout the channel. Approximately 3-5 inches of surface flow was observed throughout the channel. The banks were vegetated primarily by Himalayan blackberry (*Rubus armeniacus*, FAC), bentgass species (*Agrostis* spp., FAC), reed canary grass (*Phalaris arundinacea*, FACW), and spreading rush (*Juncus patens*, FACW).

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None observed			

Appendix F: Literature Cited and Referenced

Literature Cited and Referenced

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Geotechnical Engineering Report

Molalla River Middle School Replacement
318 Leroy Avenue
Molalla, Oregon

Prepared for:
Molalla River School District 35
PO Box 188
Molalla, Oregon 97038

March 25, 2025
PBS Project 24010734

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March 25, 2025
PBS Project 24010734

Prepared by:

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JANUARY 15, 2002
RYAN WHITE
RENEWAL DATE: 6/30/2026

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Principal Geotechnical Engineer

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Appendix A: Field Explorations

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Table A-2. Key to Test Pit and Boring Log Symbols
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1 INTRODUCTION

1.1 General

This report presents results of PBS Engineering and Environmental LLC (PBS) geotechnical engineering services for the proposed new middle school located at 318 Leroy Avenue in Molalla, Oregon (site). The general site location is shown on the Vicinity Map, Figure 1. The locations of PBS' explorations in relation to existing and proposed site features are shown on the Site Plan, Figure 2.

1.2 Purpose and Scope

The purpose of PBS' services was to develop geotechnical design and construction recommendations in support of the planned new Molalla River Middle School. This was accomplished by performing the following scope of services.

1.2.1 Literature and Records Review

PBS reviewed various published geologic maps of the area for information regarding geologic conditions and hazards at or near the site. PBS also reviewed previously completed reports for the project vicinity.

1.2.2 Subsurface Explorations

Six borings were advanced to depths ranging from approximately 11 to 26.5 feet below the existing ground surface (bgs) within the development footprint. The borings were logged and representative soil samples collected by a member of the PBS geotechnical engineering staff. The approximate boring locations are shown on the Site Plan, Figure 2. The interpreted boring logs are presented as Figures A1 through A6 in Appendix A, Field Explorations.

1.2.3 Field Infiltration Testing

One cased-hole, falling-head field infiltration test was completed in boring B-1 at a depth of approximately 5 feet bgs. Infiltration testing was monitored by PBS geotechnical engineering staff.

1.2.4 Soils Testing

Soil samples were returned to our laboratory and classified in general accordance with the Unified Soil Classification System (ASTM D2487) and/or the Visual-Manual Procedure (ASTM D2488). Laboratory tests included natural moisture contents, grain-size analyses, and Atterberg limits. Laboratory test results are included in the exploration logs in Appendix A, Field Explorations; and in Appendix B, Laboratory Testing.

1.2.5 Geotechnical Engineering Analysis

Data collected during the subsurface exploration, literature research, and testing were used to develop site-specific geotechnical design parameters and construction recommendations.

1.2.6 Report Preparation

This Geotechnical Engineering Report summarizes the results of our explorations, testing, and analyses, including information relating to the following:

- Field exploration logs and site plan showing approximate exploration locations
- Laboratory test results
- Infiltration test results
- Groundwater levels and considerations
- Seismic site hazard assessment that includes:
    - Discussion of geologic and seismic hazards impacting the site
    - Location, extent, and seismic characteristics of local and regional faults

  - Liquefaction potential
- Building slab recommendations, including:
  - Subgrade preparation
  - Moisture mitigation
  - Modulus of subgrade reaction
- Shallow foundation design recommendations:
  - Minimum embedment
  - Allowable bearing pressure
  - Estimated settlement (total and differential)
  - Sliding coefficient
- Lateral earth pressures for embedded/retaining wall design, including:
  - Active, passive, and at-rest earth pressures
  - Sliding coefficient
  - Groundwater and drainage considerations
- Earthwork and grading, cut, and fill recommendations:
  - Structural fill materials and preparation, and reuse of on-site soils
  - Utility trench excavation and backfill requirements
  - Temporary and permanent slope inclinations
  - Wet weather considerations
- Seismic design criteria in accordance with the 2022 Oregon Structural Specialty Code (OSSC)
- Asphalt concrete (AC) pavement section recommendations

1.3 Project Understanding

This project is part of the Molalla River Middle School Replacement bond measure passed in May 2024 and will include construction of a new 115,000-square-foot middle school along with a new parking lot, driveways, bus loop, play structure, and play fields. The project will also include removing the existing 70-year-old middle school and associated parking lot, driveways, and site structures.

Based on our experience with similar projects, PBS estimates maximum building loads will be on the order of 100 to 200 kips for columns, 5 to 10 kips per linear foot for walls, and less than 250 pounds per square foot (psf) for floors. Based on the relatively flat site topography, PBS anticipates grading will be limited to shallow cuts and fills of less than about 2 feet, with locally deeper excavations for new utilities.

2 SITE CONDITIONS

2.1 Surface Description

The site is roughly rectangular and is bordered to the east by Leroy Avenue, to the south by the existing Molalla Elementary School and West Lane, to the west by N Hezzie Lane, school track, and sports fields, and to the north by Lynn Lane and scattered residential homesites. The site of the new school is currently in use as sports fields, landscaping, and asphalt paved drive lanes and parking areas. The existing Molalla River Middle School occupies the southeast corner of the site, with the new school planned near the northeast corner of the site, while the remaining west half of the site consists of grass athletic fields. Based on review of available Oregon Department of Geology and Mineral Industries (DOGAMI) topographic and lidar data, the site is generally flat, with ground surface elevations ranging from a maximum of about 355 feet along the eastern edge of the site to a minimum of about 345 feet near the northwest corner of the site feet (NAVD88; DOGAMI,

2024). Outside of the site, the ground surface remains relatively flat and continues to slope gently down to the west/northwest.

2.2 Geologic Setting

The site is located within the southeastern extent of the Portland-Vancouver Basin, near the western edge of the foothills of the Western Cascades geologic province. The Portland-Vancouver Basin consists of a tectonic depression within the physiographic province of the Puget-Willamette Lowland that separates the Cascade Range from the Coast Range, and extends from the Puget Sound, Washington, to Eugene, Oregon (Yeats et al., 1996). The Western Cascades are an older, broader, and much more deeply eroded volcanic region of uplifted Miocene and older tuffs and lavas than the younger, more easterly post-Miocene volcanoes and volcanic rocks of the taller High Cascades region. These provinces are all situated along the Cascadia Subduction Zone (CSZ), where oceanic rocks of the Juan de Fuca Plate are subducting beneath the North American Plate, resulting in deformation and uplift of the Coast Range and volcanism in the Cascade Range. Northwest-trending faults accommodating clockwise rotation of the North American Plate are found throughout the Puget-Willamette Lowland (Brocher et al., 2017; USGS, 2024).

The greater Portland Basin is underlain by Columbia River Basalt Group (CRBG) flows consisting of numerous fine-grained volcanic eruptions between approximately 17 million years ago (Ma) and 6 Ma from fissures located in eastern Oregon, eastern Washington, and western Idaho (Beeson et al., 1991). These fissures released thousands of square kilometers of lava, inundating areas east of the Cascade Range and entering western Oregon through a Miocene gap in the Cascade Range (present day Columbia Gorge) before reaching the ocean. Magmatic compositions of the CRBG allow the flows to be subdivided into distinct formations that can be further divided into members-based geochemical, paleomagnetic, and lithological properties.

Numerous northwest-trending faults govern the topography within the basin. Uplift and down dropping of crustal blocks have created topographic high points by offsetting regional scale flood basalts and down dropping basement rocks, creating depressions and sediment basins that accommodate the fluvial deposition of Miocene to Pliocene age terrestrial sedimentary rocks (commonly Troutdale Formation or Sandy River Mudstone) over the older CRBG basalt flows (Beeson et al., 1991; Evarts et al., 2004). Of these sedimentary deposits, the Troutdale Formation is the most widespread unit within the basin. These friable to moderately strong conglomerates, with minor interbeds of sandstone and claystone, consist of well-rounded CRBG clasts and other exotic metamorphic and plutonic clasts. Above these conglomerates, younger quaternary deposits have accumulated.

Cyclical Pleistocene age cataclysmic glacial floods deposited sediments and recarved the landscape within the Portland Basin more than 40 times over a 3,000-year timespan (Burns and Coe, 2012). As floodwaters entered the basin from the Columbia River Gorge, they slowed, depositing suspended sediments and bed loads. Topographic highpoints within the basin deflected floodwaters and generated areas that were scoured and eroded into older sediments and bedrock. These geomorphic features dominate the modern-day landscape and are indistinguishable within the Portland Basin lidar.

2.3 Local Geology

The site is mapped as underlain by Pleistocene to Pliocene aged Troutdale Formation (O'Connor et al., 2001). This unit is primarily described as sand, gravel, sandstone, conglomerate, siltstone, and mudstone and can be up to 150 meters thick. Around the city of Molalla, the formation is generally described as weathered terrace gravel.

2.4 Subsurface Conditions

The site was explored by drilling six borings, designated B-1 through B-6, to depths of 11 to 26.5 feet bgs. B-1 was terminated due to refusal on the gravel using the hollow-stem auger. The drilling was performed by Western States Soil Conservation, Inc., of Hubbard, Oregon, using an ATV-mounted CME-55 drill rig and mud rotary and hollow-stem auger drilling techniques.

PBS has summarized the subsurface units as follows:

Topsoil:	Approximately 6 inches of brown silty topsoil with roots was encountered at the ground surface in all explorations.
Lean CLAY (CL) and Fat CLAY (CH):	Brown-gray to orange, lean clay with varying amounts of fine- to coarse-grained sand and fine to coarse, subangular to subrounded gravel was encountered below the topsoil and continued to approximately 5 to 7.5 feet bgs in all explorations, except boring B-3, which encountered sandy fat clay. The clay was very stiff to hard, with high plasticity, and was primarily moist.
Clayey SAND (SC):	Brown-gray to orange, clayey sand with subangular to subrounded gravel was encountered below the clay in borings B-1, B-2, B-3, and B-6, continuing to 7.5 to 10 feet bgs. The clayey sand was generally medium dense to very dense, with medium to high plasticity, and was moist.
Clayey GRAVEL (GC):	Below the clay/clayey sand in all borings, clayey gravel with sand was encountered. The gravel was generally brown-gray to orange, fine to coarse, and rounded to subrounded. This deposit extended to the termination depth in all the explorations and generally increased in relative density with increasing depth, from dense to very dense. The gravel was interpreted as weathered terrace gravels from the Troutdale Formation based on the geologic mapping.

2.5 Groundwater

Static groundwater was encountered at approximately 10 feet bgs in boring B-4, which was flushed, bailed, and left open after completion. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors.

2.6 Infiltration Testing

PBS completed a cased-hole, falling-head infiltration test in boring B-1 at a depth of 5 feet bgs within the 4.25-inch inside diameter, hollow-stem auger used to drill the boring. The auger was filled with water to achieve a minimum 1-foot-high column of water. After a period of saturation, the height of the water column in the pipe was then measured initially and at regular, timed intervals. Results of our field infiltration testing are presented in Table 1.

Table 1. Infiltration Test Results

Test Location	Depth (feet bgs)	Field Measured Infiltration Rate (in/hr)	Soil Classification
B-1	5	0	Lean CLAY (CL)

The infiltration rate listed in Table 1 is not a permeability/hydraulic conductivity, but a field-measured rate, and does not include correction factors related to long-term infiltration rates. The design engineer should determine the appropriate correction factors to account for the planned level of pre-treatment, maintenance, vegetation, siltation, etc. Field-measured infiltration rates are typically reduced by a minimum factor of 2 to 4 for use in design.

Soil types can vary significantly over relatively short distances. The infiltration rates noted above are representative of one discrete location and depth. Installation of infiltration systems within the layer the field rate was measured is considered critical to proper performance of the systems.

3 GEOLOGIC HAZARDS

Geologic and seismic hazards are defined as conditions associated with the geologic and seismic environment that could influence existing and/or proposed improvements. Geologic and seismic hazards that could affect the site's development are identified below and should be considered during the planning process. PBS reviewed GIS layers within the Oregon HazVu Statewide Geozhazards Viewer and associated reports to assess potential geologic hazards for the study area (DOGAMI, 2024). In general, the geologic and seismic hazards most commonly associated with the physical and chemical characteristics of near-surface soil, rock, and groundwater include the following:

- Slope stability
- Adverse soils
- Land subsidence
- Subsurface voids
- Hydrology and drainage
- Hazardous minerals
- Erosion and sedimentation
- Hydrogeology and groundwater
- Volcanic hazards
- Permafrost and freeze-thaw
- Seismic hazards (liquefaction, lateral spreading, earthquake-induced landslides, **ground shaking**, fault ground rupture, tsunamis, and seiches)

Those shown in bold above are geologic and seismic hazards that could affect the site development and should be considered in the planning process. Ground shaking is a geologic hazard at the site related to seismicity, which is discussed further in the following sections.

3.1 Seismicity and Faulting

3.1.1 Seismic Sources

Several types of seismic sources exist in the Pacific Northwest, which are outlined below. Volcanic sources beneath the Cascade Range are not considered further in this study, as they rarely exceed about M=5.0 in size and are not considered to pose a significant ground-shaking hazard to the project site.

3.1.1.1 Historical Seismicity

Regional historical seismicity information was acquired from the Advanced National Seismic System (ANSS) Comprehensive Catalog, hosted by the Northern California Earthquake Data Center (NCEDC), and is presented on Figure 3. These data include earthquakes with magnitudes exceeding M 2.5, within a 150-km radius of the city of Portland, Oregon, and recorded between 1963 and 2017 (NCEDC, 2017). Magnitudes within the ANSS dataset are recorded as local magnitude, surface-wave magnitude, body-wave magnitude, moment magnitude, and magnitude of completeness.

3.1.1.2 Cascadia Subduction Zone (CSZ) – Interface Earthquakes

The CSZ represents the boundary between the subducting Juan de Fuca tectonic plate and the overriding North American tectonic plate (Figure 4). Recurrence intervals for subduction zone earthquakes are based on

studies of the geologic record, with studies estimating a recurrence interval between 500 to 530 years (Goldfinger et al., 2012). Geologic evidence and written records from Japan suggest the most recent earthquake occurred in January 1700. The 1700 earthquake probably ruptured much of the approximate 620-mile (1,000 km) length of the CSZ and was estimated at moment magnitudes of MW 9.0. The horizontal distance from the edge of the CSZ megathrust is located approximately 139 miles (223 km) from Portland, Oregon. The current US Geological Survey risk-based maximum credible earthquake for CSZ megathrust is MW 9.0±0.2 (USGS, 2008).

3.1.1.3 Intraslab Earthquakes

Intraslab earthquakes occur within the subducting slab. They are problematic in the sense that they do not have a surface expression or rupture the ground surface and their seismicity generates deformation along many faults within the slab (Kirby et al., 2002). The CSZ has generated significant intraslab destructive earthquakes including the 2001 MW 6.8 Nisqually earthquake in the Puget lowland. The estimated depth to the subducting Juan de Fuca plate under Portland, Oregon, is approximately 28 miles (40 km) and should therefore be considered as a seismic source (Blair et al., 2011).

3.1.1.4 Crustal Earthquakes and Faults

Review of the US Geological Survey Quaternary Fault and Fold Database (USGS, 2024) indicates the site is within close proximity (less than 25 km) to Quaternary faults (Figure 5), including less than 1 km from the Canby-Molalla fault. Due to their proximity, the crustal faults are significant seismic sources for ground motion and shaking within the Portland metropolitan area. These faults are identified in Table 2 below.

Table 2. Faults within the Site Vicinity

Fault Zone Name	Fault ID	Approximate Distance to Site (Surface Projection in km)
Canby-Molalla fault	716	1
Bolton fault	874	19
Mount Angel fault	873	20
Oatfield fault	875	24
Portland Hills fault	877	24

3.1.2 Seismic Hazards

Other site-specific seismic hazards considered include slope stability, earthquake-induced landslides, fault rupture, seiche and tsunami inundation, and earthquake shaking. Based on the generally gentle surface topography and geology at the site, the risk from landslides and earthquake-induced landslides is low. Due to the location of the site, the risks of seiche and tsunami inundation are absent. Due to the existence of a mapped fault within 1 km of the site, the risk of fault rupture at the site is present. Strong to very strong earthquake ground shaking will occur during a code-based seismic event on the CSZ as well as from local faults. Shaking duration during a CSZ event is expected to last for 5 to 7 minutes along the coast, decreasing inland to around 2 minutes, closer to Portland and Seattle (Oregon Emergency Management, 2024; Hickey, 2017). Based on our current project understanding, our opinion is that effects of earthquake ground motions can be accounted for by using code-based design procedures and the code-based design response spectrum.

3.1.3 Liquefaction Potential

Liquefaction is defined as a decrease in the shear resistance of loose, saturated, cohesionless soil (e.g., sand) or low plasticity silt soils, due to the buildup of excess pore pressures generated during an earthquake. This results in a temporary transformation of the soil deposit into a viscous fluid. Liquefaction can result in ground settlement, foundation bearing capacity failure, and lateral spreading of ground.

Based on a review of the Oregon Statewide Geohazard Viewer (HazVu), the site is not mapped within a zone of liquefaction susceptibility. Based on soil types, plasticity, and depth of groundwater, our current opinion is that the risk of structurally damaging liquefaction settlement at the site is low.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Geotechnical Design Considerations

The subsurface conditions at the site consist of very stiff to hard clay and clayey sand over clayey gravel. Based on our observations and analyses, conventional foundation support on shallow spread footings is feasible for the proposed new building.

- Fine-grained soils or granular soil containing fine-grained soils encountered at the site are sensitive to disturbance, particularly when wet or when moisture contents are above optimum. Without careful planning, this can result in disturbance to the subgrades that impact the project budget and schedule.
- Clay soils or soils containing clay should be covered within 4 hours of exposure by a minimum of 4 inches of crushed rock or plastic sheeting during the dry season. Exposure of these materials should be coordinated with the geotechnical engineer so that the subgrade suitability can be evaluated prior to being covered. Failure to do so could result in negative impacts to structure foundations, flatwork, and pavements.
- Excavation with conventional equipment is feasible at the site, though larger equipment may be required for excavation into dense to very dense gravel.
- The grading and final development plans for the project had not been completed when this report was prepared. Once completed, PBS should be engaged to review the project plans and update our recommendations as necessary.

4.2 Shallow Foundations

Shallow spread footings bearing on native very stiff clay may be used to support loads associated with the proposed development, provided the recommendations in this report are followed. Footings should not be supported on undocumented fill.

4.2.1 Minimum Footing Widths and Design Bearing Pressure

Continuous wall and isolated spread footings should be at least 18 and 24 inches wide, respectively. Footings should be sized using a maximum allowable bearing pressure of 2,500 psf. This is a net bearing pressure and the weight of the footing and overlying backfill can be disregarded in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads. Allowable bearing pressures may be increased by one-third for seismic and wind loads.

Footings will settle in response to column and wall loads. Based on our evaluation of the subsurface conditions and our analysis, we estimate post-construction settlement will be less than 1 inch for the column and perimeter foundation loads. Differential settlement will be on the order of one-half of the total settlement.

4.2.2 Footing Embedment Depths

PBS recommends that all footings be founded a minimum of 18 inches below the lowest, adjacent grade. The footings should be founded below an imaginary line projecting upward at a 1H:1V (horizontal to vertical) slope from the base of any adjacent, parallel utility trenches or deeper excavations.

4.2.3 Footing Preparation

Excavations for footings should be carefully prepared to a neat and undisturbed state and compacted until stiff. A representative from PBS should confirm suitable bearing conditions and evaluate all exposed footing subgrades. Observations should also confirm that loose or soft materials have been removed from new footing excavations and concrete slab-on-grade areas. Localized deepening of footing excavations may be required to penetrate loose, wet, or deleterious materials.

PBS recommends a 4-inch-thick layer of compacted, crushed rock be placed over the footing subgrades to help protect them from disturbance.

4.2.4 Lateral Resistance

Lateral loads can be resisted by passive earth pressure on the sides of footings and grade beams, and by friction at the base of the footings. A passive earth pressure calculated using an equivalent fluid weight (EFW) of 250 pounds per cubic foot (pcf) may be used for footings confined by native soils and new structural fills. The allowable passive pressure has been reduced by a factor of two to account for the large amount of deformation required to mobilize full passive resistance. Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent unpaved areas should not be considered when calculating passive resistance. For footings supported on native soils or new structural fills, use a coefficient of friction equal to 0.3 when calculating resistance to sliding. These values do not include a factor of safety (FS).

4.3 Floor Slabs

Satisfactory subgrade support for building floor slabs can be obtained from the native clay subgrade prepared in accordance with our recommendations presented in the Site Preparation, Wet/Freezing Weather and Wet Soil Conditions, and Select Granular Fill sections of this report. A minimum 6-inch-thick layer of imported granular material should be placed and compacted over the prepared subgrade. Thicker aggregate sections may be necessary where undocumented fill is present, soft/loose soils are present at subgrade elevation, and/or during wet conditions. Imported granular material should be composed of crushed rock or crushed gravel that is relatively well graded between coarse and fine, contains no deleterious materials, has a maximum particle size of 1 inch, and has less than 5% by dry weight passing the US Standard No. 200 Sieve.

Floor slabs supported on a subgrade and base course prepared in accordance with the preceding recommendations may be designed using a modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci).

4.4 Retaining Walls

The proposed new development may include retaining walls of less than 6 feet tall. The following recommendations are based on the assumption of flat conditions in front of and behind the wall and fully drained backfill. For unrestrained walls allowed to rotate at least 0.005H about the base, where H is the height of the wall, we recommend using an active earth pressure calculated using an EFW of 35 pcf. Where walls are constrained against rotation, we recommend using an at-rest earth pressure calculated using an EFW of 55 pcf. We recommend any retaining walls founded on native soil or compacted structural fill be provided with adequate drainage and backfilled with clean, angular, crushed rock fill, in accordance with the recommendations provided in section 5.3.

Per section 1803.5.12 of the 2022 Oregon Structural Specialty Code (OSSC), the determination of dynamic seismic lateral earth pressures on site retaining walls less than 6 feet tall is not required.

If vertical surcharge loads, q, are present within 0.5H of the wall, a lateral surcharge of 0.3q (for walls allowed to rotate) and 0.5q (for restrained walls) should be applied as a uniform horizontal surcharge active over the full height of the wall. These values assume that the wall is vertical and the backfill behind the wall is horizontal. Additional lateral pressures due to surcharge loads can be estimated using the guidelines shown on Figure 6, Lateral Surcharge Detail.

Lateral loads can also be resisted by a passive resistance using an EFW of 250 pcf acting against retaining walls and foundations, and by friction acting on the base of spread footings or mats using a friction coefficient of 0.3.

4.4.1 Drainage

Recommended lateral earth pressures assume that walls are fully drained and no hydrostatic pressures develop. For cantilevered concrete walls, a minimum 1-foot-wide zone of free-draining material meeting the requirements of Oregon Department of Transportation standard specification (ODOT SS) 00430.11 – Granular Drain Backfill Material should be installed immediately behind the wall. A 4-inch diameter, perforated drainpipe should be installed at the base of the drain rock and routed to a suitable discharge point approved by the civil engineer.

4.5 Seismic Design Considerations

4.5.1 Code-Based Seismic Design Parameters

The current seismic design criteria for this project are based on the 2022 OSSC. Utilizing standard penetration test (SPT) N-values, Site Class D is appropriate for use in design. The seismic design criteria, in accordance with the 2022 OSSC, are summarized in Table 3.

Table 3. 2022 OSSC Seismic Design Parameters

Parameter	Short Period	1 Second
Maximum Credible Earthquake Spectral Acceleration	S_s = 0.73 g	S_1 = 0.34 g
Site Class	D	
Site Coefficient	F_a = 1.22	F_v = 1.96*
Adjusted Spectral Acceleration	S_{MS} = 0.89 g	S_{M1} = **
Design Spectral Response Acceleration Parameters	S_{DS} = 0.59 g	S_{D1} = **
MCEG Peak Ground Surface Acceleration	PGA = 0.33 g	
Site Amplification Factor at PGA	F_{PGA} = 1.27	
Site-Modified Peak Ground Acceleration	PGA_M = 0.42 g	

g= Acceleration due to gravity

* This value of Fv shall only be used to calculate Ts.

** Site-specific site response analysis is not required for structures on Site Class D sites with S_1 greater than or equal to 0.2, provided the value of the seismic response coefficient Cs is determined by Eq. (12.8-2) for values of $T \leq 1.5Ts$ and taken as equal to 1.5 times the value computed in accordance with either Eq. (12.8-3) for $T_L \geq T > 1.5Ts$ or Eq. (12.8-4) for $T > T_L$.

4.6 Temporary and Permanent Slopes

All temporary cut slopes should be excavated with a smooth-bucket excavator, with the slope surface repaired if disturbed. In addition, upslope surface runoff should be rerouted to not run down the face of the slopes. Equipment should not be allowed to induce vibration or infiltrate water above the slopes, and no surcharges are allowed within 25 feet of the slope crest.

No permanent cut or fill slopes are currently planned for this project.

4.7 Ground Moisture

4.7.1 General

The perimeter ground surface and hard-scape should be sloped to drain away from all structures and away from adjacent slopes. Gutters should be tight-lined to a suitable discharge and maintained as free-flowing. All crawl spaces should be adequately ventilated and sloped to drain to a suitable, exterior discharge.

4.7.2 Perimeter Footing Drains

Due to the relatively low permeability of site soils and the potential for perched groundwater at the site, we recommend perimeter foundation drains be installed around all proposed structures.

The foundation subdrainage system should include a minimum 4-inch diameter perforated pipe in a drain rock envelope. A non-woven geotextile filter fabric, such as Mirafi 140N or equivalent, should be used to completely wrap the drain rock envelope, separating it from the native soil and footing backfill materials. The invert of the perimeter drain lines should be placed approximately at the bottom of footing elevation. Also, the subdrainage system should be sealed at the ground surface. The perforated subdrainage pipe should be laid to drain by gravity into a non-perforated solid pipe and finally connected to the site drainage stem at a suitable location. Water from downspouts and surface water should be independently collected and routed to a storm sewer or other positive outlet. This water must not be allowed to enter the bearing soils.

4.7.3 Vapor Flow Retarder

A continuous, impervious vapor flow retarder must be installed over the ground surface in the crawl space and under slabs of all structures. Vapor flow retarders are often required by flooring manufacturers to protect flooring and adhesives from moisture intrusion and mold. Many flooring manufacturers will warrant their product only if it is installed according to their recommendations. The PBS geotechnical team can provide additional information, as necessary, to assist with vapor flow retarder selection.

4.8 Asphalt Concrete Pavement

The provided pavement recommendations were developed using the American Association of State Highway and Transportation Officials (AASHTO) design methods and references the associated ODOT specifications for construction. Our evaluation considered eight buses, two times per day (200 bus trips per week). The estimated number of design equivalent 18-kip single axle loads (ESALs) over the 20-year design life is 400,000. An ESAL is a standard traffic load used in pavement design. Depending on the size of a vehicle, the load may correspond to more than one ESAL per vehicle.

The minimum recommended pavement section thicknesses are provided in Table 4. Depending on weather conditions at the time of construction, a thicker aggregate base course section could be required to support construction traffic during preparation and placement of the pavement section.

Table 4. Minimum AC Pavement Sections

Traffic Loading	AC (inches)	Base Course (inches)	Subgrade
Pull-in Car Parking Only	3	9	Stiff subgrade as verified by PBS personnel*
Drive Lanes and Access Roads	5	12	

* Subgrade must pass proofroll

The asphalt cement binder should be selected following ODOT SS 00744.11 – Asphalt Cement and Additives. The AC should consist of ½-inch hot mix asphalt concrete (HMAC) with a maximum lift thickness of 3 inches. The AC should conform to ODOT SS 00744.13 and 00744.14 and be compacted to 91% of the maximum theoretical density (Rice value) of the mix, as determined in accordance with ASTM D2041.

Heavy construction traffic on new pavements or partial pavement sections (such as base course over the prepared subgrade) will likely exceed the design loads and could potentially damage or shorten the pavement life; therefore, we recommend construction traffic not be allowed on new pavements, or that the contractor take appropriate precautions to protect the subgrade and pavement during construction.

If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

5 CONSTRUCTION RECOMMENDATIONS

5.1 Site Preparation

Construction of the proposed structure will involve clearing and grubbing of the existing vegetation or demolition of possible existing structures. In vegetated areas, site stripping should include removing topsoil, roots, and other deleterious materials to a minimum depth of 6 inches bgs. Demolition should include removing existing pavement, utilities, etc., throughout the proposed new development. Underground utility lines or other abandoned structural elements should also be removed. The voids resulting from removal of foundations or loose soil in utility lines should be backfilled with compacted structural fill. The base of these excavations should be excavated to stiff native subgrade before filling, with sides sloped at a minimum of 1H:1V to allow for uniform compaction. Materials generated during demolition should be transported off site or stockpiled in areas designated by the owner's representative.

5.1.1 Proofrolling/Subgrade Verification

Following site preparation and prior to placing aggregate base over shallow foundation, floor slab, and pavement subgrades, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. The subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If evaluation of the subgrades occurs during wet conditions, or if proofrolling the subgrades will result in disturbance, they should be evaluated by PBS using a steel foundation probe. We recommend that PBS be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be compacted to a stiff condition or be excavated and replaced with structural fill.

5.1.2 Wet/Freezing Weather and Wet Soil Conditions

Due to the presence of fine-grained clay and sands in the near-surface materials at the site, construction equipment may have difficulty operating on the near-surface soils when the moisture content of the surface soil is more than a few percentage points above the optimum moisture required for compaction. Soils disturbed during site preparation activities, or unsuitable areas identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

Site earthwork and subgrade preparation should not be completed during freezing conditions, except for mass excavation to the subgrade design elevations.

Protection of the subgrade is the responsibility of the contractor. Construction of granular haul roads to the project site entrance may help reduce further damage to the pavement and disturbance of site soils. The actual thickness of haul roads and staging areas should be based on the contractors' approach to site development, and the amount and type of construction traffic. The imported granular material should be placed in one lift over the prepared undisturbed subgrade and compacted using a smooth-drum, non-vibratory roller. A geotextile fabric should be used to separate the subgrade from the imported granular material in areas of repeated construction traffic. The geotextile should meet the specifications of ODOT SS Section 02320.10 and SS 02320.20, Table 02320-4 for soil separation. The geotextile should be installed in conformance with ODOT SS Section 00350 – Geosynthetic Installation.

5.1.3 Dry Weather Conditions

Clay soils should be covered within 4 hours of exposure by a minimum of 4 inches of crushed rock or plastic sheeting during the dry season. Exposure of these materials should be coordinated with the geotechnical engineer so that the subgrade suitability can be evaluated prior to being covered.

5.2 Excavation

The near-surface soils at the site can be excavated with conventional earthwork equipment. Sloughing and caving should be anticipated. All excavations should be made in accordance with applicable Occupational Safety and Health Administration (OSHA) and state regulations. The contractor is solely responsible for adherence to the OSHA requirements. Trench cuts should stand relatively vertical to a depth of approximately 4 feet bgs, provided no groundwater seepage is present in the trench walls. Open excavation techniques may be used provided the excavation is configured in accordance with the OSHA requirements, groundwater seepage is not present, and with the understanding that some sloughing may occur. Trenches/excavations should be flattened if sloughing occurs or seepage is present. Use of a trench shield or other approved temporary shoring is recommended if vertical walls are desired for cuts deeper than 4 feet bgs. If dewatering is used, we recommend that the type and design of the dewatering system be the responsibility of the contractor, who is in the best position to choose systems that fit the overall plan of operation.

5.3 Structural Fill

The extent of site grading is currently unknown; however, given the relatively flat site topography, PBS estimates that cuts and fills will be less than about 2 feet. Structural fill should be placed over subgrade that has been prepared in conformance with the Site Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. Structural fill material should consist of relatively well-graded soil, or an approved rock product that is free of organic material and debris, and contains particles not greater than 4 inches nominal dimension.

The suitability of soil for use as compacted structural fill will depend on the gradation and moisture content of the soil when it is placed. As the amount of fines (material finer than the US Standard No. 200 Sieve) increases,

soil becomes increasingly sensitive to small changes in moisture content and compaction becomes more difficult to achieve. Soils containing more than about 5% fines cannot consistently be compacted to a dense, non-yielding condition when the water content is significantly greater (or significantly less) than optimum.

5.3.1 On-Site Soil

On-site soils encountered in our explorations consist primarily of clay and soils containing clay, which may be difficult to use as structural fill, except during extended periods of dry weather. Even with construction during the dry summer grading season, several days of frequent aeration may be required to dry soils to near the optimum moisture content for compaction. Subsequently, reuse of on-site soils as structural fill may not be economically feasible. If on-site soils are used as structural fill, they should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to not less than 92% of the maximum dry density, as determined by ASTM D1557.

5.3.2 Borrow Material

Borrow material for general structural fill construction should meet the requirements set forth in ODOT SS 00330.12 – Borrow Material. When used as structural fill, borrow material should be placed in lifts with a maximum uncompacted thickness of approximately 8 inches and compacted to not less than 92% of the maximum dry density, as determined by ASTM D1557.

5.3.3 Select Granular Fill

Selected granular backfill used during periods of wet weather for structural fill construction should meet the specifications provided in ODOT SS 00330.14 – Selected Granular Backfill. The imported granular material should be uniformly moisture conditioned to within about 2% of the optimum moisture content and compacted in relatively thin lifts using suitable mechanical compaction equipment. Selected granular backfill should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to not less than 95% of the maximum dry density, as determined by ASTM D1557.

5.3.4 Crushed Aggregate Base

Crushed aggregate base course below floor slabs, spread footings, and asphalt concrete pavements should be clean crushed rock or crushed gravel that contains no deleterious materials and meets the specifications provided in ODOT SS 02630.10 – Dense-Graded Aggregate, and has less than 5% by dry weight passing the US Standard No. 200 Sieve. The crushed aggregate base course should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to at least 95% of the maximum dry density, as determined by ASTM D1557.

5.3.5 Utility Trench Backfill

Pipe bedding placed to uniformly support the barrel of pipe should meet specifications provided in ODOT SS 00405.12 – Bedding. The pipe zone that extends from the top of the bedding to at least 8 inches above utility lines should consist of material prescribed by ODOT SS 00405.13 – Pipe Zone Material. The pipe zone material should be compacted to at least 90% of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer.

Under pavements, paths, slabs, or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with less than 10% by dry weight passing the US Standard No. 200 Sieve, and should meet standards prescribed by ODOT SS 00405.14 – Trench Backfill, Class B or D. This material should be compacted to at least 92% of the maximum dry density, as determined by ASTM D1557 or as required by the pipe manufacturer. The upper 2 feet of the trench backfill should be compacted to at least 95% of the

maximum dry density, as determined by ASTM D1557. Controlled low-strength material (CLSM), ODOT SS 00405.14 – Trench Backfill, Class E, can be used as an alternative.

Outside of structural improvement areas (e.g., pavements, sidewalks, or building pads), trench material placed above the pipe zone may consist of general structural fill materials that are free of organics and meet ODOT SS 00405.14 – Trench Backfill, Class A. This general trench backfill should be compacted to at least 90% of the maximum dry density, as determined by ASTM D1557, or as required by the pipe manufacturer or local jurisdictions.

5.3.6 Retaining Wall Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of 0.5H should consist of granular material meeting ODOT SS 00510.12 – Granular Wall Backfill, which recommends ODOT SS 02630.11 – Open-Graded Aggregate. We recommend the granular wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the requirements provided in ODOT SS 02320.10 – Geosynthetics, Acceptance, and ODOT SS 02320.20 – Geotextile Property Values, Table 02320-4 for separation geotextile. The geotextile should be installed in conformance with ODOT SS Section 00350 – Geosynthetic Installation.

The wall backfill should be compacted to a minimum of 92% of the maximum dry density, as determined by ASTM D1557. However, backfill located within a horizontal distance of 3 feet from the retaining walls should only be compacted to approximately 90% of the maximum dry density, as determined by ASTM D1557. Backfill placed within 3 feet of the wall should be compacted in lifts less than 6 inches thick using hand-operated tamping equipment (such as jumping jack or vibratory plate compactors).

5.3.7 Stabilization Material

Stabilization rock should consist of pit or quarry run rock that is well-graded, angular, crushed rock consisting of 4- or 6-inch-minus material with less than 5% passing the US Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material. ODOT SS 00330.16 – Stone Embankment Material can be used as a general specification for this material with the stipulation of limiting the maximum size to 6 inches.

6 ADDITIONAL SERVICES AND CONSTRUCTION OBSERVATIONS

In most cases, other services beyond completion of a final geotechnical engineering report are necessary or desirable to complete the project. Occasionally, conditions or circumstances arise that require additional work that was not anticipated when the geotechnical report was written. PBS offers a range of environmental, geological, geotechnical, and construction services to suit the varying needs of our clients.

PBS should be retained to review the plans and specifications for this project before they are finalized. Such a review allows us to verify that our recommendations and concerns have been adequately addressed in the design.

Satisfactory earthwork performance depends on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. We recommend that PBS be retained to observe site stripping, fill area, footing, slab and pavement subgrades and fill placement and compaction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

7 LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without express written consent of the client and PBS. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, field explorations, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that PBS is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated fill, soil and rock conditions, and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples or completing explorations such as soil borings. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project; therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on and off site), or other factors may change over time and could materially affect our findings; therefore, this report should not be relied upon after three years from its issue, or in the event that the site conditions change.

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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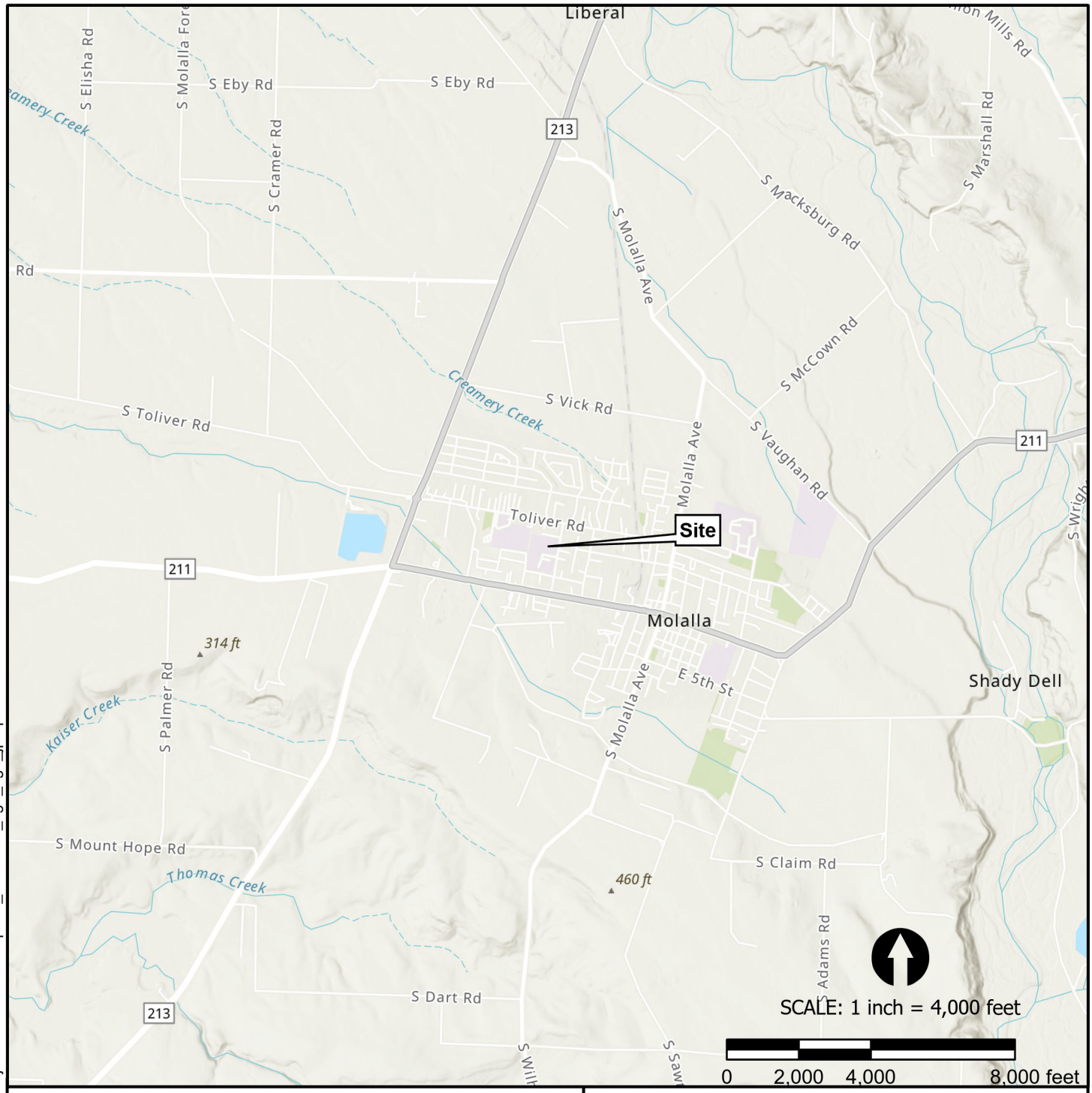
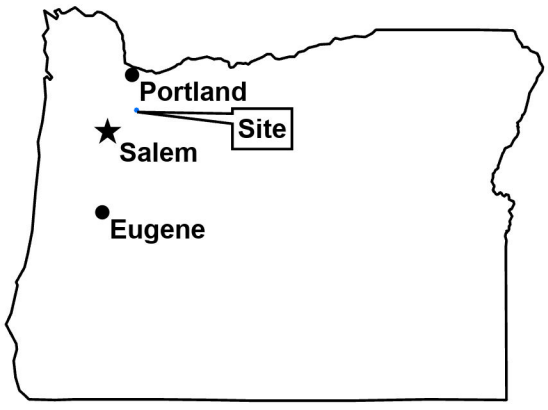
Figures





VICINITY MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT MOLALLA, OREGON

DATE: MAR 2025 · PROJECT: 24010734

PBS

FIGURE

1

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EXPLANATION

- Approximate boring location with infiltration test
- Approximate boring location
- Approximate new building perimeter

Notes: Google Earth 2023 imagery

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 150 feet

0 75 150 300 feet

SITE PLAN

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

DATE: MAR 2025 · PROJECT: 24010734

PBS

FIGURE 2

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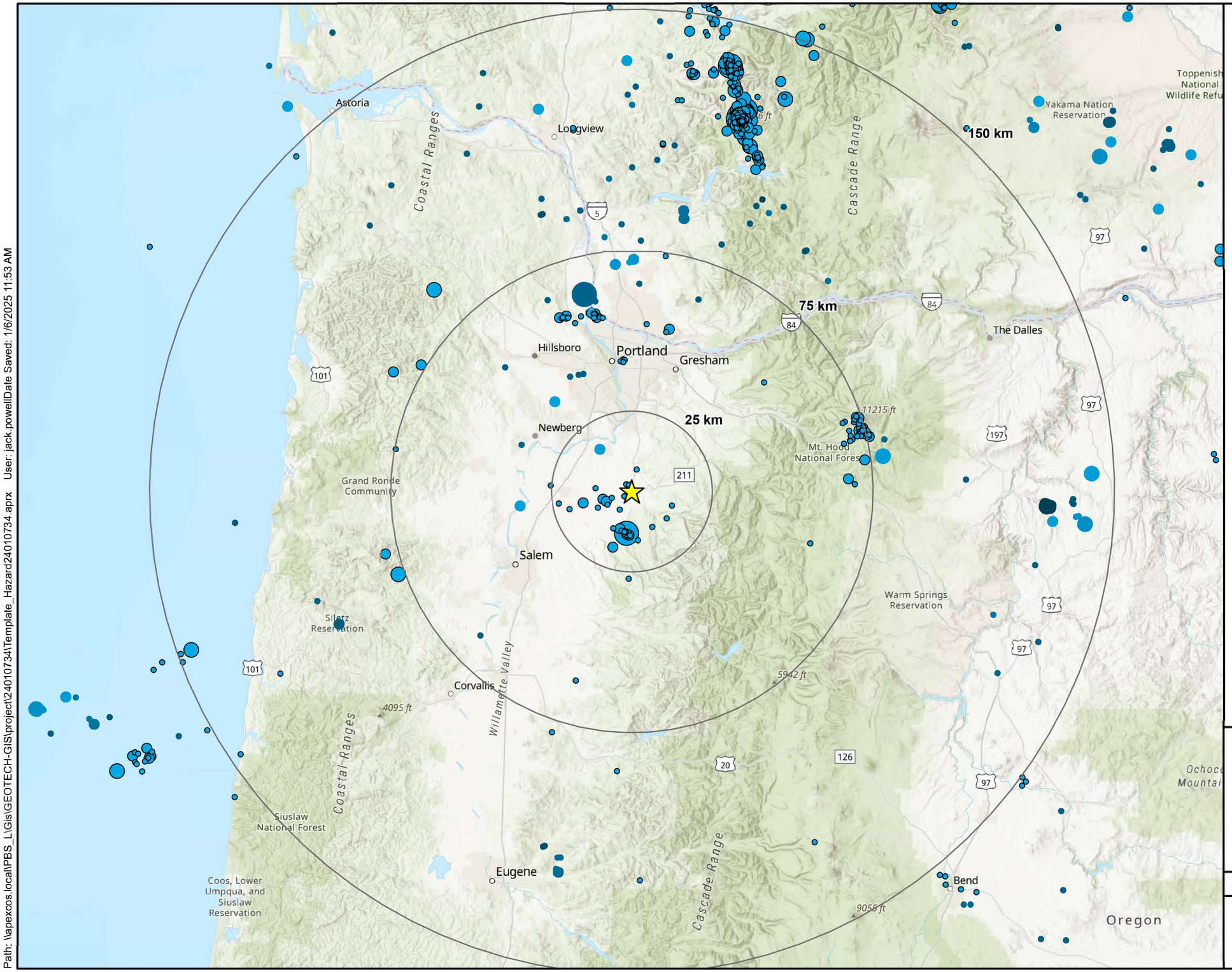

EXPLANATION

Site location

Site proximity buffer (km)

Independent seismicity (1963 - 2017)

- M 2.5 - 3.0
- M 3.1 - 4.0
- M 4.1 - 5.0
- M >5.1

Notes: Historical seismicity compiled from ANSS Comprehensive Earthquake Catalog

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 30 km

0 15 30 60 km

HISTORICAL SEISMICITY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

DATE: MAR 2025 · PROJECT: 24010734

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FIGURE 3

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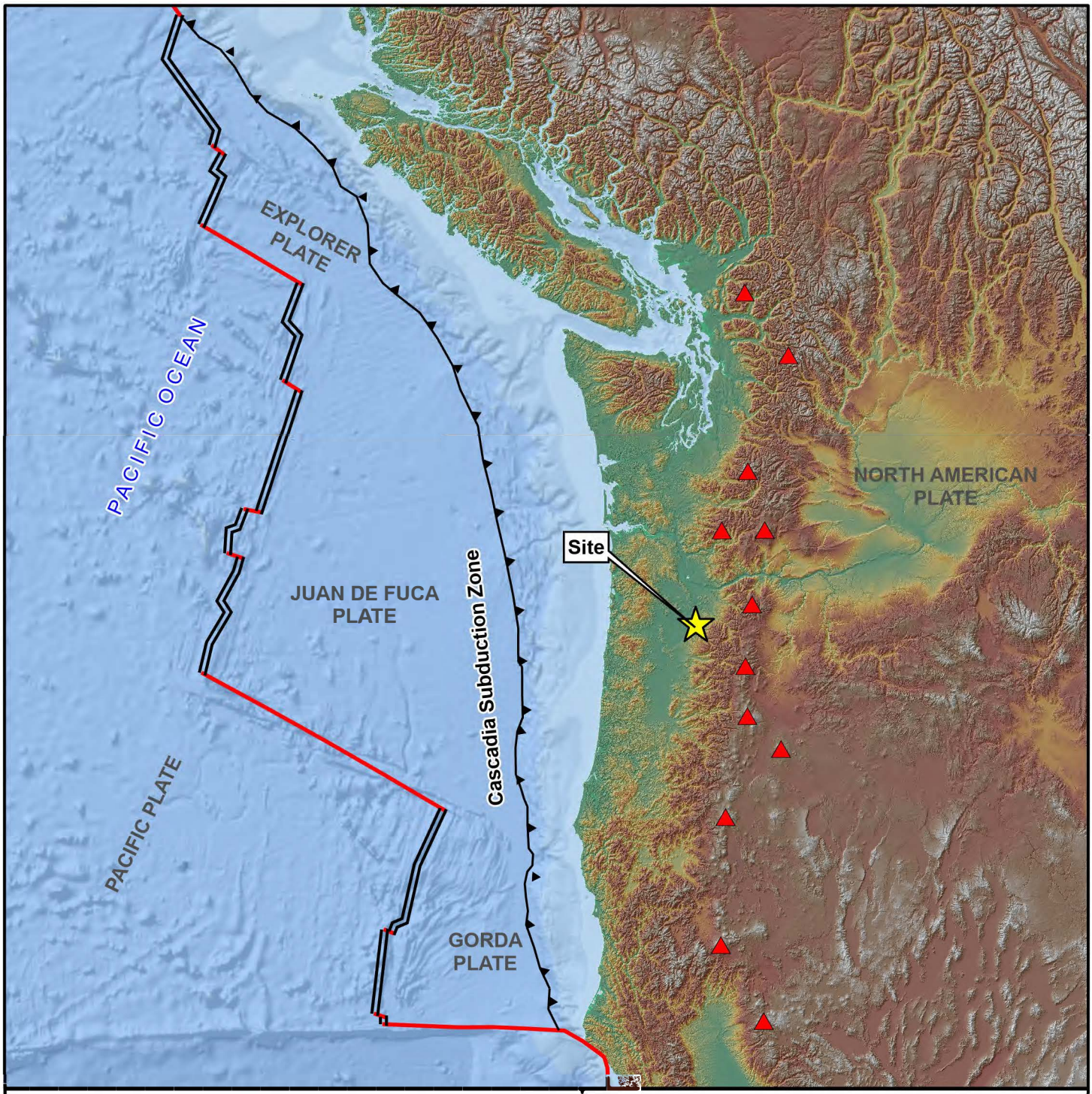

EXPLANATION

- Active volcano
- Transform boundary
- Spreading ridge
- Thrust fault

Notes: SRTM 30-meter DEM, ESRI World Oceans Basemap, USGS Tectonic Plate Boundaries

TECTONIC SETTING OF THE PACIFIC NORTHWEST

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

DATE: MAR 2025 · PROJECT: 24010734

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FIGURE
4

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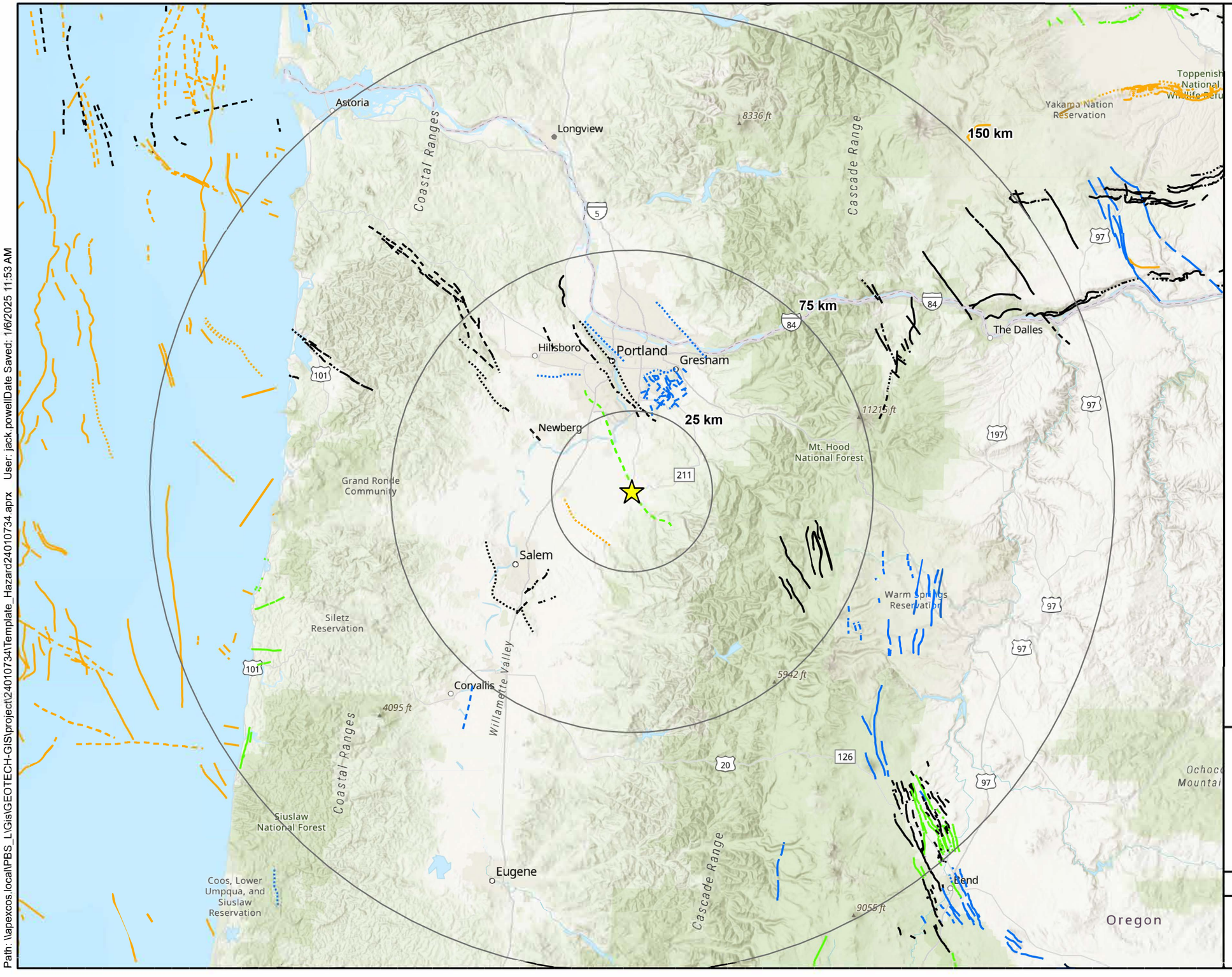

EXPLANATION

Site location

Site proximity buffer (km)

Fault trace - solid where well constrained, dashed where moderately constrained, and dotted where inferred

- <15,000 years - latest Quaternary
- <130,000 years - late Quaternary
- <750,000 years - middle and late Quaternary
- <1.6 million years - undifferentiated Quaternary

Notes: ESRI World Topographic basemap, USGS Quaternary Faults and Fold Database

Coordinate System: NAD 1983 2011 StatePlane Oregon North FIPS 3601 Ft Intl

SCALE: 1 inch = 30 km

0 15 30 60 km

REGIONAL FAULT MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT MOLALLA, OREGON

DATE: MAR 2025 · PROJECT: 24010734

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FIGURE 5

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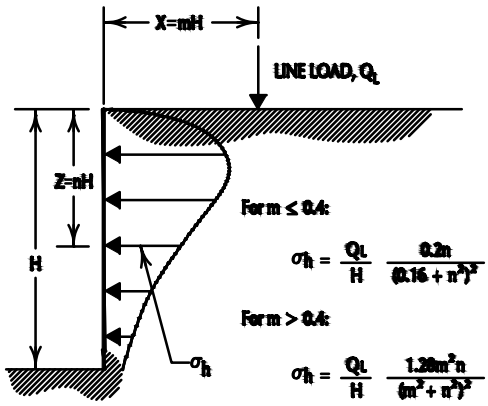
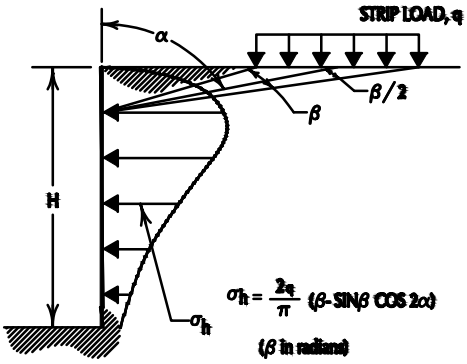
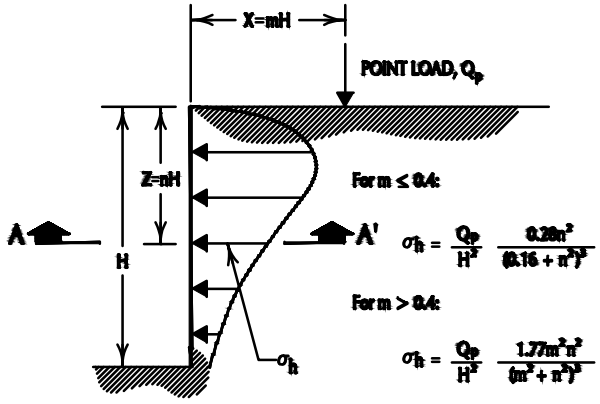
LATERAL SURCHARGE DETAIL

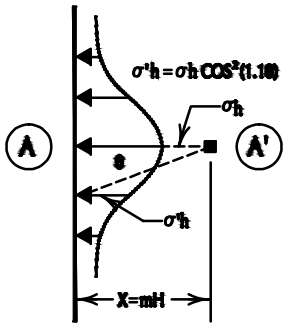


LINE LOAD PARALLEL TO WALL



STRIP LOAD PARALLEL TO WALL





DISTRIBUTION OF HORIZONTAL PRESSURES

VERTICAL POINT LOAD

NOTES:

1. THESE GUIDELINES APPLY TO RIGID WALLS WITH POISSON'S RATIO ASSUMED TO BE 0.5 FOR BACKFILL MATERIALS.
2. LATERAL PRESSURES FROM ANY COMBINATION OF ABOVE LOADS MAY BE DETERMINED BY THE PRINCIPLE OF SUPERPOSITION.

Legend

H	=	HEIGHT OF RETAINED SOIL (FEET)
σ_h	=	LATERAL SURCHARGE PRESSURE
σ'_h	=	LATERAL SURCHARGE PRESSURE AT ANGLE θ

NOT TO SCALE

PBS

LATERAL SURCHARGE DETAIL

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT

MOLALLA, OREGON

MAR 2025
24010734

FIGURE
6

Appendix A
Field Explorations

Appendix A: Field Explorations

A1 GENERAL

PBS explored subsurface conditions at the project site by advancing six borings to depths of up to approximately 26.5 feet bgs on December 12 and 13, 2024. The approximate locations of the explorations are shown on Figure 2, Site Plan. The procedures used to advance the borings, collect samples, and other field techniques are described in detail in the following paragraphs. Unless otherwise noted, all soil sampling and classification procedures followed engineering practices in general accordance with relevant ASTM procedures. "General accordance" means that certain local drilling/excavation and descriptive practices and methodologies have been followed.

A2 BORINGS

A2.1 Drilling

Borings were advanced using an ATV-mounted CME-55 drill rig provided and operated by Western States Soil Conservation, Inc., of Hubbard, Oregon. Borings B-2 through B-6 were advanced using mud rotary drilling techniques. Boring B-1 was advanced using hollow-stem auger drilling techniques for the purpose of infiltration testing. The borings were observed by a member of the PBS geotechnical staff, who maintained a detailed log of the subsurface conditions and materials encountered during the course of the work.

A2.2 Sampling

Disturbed soil samples were taken in the borings at selected depth intervals. The samples were obtained using a standard 2-inch outside diameter, split-spoon sampler following procedures prescribed for the standard penetration test (SPT). Using the SPT, the sampler is driven 18 inches into the soil using a 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler the last 12 inches is defined as the standard penetration resistance (N-value). The N-value provides a measure of the relative density of granular soils such as sands and gravels, and the consistency of cohesive soils such as clays and plastic silts. The disturbed soil samples were examined by a member of the PBS geotechnical staff and then sealed in plastic bags for further examination and physical testing in our laboratory.

A2.3 Boring Logs

The boring logs show the various types of materials that were encountered in the borings and the depths where the materials and/or characteristics of these materials changed, although the changes may be gradual. Where material types and descriptions changed between samples, the contacts were interpreted. The types of samples taken during drilling, along with their sample identification number, are shown to the right of the classification of materials. The N-values and natural water (moisture) contents are shown farther to the right.

A3 MATERIAL DESCRIPTION

Initially, samples were classified visually in the field. Consistency, color, relative moisture, degree of plasticity, and other distinguishing characteristics of the soil samples were noted. Afterward, the samples were reexamined in the PBS laboratory, various standard classification tests were conducted, and the field classifications were modified where necessary. The terminology used in the soil classifications and other modifiers are defined in Table A-1, Terminology Used to Describe Soil.

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Table A-1
Terminology Used to Describe Soil
1 of 2

Soil Descriptions

Soils exist in mixtures with varying proportions of components. The predominant soil, i.e., greater than 50% based on total dry weight, is the primary soil type and is capitalized in our log descriptions (SAND, GRAVEL, SILT, or CLAY). Smaller percentages of other constituents in the soil mixture are indicated by modifier words in general accordance with the ASTM D2488 Visual-Manual Procedure. "General Accordance" means that certain local and common descriptive practices may have been followed. In accordance with ASTM D2488, group symbols (such as GP or CH) are applied on the portion of soil passing the 3-inch (75mm) sieve based on visual examination. The following explains the soil names and modifying terms used to describe fine- and coarse-grained soils.

Fine-Grained Soils (50% or greater fines passing 0.075mm, No. 200 sieve)
The primary soil type, i.e., SILT or CLAY, is designated through visual-manual procedures to evaluate soil toughness, dilatancy, dry strength, and plasticity. The following outlines the terminology used to describe fine-grained soils and may vary from ASTM D2488 terminology in the use of some common terms.

Primary Soil NAME, Symbols, and Adjectives			Plasticity Description	Plasticity Index (PI)
SILT (ML & MH)	**CLAY (CL & CH)**	**ORGANIC SOIL (OL & OH)**		
SILT		Organic SILT	Non-plastic	0 – 3
SILT		Organic SILT	Low plasticity	4 – 10
SILT/Elastic SILT	Lean CLAY	Organic SILT/ Organic CLAY	Medium Plasticity	10 – 20
Elastic SILT	Lean/Fat CLAY	Organic CLAY	High Plasticity	20 – 40
Elastic SILT	Fat CLAY	Organic CLAY	Very Plastic	>40

Modifying terms describing secondary constituents, estimated to 5% increments, are applied as follows:

Description	% Composition	
With Sand	% Sand ≥ % Gravel	15% to 25% plus No. 200
With Gravel	% Sand < % Gravel	
Sandy	% Sand ≥ % Gravel	≤30% to 50% plus No. 200
Gravelly	% Sand < % Gravel	

Borderline Symbols, for example, CH/MH, are used when soils are not distinctly in one category or when variable soil units contain more than one soil type. **Dual Symbols,** for example, CL-ML, are used when two symbols are required in accordance with ASTM D2488.

Soil Consistency terms are applied to fine-grained, plastic soils (i.e., PI ≥ 7). Descriptive terms are based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586, as follows. SILT soils with low to non-plastic behavior (i.e., PI < 7) may be classified using relative density.

Consistency Term	SPT N-value	Unconfined Compressive Strength	
		tsf	kPa
Very soft	Less than 2	Less than 0.25	Less than 24
Soft	2 – 4	0.25 – 0.5	24 – 48
Medium stiff	5 – 8	0.5 – 1.0	48 – 96
Stiff	9 – 15	1.0 – 2.0	96 – 192
Very stiff	16 – 30	2.0 – 4.0	192 – 383
Hard	Over 30	Over 4.0	Over 383

Soil Descriptions

Coarse-Grained Soils (less than 50% fines)

Coarse-grained soil descriptions, i.e., SAND or GRAVEL, are based on the portion of materials passing a 3-inch (75mm) sieve. Coarse-grained soil group symbols are applied in accordance with ASTM D2488 based on the degree of grading, or distribution of grain sizes of the soil. For example, well-graded sand containing a wide range of grain sizes is designated SW; poorly graded gravel, GP, contains high percentages of only certain grain sizes. Terms applied to grain sizes follow.

Material NAME	Particle Diameter	
	Inches	Millimeters
SAND (SW or SP)	0.003 – 0.19	0.075 – 4.8
GRAVEL (GW or GP)	0.19 – 3	4.8 – 75
Additional Constituents:		
Cobble	3 – 12	75 – 300
Boulder	12 – 120	300 – 3050

The primary soil type is capitalized and the fines content in the soil are described as indicated by the following examples. Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%. Other soil mixtures will have similar descriptive names.

Example: Coarse-Grained Soil Descriptions with Fines

>5% to < 15% fines (Dual Symbols)	≥15% to < 50% fines
Well-graded GRAVEL with silt: GW-GM	Silty GRAVEL: GM
Poorly graded SAND with clay: SP-SC	Silty SAND: SM

Additional descriptive terminology applied to coarse-grained soils follow.

Example: Coarse-Grained Soil Descriptions with Other Coarse-Grained Constituents

Coarse-Grained Soil Containing Secondary Constituents	
With sand or with gravel	≥ 15% sand or gravel
With cobbles; with boulders	Any amount of cobbles or boulders.

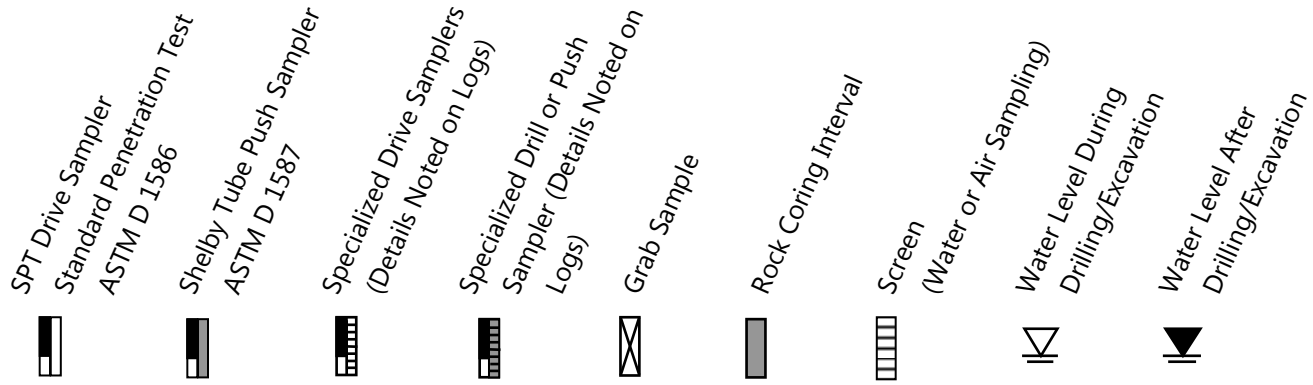
Cobble and boulder deposits may include a description of the matrix soils, as defined above.

Relative Density terms are applied to granular, non-plastic soils based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586.

Relative Density Term	SPT N-value
Very loose	0 – 4
Loose	5 – 10
Medium dense	11 – 30
Dense	31 – 50
Very dense	> 50

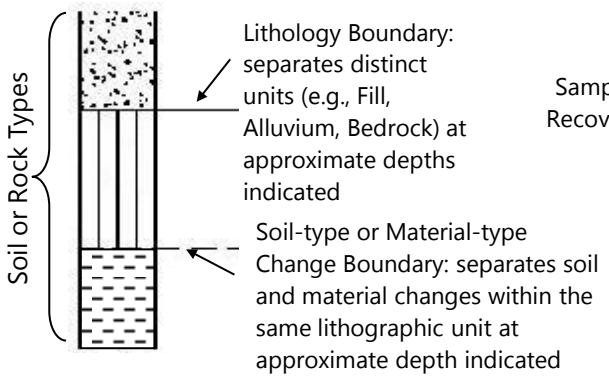
Table A-2
Key To Test Pit and Boring Log Symbols

SAMPLING DESCRIPTIONS

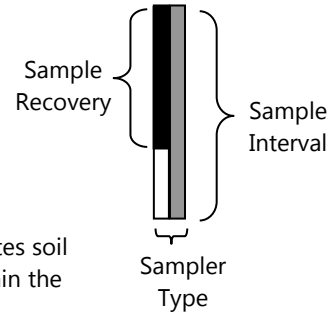


LOG GRAPHICS

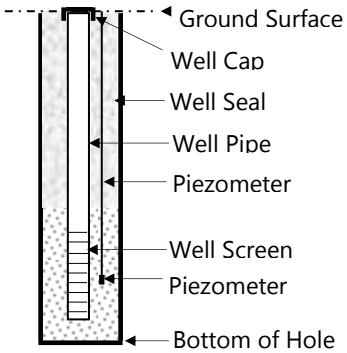
Soil and Rock



Sampling Symbols



Instrumentation Detail



Geotechnical Testing Acronym Explanations

PP	Pocket Penetrometer	HYD	Hydrometer Gradation
TOR	Torvane	SIEV	Sieve Gradation
DCP	Dynamic Cone Penetrometer	DS	Direct Shear
ATT	Atterberg Limits	DD	Dry Density
PL	Plasticity Limit	CBR	California Bearing Ratio
LL	Liquid Limit	RES	Resilient Modulus
PI	Plasticity Index	VS	Vane Shear
P200	Percent Passing US Standard No. 200 Sieve	bgs	Below ground surface
OC	Organic Content	amsl	Above Mean Sea Level
CON	Consolidation	HCL	Hydrochloric Acid
UC	Unconfined Compressive Strength		

Details of soil and rock classification systems are available upon request.

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MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

BORING B-1

PBS PROJECT NUMBER:
24010734

APPROX. BORING B-1 LOCATION:
(See Site Plan)
Lat: 45.15307 Long: -122.58906

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		TOPSOIL (~6 inches) with roots	0.0				Surface Conditions: Grass
		Very stiff, brown, gray, and orange, sandy lean CLAY (CL) with gravel and trace organics; high plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	0.5		S-1	23	
4.0		becomes wet		P200	S-2	17	Rig chatter P200 = 28% Infiltration testing completed at 5 feet bgs
		Very dense, brown, gray, and orange, clayey SAND (SC) with gravel; medium plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist to wet	7.5		S-3	55	
10.0		Very dense, brown, gray, and black, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	10.0		S-4	13-50/5	
		Final depth 11.0 feet bgs due to refusal; boring backfilled with bentonite and soil cuttings. Groundwater not encountered at time of exploration.	11.0				

0 50 100

DRILLING METHOD: Hollow-Stem Auger
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 8 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A1
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

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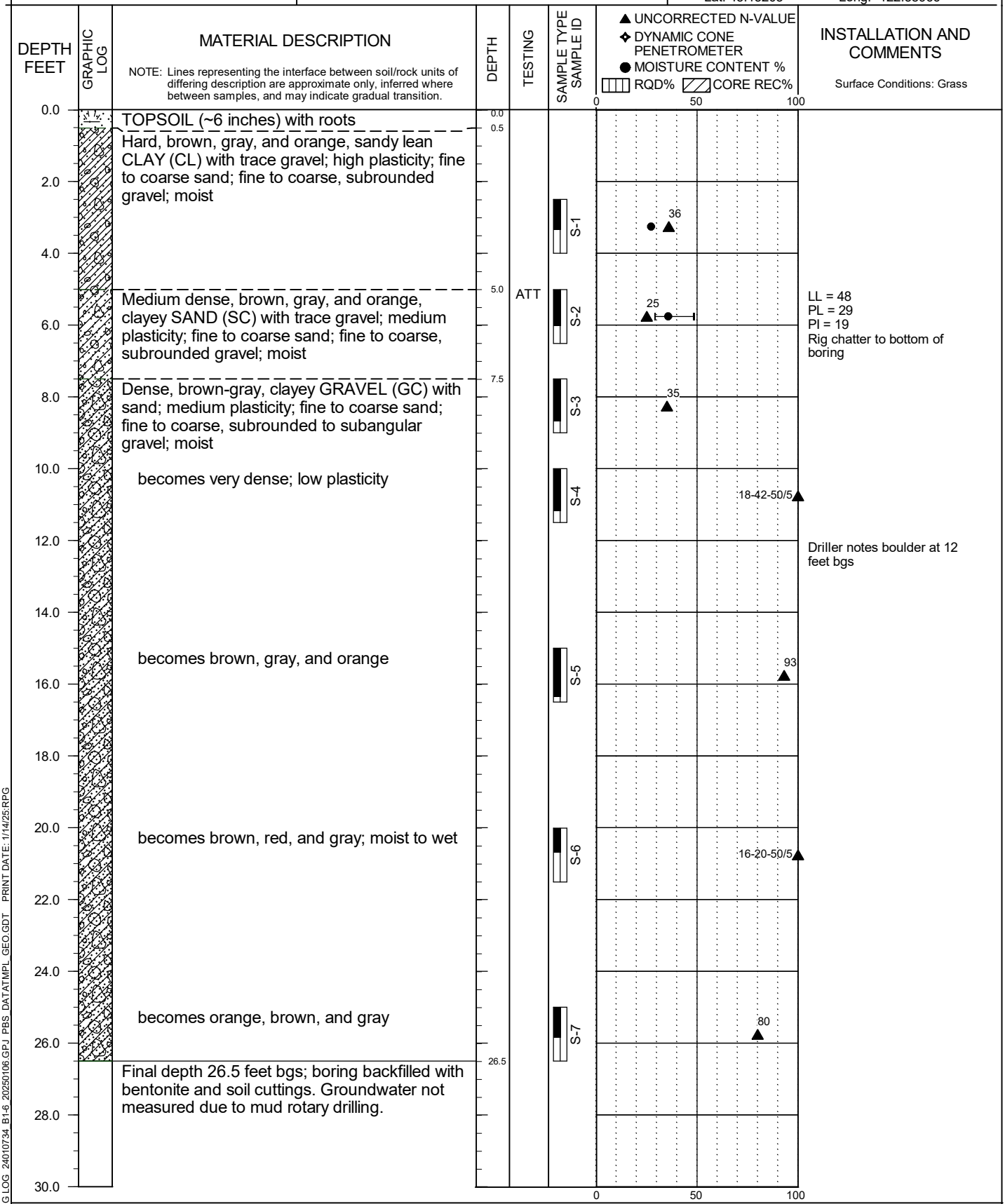
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

BORING B-2

PBS PROJECT NUMBER:
24010734

APPROX. BORING B-2 LOCATION:
(See Site Plan)
Lat: 45.15203 Long: -122.58966



BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A2
Page 1 of 1

PBS AN APEX COMPANY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

BORING B-3

PBS PROJECT NUMBER:
24010734

APPROX. BORING B-3 LOCATION:
(See Site Plan)
Lat: 45.15255 Long: -122.59040

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
	NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.				0 50 100	Surface Conditions: Grass
0.0	TOPSOIL (~6 inches) with roots	0.0				
	Very stiff, brown, orange, and gray, sandy fat CLAY (CH) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, subrounded gravel; moist	0.5	ATT	S-1	29	LL = 52 PL = 20 PI = 32
5.0	Medium dense, gray-brown, clayey SAND (SC); medium plasticity; fine to coarse sand; moist	5.0		S-2	22	Rig chatter to 20 feet bgs
7.5	Very dense, gray-brown, clayey SAND (SC) with gravel; medium plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	7.5		S-3	56	
10.0	Very dense, gray, brown, and orange, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	10.0		S-4	35-50/6	
				S-5	50/5	
20.0	becomes brown-gray; rounded to subangular gravel			S-6	20-50/1	
	becomes orange, brown, and gray subrounded to subangular gravel; moist to wet			S-7	70	
26.5	Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.	26.5				

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/12/2024

FIGURE A3
Page 1 of 1

PBS
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MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

BORING B-4

APPROX. BORING B-4 LOCATION:
(See Site Plan)
Lat: 45.15243 Long: -122.58949

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
0.0		TOPSOIL (~6 inches) with roots	0.0				Surface Conditions: Grass
		Very stiff, gray, brown, and orange, mottled sandy lean CLAY (CL) with trace gravel; high plasticity; fine to coarse sand; fine, subrounded gravel; moist	0.5	ATT	S-1	23	LL = 45 PL = 19 PI = 26
4.0							Rig chatter to 20 feet bgs
		Dense, brown, gray, and orange, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	5.0		S-2	40	
8.0					S-3	36	
10.0		becomes very dense; increased gravel			S-4	70	▼ 12/13/24 Boring bailed and flushed to measure groundwater
16.0					S-5	54	
20.0		becomes brown-gray; moist to wet			S-6	15-50/1	
26.0					S-7	77	
		Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings.	26.5				
30.0							

0 50 100

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A4
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

PBS
AN APEX COMPANY

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

BORING B-5

PBS PROJECT NUMBER:
24010734

APPROX. BORING B-5 LOCATION:
(See Site Plan)
Lat: 45.15202 Long: -122.59041

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE / SAMPLE ID	UNCORRECTED N-VALUE / DYNAMIC CONE PENETROMETER / MOISTURE CONTENT % / RQD% / CORE REC%	INSTALLATION AND COMMENTS
		NOTE: Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.				0 50 100	Surface Conditions: Grass
0.0		TOPSOIL (~6 inches) with roots	0.0				
		Very stiff, brown, orange, and gray, sandy lean CLAY (CL) with trace gravel; high plasticity; fine to coarse sand; fine to coarse, rounded to subangular gravel; moist	0.5		S-1	26	
2.0							
4.0					S-2	31	
6.0		Dense, brown, orange, and gray, clayey GRAVEL (GC) with sand; low plasticity; fine to coarse sand; fine to coarse, subrounded to subangular gravel; moist	5.5				Rig chatter to 20 feet bgs
8.0					S-3	35	
10.0		becomes very dense			S-4	50/4	
12.0							
14.0							
16.0					S-5	85	
18.0							
20.0					S-6	30-50/5	
22.0							
24.0							
26.0		increased orange fines; low plasticity; moist to wet			S-7	41	
		Final depth 26.5 feet bgs; boring backfilled with bentonite and soil cuttings. Groundwater not measured due to mud rotary drilling.	26.5				
28.0							
30.0						0 50 100	

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A5
Page 1 of 1

BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25 RPG

PBS
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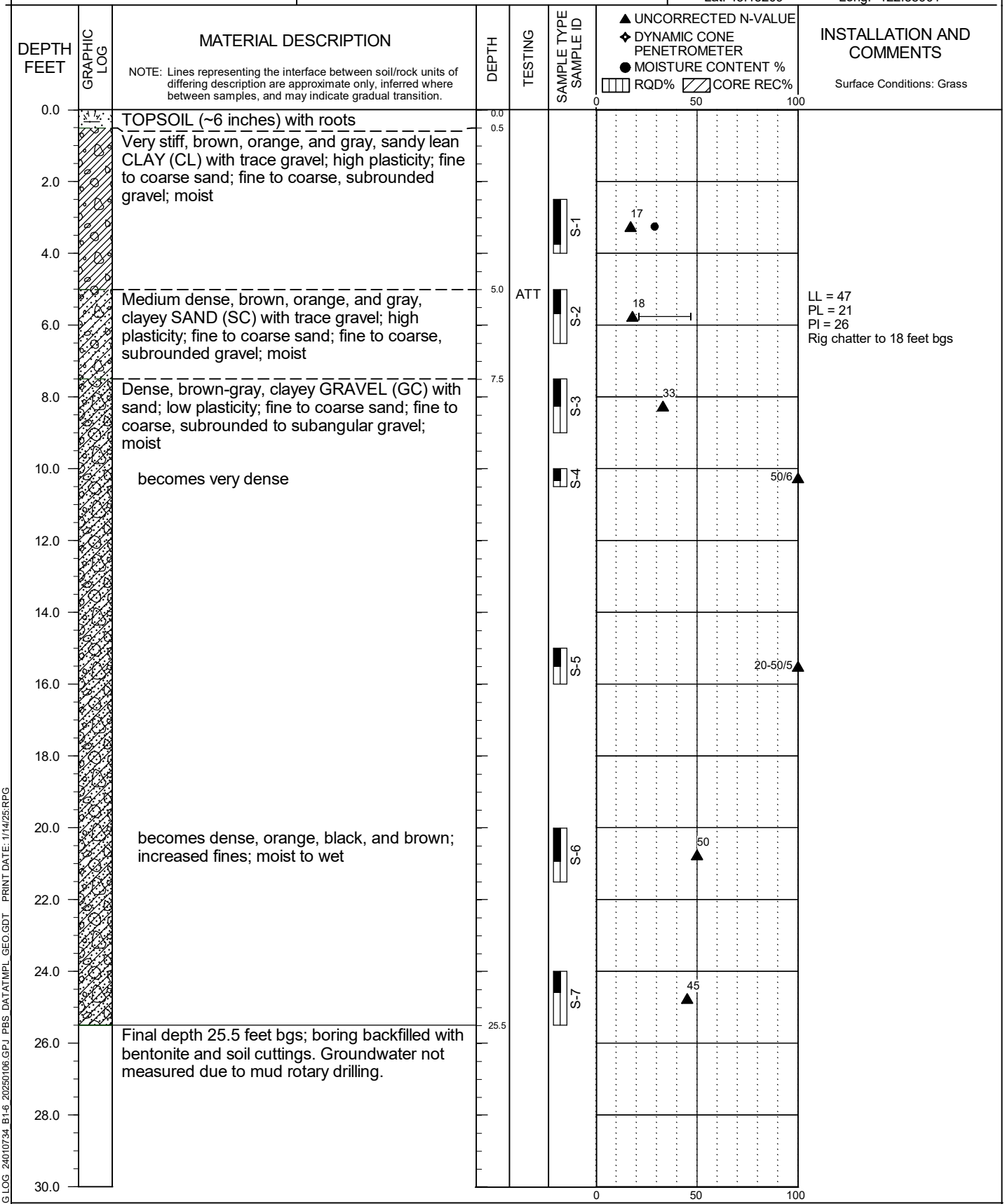
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

BORING B-6

PBS PROJECT NUMBER:
24010734

APPROX. BORING B-6 LOCATION:
(See Site Plan)
Lat: 45.15209 Long: -122.58901



BORING LOG 24010734 B1-6 20250106.GPJ PBS DATATMPL GEO.GDT PRINT DATE: 1/14/25:RPG

DRILLING METHOD: Mud Rotary
DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: J. Powell

BIT DIAMETER: 5 inches
HAMMER EFFICIENCY PERCENT: 86.8
LOGGING COMPLETED: 12/13/2024

FIGURE A6
Page 1 of 1

Appendix B
Laboratory Testing

Appendix B: Laboratory Testing

B1 GENERAL

Samples obtained during the field explorations were examined in the PBS laboratory. The physical characteristics of the samples were noted and field classifications were modified where necessary. During the course of examination, representative samples were selected for further testing. The testing program for the soil samples included standard classification tests, which yield certain index properties of the soils important to an evaluation of soil behavior. The testing procedures are described in the following paragraphs. Unless noted otherwise, all test procedures are in general accordance with applicable ASTM standards. "General accordance" means that certain local and common descriptive practices and methodologies have been followed.

B2 CLASSIFICATION TESTS

B2.1 Visual Classification

The soils were classified in accordance with the Unified Soil Classification System with certain other terminology, such as the relative density or consistency of the soil deposits, in general accordance with engineering practice. In determining the soil type (that is, gravel, sand, silt, or clay) the term that best described the major portion of the sample is used. Modifying terminology to further describe the samples is defined in Table A-1, Terminology Used to Describe Soil, in Appendix A.

B2.2 Moisture (Water) Contents

Natural moisture content determinations were made on samples of the fine-grained soils (that is, silts, clays, and silty sands). The natural moisture content is defined as the ratio of the weight of water to dry weight of soil, expressed as a percentage. The results of the moisture content determinations are presented on the exploration logs in Appendix A and on Figure B2, Summary of Laboratory Data, in Appendix B.

B2.3 Atterberg Limits

Atterberg limits were determined on select samples for the purpose of classifying soils into various groups for correlation. The results of the Atterberg limits test, which included liquid and plastic limits, are plotted on Figure B1, Atterberg Limits Test Results, and on the exploration logs in Appendix A, where applicable.

B2.4 Grain-Size Analyses (P200 Wash)

Washed sieve analyses (P200) were completed on samples to determine the portion of soil samples passing the No. 200 Sieve (i.e., silt and clay). The P200 test results are presented on the exploration logs in Appendix A and on Figure B2, Summary of Laboratory Data, in Appendix B.

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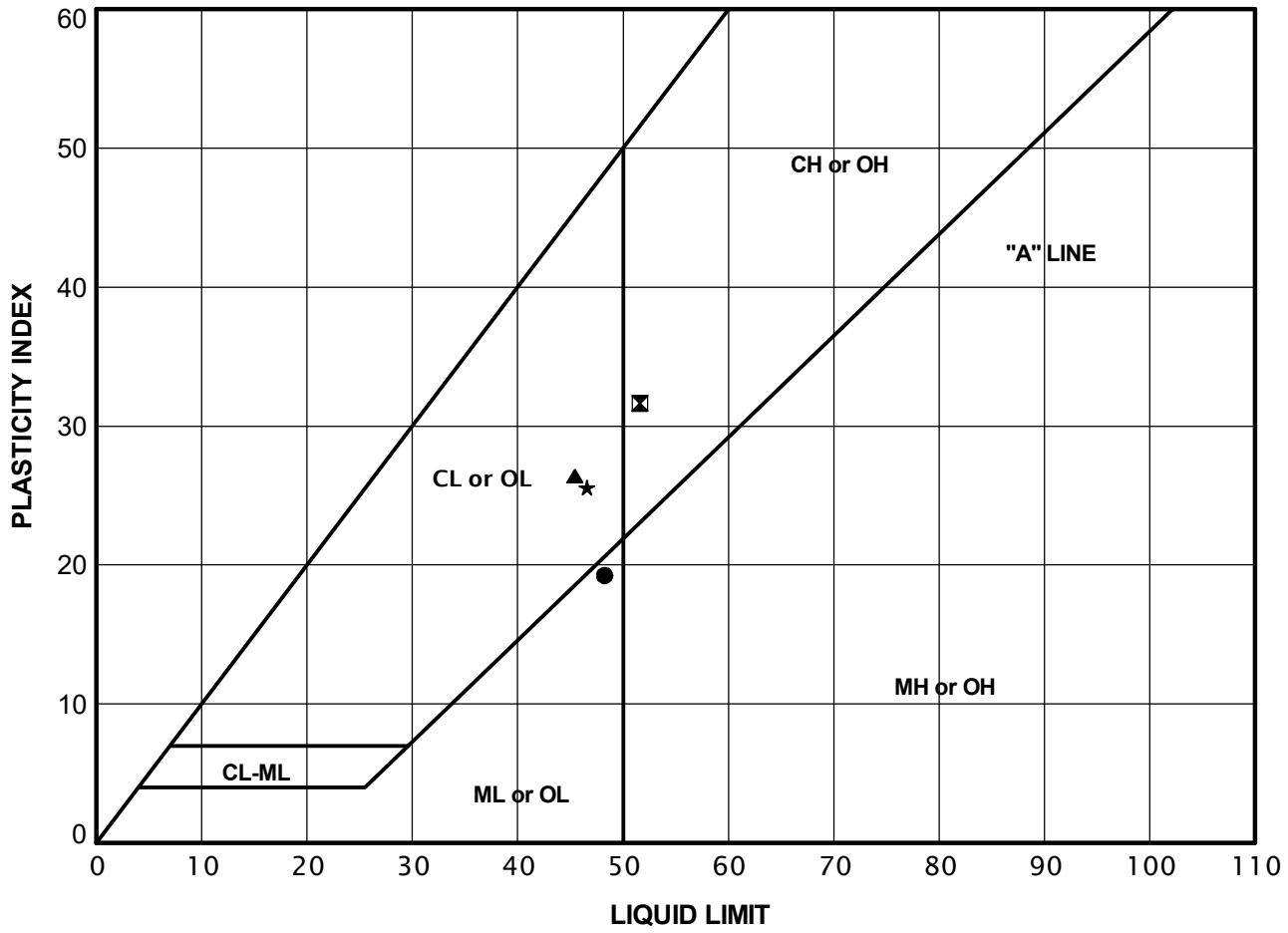
ATTERBERG LIMITS TEST RESULTS

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

TEST METHOD: ASTM D4318



KEY	EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	PERCENT PASSING NO. 40 SIEVE (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-2	S-2	5.0	35.6	NA	48	29	19
⊠	B-3	S-1	2.5	24.4	NA	52	20	32
▲	B-4	S-1	2.5	25.0	NA	45	19	26
★	B-6	S-2	5.0	28.9	NA	47	21	26

FIGURE B1
Page 1 of 1

_ATTERBERG LIMITS 24010734_B1-6_20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

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SUMMARY OF LABORATORY DATA

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
MOLALLA, OREGON

PBS PROJECT NUMBER:
24010734

SAMPLE INFORMATION				MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-1	S-1	2.5		47.6							
B-1	S-2	5		46.3				28			
B-2	S-1	2.5		27.1							
B-2	S-2	5		35.6					48	29	19
B-3	S-1	2.5		24.4					52	20	32
B-4	S-1	2.5		25.0					45	19	26
B-5	S-1	2.5		25.7							
B-6	S-1	2.5		28.9							
B-6	S-2	5		28.9					47	21	26

LAB SUMMARY 24010734_B1-6_20250106.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 1/14/25:RPG

MOLALLA RIVER
SCHOOL DISTRICT

MOLALLA
HIGH SCHOOL

MOLALLA RIVER
MIDDLE SCHOOL

Long Range Planning Committee Report to the Board

January 2015

RURAL DELL
ELEMENTARY SCHOOL

MULINO
ELEMENTARY SCHOOL

MOLALLA
ELEMENTARY SCHOOL

CLARKES
ELEMENTARY SCHOOL

Acknowledgements

The Long-Range Planning Committee appreciates the opportunity to serve this wonderful "Community of Communities."

We wish, also, to recognize the service of the School Board on behalf of our collective future.

Finally, special appreciation is due to the following staff members who provided exceptional service to the Committee:

Lauree Nelzen	Facilities Assistant
Tony Tiano	Facilities Supervisor
Missy Wesley	Executive Assistant to Superintendent and Board

Without their diligent research, detailed record keeping & above-and-beyond spirit, the work of the Committee would not have been possible. Thank you!

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I. Our History

If everyone is moving forward together,
then success takes care of itself. – Henry Ford

As a "Community of Communities" the Molalla River School District is unique with a rich history dating back to the mid-nineteenth century. Each of our communities was built on hard work, a sense of pride, and a determination to see that the future for children is as big as imaginable. These qualities that forged our history, on farm land, timberland and in town, still exist today in the vision of the Molalla River School District.

Molalla River School District #35 encompasses a vast area of rural communities. Many smaller school districts that existed years ago unified with Molalla River School District over the years, others joined surrounding districts. The list of former schools that fed into Molalla Union High School at one time include Eby, Liberal, Falls View, Bear Creek, Butte Creek, Dryland, Schuebel, Maple Grove, Monitor, Yoder, Meadowbrook, Beaver Lake, Elk Prairie, Fir Grove, Glad Tidings, South Oak Grove, Russellville, Teasel Creek, Mt. Hope, Dickey Prairie, Fernwood and Union Mills.

Molalla is a rural community of about 8,200 residents located thirty miles south of Portland, Oregon. Named after the "Molala", a Native American tribe, the town was inhabited by white settlers as early as the 1800s, but became an incorporated city on August 23, 1913. The local economy thrived on logging and agriculture for many decades. The first Molalla Buckeroo kicked off that same year, as well as the first Molalla Pioneer Newspaper published in 1913. The first post office was established near Liberal in the 1850s. It moved into the town of Molalla in 1976 and was located in the same place as it is today. The town and its many lumber mills struggled in the 1980s and 90s with the downturn in the timber industry. Natural resource recovery still exists, however, as logging, road construction, quarries and trucking companies provide services to the timber management companies in the area.

The original Molalla Schoolhouse was built north of town on Molalla Avenue and high school courses started in 1906. The first graduating class of Molalla Union High School was in 1911, and District #35 was established. A new high school was built in 1925 on the corner of Molalla Avenue and Fifth Street. It

was dedicated in February 1926. In 1976 another campus was built near the Buckeroo grounds on Francis Street. It became known as the "North Campus" and the original school building came to be known as the "South Campus." Both locations were used for high school as students were bussed between buildings for many years. In 1988 a fire destroyed the main gym, known as "The Pit," on the South campus, and a new gymnasium named after beloved coach Ralph Capasso was built on the North campus. Later, in 1993, an earthquake with a magnitude of 5.6, named the Scotts Mills earthquake (Spring Break Quake), damaged the South campus beyond repair. It was demolished in 1998. A new addition was built on the north campus at that time. The facility now serves grades 9-12 as Molalla High School.

Molalla River Middle School on Leroy Avenue was originally built as Molalla Grade School in 1953. It has served students in grades 6-8 since the unification of rural grade school districts in 1996.

In 1980, Molalla Primary School, currently known as Molalla Elementary School, was built to serve the town of Molalla. In 1980, grades 1-3 were enrolled. It now serves students in grades k-5.

In 1996, the District unified with the surrounding school districts of Rural Dell, Mulino, Schuebel, Clarkes, Dickey Prairie and Maple Grove. This created a larger, more cohesive District of that included the formation of a middle school at the Molalla Grade School site. The current population within the Molalla River School District boundaries is approximately 19,200. Student enrollment sits at 2,350, and is expected to grow by 16% over the coming decade. Schuebel School was closed shortly after unification, and the District sold the property in 2013. Dickey Prairie and Maple Grove closed due to decreasing enrollment and eventually became sites for charter schools in the District. Dickey Prairie School is still owned by the District and is now Molalla River Academy. Maple Grove School closed in 2010, and the property was returned to the owners, a local family, as the deed stated it must be. It is now Renaissance Public Academy.

The sites of Rural Dell, Mulino and Clarkes have their own educational history that was formed years before Molalla River School District unified. Even today, together with the areas formerly associated with rural school districts, these "communities within the community" have strong identities and deep-rooted pride.

II. PREFACE

Begin with the end in mind. – Stephen Covey

Providing an exceptional education for all students in the context of community beliefs and values is the work of the Molalla River School District. It is also the responsibility of the Molalla River School District to provide adequate educational facilities in which learning is to take place. Long-range planning is essential in providing the effective use of resources to meet both current and future student learning needs.

Beginning in September of 2013, the Molalla River School District Board of Directors began considering the steps necessary to provide long-term direction for programs and facilities in the District. To that end, the Board interviewed several organizations that might provide assistance. These included Hill International, Dick Withycombe and Associates, and Solid Ground. As Hill International had demonstrated success supporting similar work in districts like Molalla River, the Board voted at their business meeting on January 9, 2014, to have Hill assist with the process.

District priorities are an important foundation to the entire process. These Board adopted priorities are embodied in these measureable objectives:

- **Student Achievement** - Provide instruction and opportunities that assure ALL learners achieve their maximum potential every day
- **Human Resources** - Recruit, hire, develop, support and retain the very best educators for our students
- **School Climate** - Establish and maintain positive, safe learning environments in every school
- **Community** - Assure effective communication, positive relationships throughout the community and active engagement of our public
- **Stewardship** - Maintain responsible stewardship of all public resources

Because community engagement is a top priority for the District, the Board began with an inclusive process. Board members and administrators recommended citizens to serve on a Long-Range Planning Committee. The Committee was appointed at the Board work session on February 26, 2014, and it was comprised of members from each "community within the community," as well as representatives of the District's employee groups and principals from each level.

Later in this report, you will find a complete statement of the Committee's adopted priorities, values and beliefs. For now, it is important to understand specific elements of the Committee's vision as it was adopted by the Committee. It should provide the reader with a sense of the foundational thinking behind the final recommendations:

> The Molalla River School District inspires and engages students so all may learn to their greatest potential every day.
>
> In order to achieve this on behalf of our students and our community, we must provide **safe** facilities and practices, maximize our effectiveness with the resources we have by providing for **efficiencies** with each decision, and continue providing the highest quality of **instruction** in every classroom.

The Committee has prepared a series of recommendations based on the best information available about the condition of our present facilities, enrollment projections, community needs and keeping in mind current and future instructional needs for students. This document is a starting point for decisions that will be made over the coming years.

We believe the actions recommended in this report will require significant effort, and we expect the Board may wish to reconvene the Long-Range Planning Committee or commission other committees to determine how to involve the community in proceeding with any of these recommendations.

III. Long-Range Planning Committee

Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has. – Margaret Mead

A) Charge to the Committee

At their February 27, 2014 work session, the Molalla River School District Board of Directors adopted their charge to the Long Range Planning Committee. That charge is as follows:

> This Committee is charged with development of a District-wide education plan. The priorities within the plan should be based on core values and community voice that is broader than facility concerns alone. Development of the plan should be anchored in an understanding of Board priorities, community insights, curriculum and instruction priorities, grade configurations, demographic trends, an understanding of general education requirements and a vision of growing an exceptional future for every student.
>
> The plan will define thoughtful direction for buildings, grounds and undeveloped properties of the District. The plan will provide recommended direction and priorities for future decisions such as renovation, construction, demolition and sale of buildings or decisions specific to District property. Major maintenance projects should also be identified.
>
> The plan is to specify recommended projects, the timing and sequencing of the projects, their estimated costs and funding source(s). The plan should extend for twenty years with scheduled updates every three years. Most recent facilities data and planning documents will be used as a reference.
>
> The Committee is to be comprised of a cross-section of parents, school personnel, business and civic leaders, and broad representation from throughout the community. Municipalities and local organizations will be

represented on the Committee. Assistance will be provided by an outside consultant, Hill International.

The Committee will develop, utilize, and implement a planning process that is transparent, participatory, and communicates effectively in a timely manner to all community members and District staff. The Committee is to meet monthly from March to December of 2014. The Committee is to provide opportunity for public input that will be used in generating the final recommended plan.

The Committee shall hold its first meeting on Monday, March 3, 2014 and is to present a final report and recommendation to the Molalla River School District Board by January 31, 2015.

B) Committee Membership and Organization

Gary Bush
Jane Carlson
Stephen Clark
Angela Clayton
Liz Cruthers □
Randy Dalton
Phillip Daniels
Gary Dix
Mike Early ◆❖
Tom Eskridge
Connie Friedrich
Rick Gill
Jeff Hammock
Jill Hewitt
Debbie Hoffman
Shelby Hopkins
Marianne Knapp
Mark Lucht □ O
Neal Lucht □
Kim Knox
Mitch Magenheimer □
Marilee Marrow
Dwight Mason O◆
Nikki Matias
Kirsten McNeil
Mike Nelsen
Sandy Nelson O◆
Lauree Nelzen
Adrienne Ohara❖
George Pottle ◆
Jack Rae
Dawn Thies
Susan Toribara
Alan Willey
Susan Williams

O Deferred Maintenance Sub-Committee
❖ Committee Vision Sub-Committee
◆ Finance Review Sub-Committee
□ Committee Chair
□ Board Member

C) Committee Process

From the very outset of the Committee's appointment, the work of the Committee was stated in terms of the Board's charge to the Committee. The work of this Committee was not, and is not, that of a bond committee. Instead, this Committee was charged to envision the District's future.

At a current enrollment of 2,338 students, the Molalla River School District is not subject to ORS 195.110, which requires school districts of 2,500 students to develop a minimum 10-year Long-Range Facility Plan. As you will read later in this report, however, the District's projected enrollment is increasing and expected to reach the 2,500 student mark during or shortly after the 2017-18 school year. It has been, therefore, highly prudent of the Board to engage in an early process which attends to many of the requirements of ORS 195.100.

The Board of Directors (Board) of the Molalla River School District authorized Superintendent Tony Mann to initiate and develop a plan/process for conducting a yearlong study of the Molalla River School District facilities that would culminate in a report that outlines the current condition and status of current facilities and would project the anticipated needed changes and upgrades to extend the educational program through the next 10-20 years.

The first meeting of the Committee was held in March 2014. The first steps were to outline to the Committee the anticipated steps designed to accomplish the study. Following the presentation of initial information on Committee membership and process, the Committee collectively voiced the need for a much better understanding of District operations, including finances and the history of maintenance and capital improvements. Sub-committees were eventually formed to address this desire.

Over the course of the year, the Committee spent time learning about topics including the following: District enrollment, population forecasts, state-mandated reforms, survey data from community engagement that reached over 500 individual respondents, and research summaries on grade configuration and school size. Conversation was held on topics ranging from the nature of technology in our lives and our schools to the nature of the local economic future. Committee members were engaged throughout the process.

Meetings were held across the community in each of the District schools. At each building, the Committee reviewed a Facility Assessment Summary prepared by Bob Collins, representing Hill International. The assessments were also based on studies conducted by Balzhiser & Hubbard Engineers under contract approval from the Board. The assessments also included information collected on site and in consultation with District facilities staff who have first-hand knowledge and expertise regarding District facility systems, maintenance, operational histories and schedules, as well as projected needs. As the State of Oregon does not have a set of standards for school facilities, the full assessments are organized based on the Office of Superintendent of Public Instruction (OSPI) model from Washington State where a standard exists.

At all buildings, the Committee expressed concern about the lack of adequate communication (telephone, intercom, surveillance). Meanwhile, the District assessed the costs necessary to address these safety concerns as a top priority. The costs, depending on final scope, range as high as $1.0 million. The Committee was informed that the Administration will be proceeding with a plan and budget for addressing these issues that will be presented to the Board at a later time.

At the July 7, 2014 meeting, the Committee made a set of decisive decisions. There were three sub-committees formed to address issues arising in the committee: Finance, Vision, and Prioritizing Projects/Deferred Maintenance.

During the course of the Committee's work, sub-committees were formed to accomplish three specific tasks. The first committee focused on a review of District finances and recent budgetary history. This was an important step in providing for transparent data set upon which the Committee could have confidence in the District's stewardship of public dollars. The second sub-committee focused on crafting a vision by which the Committee's eventual recommendations might be based. Finally, a sub-committee (Projects) was formed to review and organize facilities priorities identified through the facilities assessment process.

In September, the Committee agreed to add a second meeting each month for the remainder of the year in order to cover the scope of work yet to be done.

Also in September, at the request of Hill International, representatives from BLRB Architects presented Key Concepts in Learning Environments to the Committee. These included ideas like flexible spaces, equitable access, eco-friendly materials and readiness for future technologies, just to name a few. Although Committee members expressed interest in these concepts, there was a general sense that proceeding with architects at this point in the Long-Range Planning Process would be premature.

Based on the work of the Projects sub-committee, a prioritized list of projects with attendant budgetary dollar figures was developed. This list was created over many meetings of discussion and prioritized around three themes: safety, efficiency, and learning environment. Later the sub-committee analyzed each item and developed a sortable spreadsheet of all items. From there, the larger Committee was able to review and consider the full scope of all identified projects, costing an estimated $4.0 million. Consensus was reached on the projects that will accomplish needed maintenance and upgrades that may have been deferred in the past.

There was a mixed response among Committee members regarding a proposal that the HS entrance be remodeled for safety purposes. Cost and scope of such a project was information Committee members needed, but it was unavailable without a specific design and set of costs determined by an architectural professional.

Ideas discussed as part of the response to elementary enrollment and capacity issues included the potential conversion of district office space to classrooms, the purchase of modular classrooms, the expansion of current elementary facilities, etc. As explained later in this report, elementary boundary decisions must be made prior to determining any capacity solutions.

In the final two meetings of the schedule, the Committee finalized recommendations and delineated them into three phases. Certain recommendations are independent, while other recommendations are contingent upon prior outcomes. This is all explained in detail in section five (V).

D) Committee Accomplishments

Following is a list of Committee accomplishments:

1. Reviewed community survey data and used it to support the development of a statement of values and beliefs regarding the education of children in the Molalla River School District. (Adopted by the Committee at their Oct. 20th, 2014 meeting)
2. Reviewed research summaries regarding grade configurations and school size.
3. Discussed the merits of various grade configurations and reached consensus regarding the desired District standard (maintaining current model).
4. Reviewed facility assessment data (exterior, interior, codes, mechanical rating).
5. Toured each school within the District.
6. Appointed sub-committees to review District finances, develop a Committee vision and provide input to our facilities team regarding the identification and prioritization of major deferred maintenance projects totaling a cost of $4.48 million.
7. Considered the economic future of the region through survey and interview, resulting in an executive summary produced by Scott Mutchie from Hill International.
8. Reviewed demographic trends and used that understanding to support the identification of specific recommendations and their relative urgency.
9. Agreed that a full analysis of District boundaries and potential modification be conducted immediately.
10. Addressed the best way to resolve immediate capacity issues at two elementary schools prior to any re-boundary effort or re-organization of elementary schools.
11. Determined the timing and sequencing of projects, and reviewed data regarding the potential costs per square foot.

In addition to the accomplishments enumerated above, the Committee agrees to reconvene at such a time as the School Board may wish to seek additional input or recommendations.

IV. Committee Priorities, Beliefs and Values

Only by changing how we interact can shared visions, shared understandings and new capacities for coordinated action be established – Peter Senge

At their October 20, 2014 meeting, the Long-Range Planning Committee adopted a statement of vision and values. This statement is based on a culmination of activities including whole-committee vision development, sub-committee discussions, further whole-committee review and discussion, all available data points including a review of financial matters and community beliefs organized as a result of the Thought Exchange engagement process.

This statement provides the Board with a recommended set of touchstones for decision-making as the District moves forward.

Long-Range Planning Committee Priorities, Beliefs & Values

Adopted by the Committee - October 20, 2014

Our Vision: The Molalla River School District inspires and engages students so all may learn to their greatest potential every day.

In order to achieve this on behalf of our students and our community, we must provide **safe** facilities and practices, maximize our effectiveness with the resources we have by providing for **efficiencies** with each decision, and continue providing the highest quality of **instruction** in every classroom.

Beliefs about Teaching and Learning

- We believe that as we focus on academic excellence in a safe, positive learning environment, we must do so while providing the broadest set of learning opportunities possible.
- We must focus on reinforcing positive character traits while developing student leaders.
- We believe every student deserves relevance to their learning, and that real-world application is important.
- We know that technology plays a critical role in our mission.
- We know we cannot do this important work alone. It requires that the School District continue to engage the community in positive and meaningful ways.
- Finally, we believe it is the job of the School District to provide every student with the knowledge and skills necessary for them to access whatever pathway they might choose upon graduation, be it a four-year degree, education at a two-year institution or a readiness for career training.

Commitments Regarding Facilities

- We commit to providing the physical environment and support to assure our beliefs about teaching and learning are achieved for all students.
- To do this, it is the District's responsibility to provide educational facilities that meet the needs of students, staff, and the surrounding community.
- Our school facilities must be safe, secure and inviting. We believe they must be accessible by all and flexible for the purpose of responding to changes in the future expectations and the rigorous learning outcomes required of Oregon students.
- We must maintain buildings that enhance teaching and learning while promoting the positive attitudes and productive relationships valued by students, staff and community.

As our schools must support high-quality teaching and learning, we seek to achieve a sense of pride and ownership by ensuring students and staff work in environments that are inviting and welcoming, where excellence in teaching and learning are the norm.

V. Committee Recommendations

Great things do not just happen by impulse, but as a succession of small things linked together. – Vincent Van Gough

There is a general consensus among the Committee that the District fell behind on maintenance and capital improvements during difficult economic years. The Committee strongly recommends the Board assure this "falling behind" not occur again. By revisiting the Long-Range Planning Document on a regular basis with the help of the Committee, we believe this can be achieved.

Immediate Recommendations:

A) Maintain the current grade configuration (K-5; 6-8 and 9-12) as the Molalla River School District standard.

B) Continue to manage routine maintenance using general fund resources. If something breaks or needs repair, take care of it.

C) Assess Boundaries: Before undertaking any significant capital projects at all schools (section XII of this report), the essential question of long-term District boundaries should be determined.

1. The Committee unanimously agreed that an analysis of current boundaries, to determine the change necessary for all students to attend their neighborhood school, take place.

2. The outcome of boundary assessment will inform the district's response to the capacity crisis at Rural Dell and Molalla Elementary.

3. Fifty-six percent (56%) of the Committee agreed that exploring an alternative facility organization: centralizing elementary students on one or two larger elementary campuses should also be considered.
4. The Long-Range Planning Committee should be reconvened no later than September 2015 to review the boundary

analysis and make next-step recommendations regarding elementary boundaries.

D) The Board should identify an architect-of-record to work with the District on the development of Phases One and Two priorities and all other capital projects requiring design and cost analysis.

Recommendations for Phase One (1-5 Years)

The recommendations listed below are listed in a flexible timeline, with many processes contingent on others, and are not listed in order of importance.

A) If, after assessing boundaries, the Committee recommends maintaining all four elementary buildings:

1. Significant capital improvements in section twelve (XII) should proceed.

2. A Committee recommendation to address elementary building capacities should be developed at that time.

B) Complete deferred maintenance and capital improvements identified in section twelve (XII) of this report.

D) Secure property adjacent to MHS, as necessary, for the purpose of co-locating a new middle school. Such co-location, it is believed, will create efficiencies of operation for the district in areas like transportation. In addition, it is believed additional opportunities may become available for secondary students as the result of such co-location.

E) Construct a new middle school on the property co-located with MHS.

F) Reconfigure Mulino Elementary. The Committee recommends closing the North Campus and constructing facilities in coordination with the South campus that will represent a comprehensive K-5 elementary school. The committee believes this is necessary given the safety issues present with students

crossing Passmore Road. Additionally, loss of instructional time for street crossings, as explained in the Mulino principals report, will be eliminated.

G) Funding for Phase One should be identified by the Board as soon as possible.

(Note: Elementary school organization and boundaries will be determined after the 2015 boundary analysis. Committee members recognized that other assets, like the district office building and the current middle school building may need to be considered for elementary school use depending on the outcome of the boundary analysis.)

Recommendations for Phase Two (6-10 Years)

A) Reconvene Long-Range Planning Committee periodically to:

1. Review progress and make further recommendations

2. Develop modernization plans for buildings based re-evaluations from the Long-Range Planning Committee

Recommendations for Phase Three (11-20 Years)

At the time of this report, the Committee feels that, except for Molalla High School, the District does not have any building that can sustain another 10 years or more. The Committee is expecting that once Phase One and Phase Two recommendations move forward and the district experiences the growth in enrollment projected in Section 9 of this report, Phase Three facility needs will become clear through future deliberations of the Committee.

Overarching recommendations:

- Engage the community at regular intervals associated with these efforts using Thought Exchange and other relevant tools.

- Given the current state of our facilities, the Committee is unable to see farther into the future than is represented in the recommendations above. This said, we believe the regular reconvening of the Committee will provide longer term recommendations as the Board proceeds.

VI. Thought Exchange - Community Perspectives

A nation's culture resides in the hearts
and in the soul of its people – Gandhi

An important piece of data reviewed by the Committee came from the Board's community survey: Thought Exchange. This section describes the process, the data and key outcomes.

The Thought Exchange survey process took place from March to May 2014. It provided a platform that resulted in a tremendous number of respondents. In the end, there were seven hundred twenty-six (726) individuals who responded to the open-ended survey questions – parents, teachers, staff members, community members, students and alumni were all invited. All of this represents one of the largest community engagements ever experienced within the Molalla River School District.

Three broad questions were asked:

- What is working well?
- What can we continue to improve?
- What should students be able to experience that they currently cannot?

Two thousand fifty (2,050) thoughts were shared by the respondents and later prioritized using twenty-three thousand one-hundred eighty "stars" (23,180). This unique process allowed every voice to be heard equally and all voices had an opportunity to produce ideas that the larger community valued with "stars."

The data was reported to all participants and posted on the District website in a fully transparent commitment to engage community. The Long-Range Planning Committee used this data to help inform their development of a vision. Additionally, the data served to validate recent Board decisions to expand learning opportunities for students in the District while shedding important light on areas for future improvements.

Of the improvements desired by the community, all school communities (parents and staff alike) identified the need to improve facilities as a top

priority. District-wide it was the second most-talked-about issue for desired improvement, second to the community's desire to maintain or decrease class size. This attention to facilities as a top priority was a validation of the Committee's charge.

Additional generalizations from the data indicate a belief that the District has outstanding teaching staff who create opportunities for students to excel. Additional learning opportunities are desired across schools and there is a desire for continued improvement in the way the District supports individual learners and technology systems.

The top-ten most talked about thoughts for each of the questions follows:

What's working well?

All themes (for more information - select a row below)	overall rating
1. All the Teachers are excellent.	76
2. I think our staff is outstanding and dedicated.	59
3. I appreciate the feeling that my kids are part of a great community.	33
4. Adding music back to our elementary schools.	24
5. Communication between students, administrators, teachers and community	22
6. Parent involvement in school activities/events.	16
7. Clubs and extracurricular activities.	14
8. Encouraging kids to have good behavior by using positive reinforcement.	14
9. The reading program	14
10. I appreciate opportunities such as this one to voice my opinion.	12

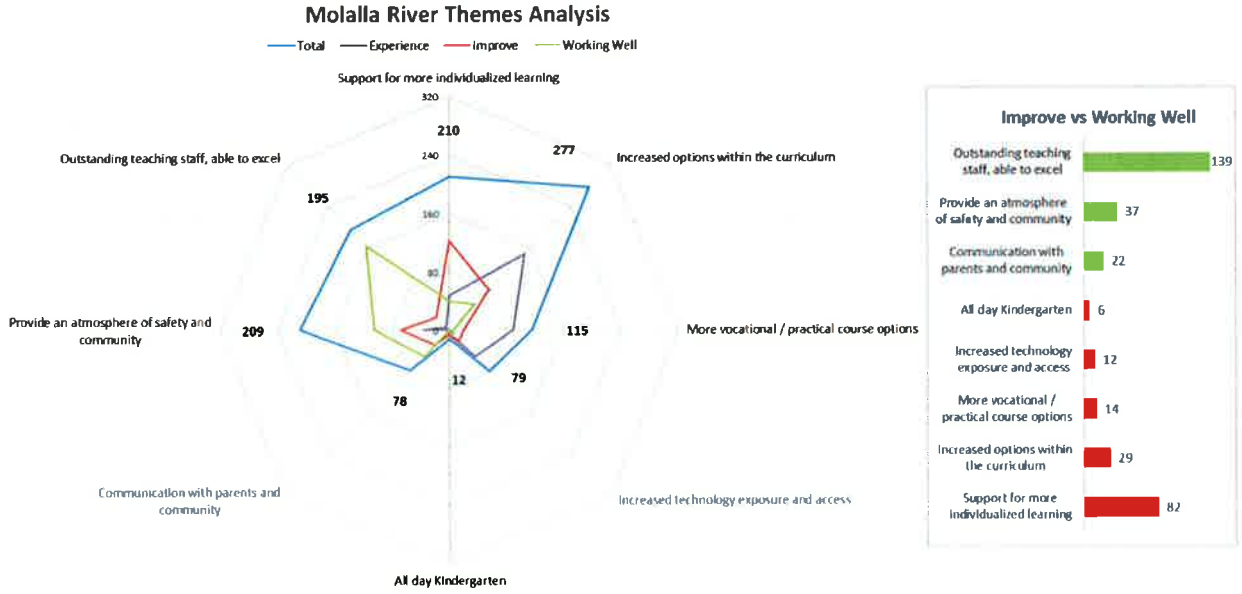
What can we continue to improve?

All themes (for more information - select a row below)	overall rating
1. Smaller class sizes	74
2. Update the facilities to provide safe, healthy environments.	32
3. More communication with parents through all types of media.	28
4. All students should receive P.E. instruction with a licensed P.E. teacher.	17
5. Offer more electives	17
6. We need to continue to improve our technology for our students.	17
7. More stimulation for advanced kids	14
8. Provide more vocational education for non-college students.	14
9. Increase parent and community involvement	13
10. Provide additional support to teachers.	11

What should students be able to experience that they currently cannot?

All themes (for more information - select a row below)	overall rating
1. More electives and options	42
2. Strong PE and music programs	40
3. More trade and career oriented classes.	32
4. Continue to increase technology exposure and use for students	31
5. A safe school environment.	26
6. Courses that teach basic life lessons.	22
7. More time to explore the arts	18
8. Smaller class sizes	18
9. More time to explore sciences	10
10. The ability to participate in organized sports	10

The most "talked about" ideas were grouped into themes and shown in relationship to the three question types. A "Radar Graph" below illustrates the type of community "discussion" on the themes that emerged – strengths (green), needing improvement (red), a desire for more opportunity (purple) and total discussion (blue).



(Note: Full-day kindergarten was of particular interest to Board members who asked that the frequency of community talk on the topic also be called out as a theme. It was not, as you see from the data above, something that naturally emerged as a top theme.)

Again, the data within this engagement informed the committee's discussion regarding priorities, values and beliefs (section IV) and reinforced the Board's decision to pursue long-range facility plans.

VII. District Facility Background

It's hard to beat a person who never gives up. – Babe Ruth

Tony Tiano was hired in 2012 to provide leadership and organization for the District as the Facilities Supervisor. Throughout the Committee process, he provided specific information regarding the work of his department. Mr. Tiano prepared and presented a video summary for each facility during Committee tours, highlighting key elements from the four areas evaluated in the facilities summaries.

Following is a summary of Mr. Tiano's thoughts on the state of the District and the work of the Long-Range Planning Committee:

A) Statement from Facilities Supervisor, Tony Tiano

Our District is an interesting collection of buildings - each one, for the most part, constructed by an independent school board prior to the unification of the larger school district in the 1990's. Today they each present significant challenges to maintain and improve. Our buildings are not consistent in form or function. Having been built originally by outlying rural districts, the schools each have their unique profile and set of needs.

We have used the resources available, but it often feels like we're playing catchup. It isn't a matter of whether systems in buildings will fail, it is a matter of when. At this time, we're operating on borrowed time. This is particularly the case when we consider HVAC systems. At the middle school, for example, the boiler was well constructed when the building was erected in 1954, and it operates on modifications as a gas fired system. However, to continue operating systems that are sixty years old and expect them not to experience catastrophic failure is unrealistic.

The teaching and learning environment is affected by our facilities. At the middle school, glass block construction causes classrooms to heat beyond a reasonable level during the fall and spring months. We have purchased portable AC units to deploy to classrooms during these months, but that just isn't the most practical way to maintain learning environments.

We often have questions of "repair vs. replace" come up as we make decisions. This is the case when it comes to HVAC systems, flooring, roofing, parking surfaces, kitchen equipment (freezers/coolers/etc.), and roofs just to mention a few. We maintain and repair as long as we possibly can before the cost of doing so is outweighed by the push to replace, and the cost of replacing systems outpaces our ability to keep up.

We can keep putting "Band-Aids" on the problems, but the big-ticket items are coming at us faster and faster, and this is just for upkeep. Beyond this, every building needs improvements to bring them up to efficient operation levels and today's standards for things like ADA accessibility.

I am glad the Long-Range Planning Committee has had an opportunity to tour our buildings. I have felt their appreciation and support as they've recognized our understanding of the District assets and our efforts to do the very best with what we have.

I look forward to assisting the District in the implementation of Committee recommendations.

B) MRSD Capital Projects 2007-2014

In addition to highlighting key elements from the four areas evaluated in the facilities summaries during building tours, Mr. Tiano was able to highlight routine maintenance plans as well as some examples of completed capital projects in recent years. His complete accounting of recent capital projects follows:

Building	*Project*	*Description*	*Cost*	*Year*
ALL	Exterior Maintenance project	exterior work at all schools	$576,808.00	2011
CL/MHS	Roof replacements at Clarkes and MHS	roof replacements at Clarkes and MHS	$342,413.00	2007
CL/RD	Roofing project at Clarkes and RD	re-roofed portions of Clarkes and Rural Dell	$117,009.00	2011
DO	shop roof project	replaced the roof at the district shops	$24,240.00	2008
DO	Administration office remodel	remodeled the district office	$79,553.00	2008

DO	DO HVAC project	upgraded portions of the HVAC system at the DO	$29,344.00	2012
HF	stadium locker room work	sealed locker room floors	$11,890.00	2007
HF	Track project	resurfaced track at Heckard Field	$289,818.00	2008
HF	Official's Room at Heckard Field	plumned room at Heckard Field locker rooms	$17,402.00	2011
HF	Tennis court repair	repaired cracks in courts	$2,188.00	2012
HF	Roll up doors	extended roll up doors at Heckard Field	$978.00	2012
HF	HF locker room paint job	In coordination with Boosters repainted the locker rooms at Heckard Field	$750.00	2013
HF	Football field lights	installed new football field lights and fuse boxes	$57,828.00	2013
MES	Back flow device at MES	repaired back flow device at MES	$5,110.00	2011
MES	Pump rebuild at MES	rebuilt and reset lift station pump at MES	$8,059.00	2012
MES	MES readerboard sign	installed electronic readerboard sign at MES (MCC paid for the sign-District was responsible for installation)	$20,303.00	2013
MES	Water leak repair project	installed new carpet to rest of pod that received water damaged in December 2013. Insurance paid for portions that were damaged-District paid the rest so it all matched.	$8,900.00	2013
MHS	MHS soccer field fence	fencing around the soccer field at the HS	$18,000.00	2008
MHS	Counseling office at the HS remodel	remodeled counseling offices at the HS	$8,131.00	2008
MHS	HS Softball field project	excavation and construction of new softball field and scoreboard at the HS (multi year project)	$92,465.00	2009
MHS	HS Beam Project	repaired a large beam at the HS shop	$7,878.00	2011
MHS	HS Canopy project	repaired and reroofed part of the HS shops canopy	$141,120.00	2011
MHS	HS Steam generator project	replaced HS steam generator in kitchen. Rewired and upgraded panel	$14,963.00	2014
MHS	HS Siding and Roofing project	replaced siding and roof at the HS	$23,622.00	2014
ML	carpet at Mulino	replaced carpet at Mulino	$6,602.00	2007
ML	Mulino RTU	replaced Mulino RTU #4	$7,934.00	2014

ML/HS/MS	Roofing project at Mulino, PE Facility, and MS wrestling gym	re-roofing at Mulino, PE Facility, and MS wrestling area	$226,885.00	2008
MS	carpet at MRMS	replaced carpet at the Middle School	$31,479.00	2007
MS	MRMS roof project	replaced portion of roof at Middle School	$11,700.00	2008
MS	Leroy st improvements	Middle school road work	$24,808.00	2009
MS	MS Early Fire Detection project	upgraded fire detection system at the MS	$124,969.00	2011
MS	MS paving project	installed catch basin and overlayed playground area at the MS	$25,575.00	2013
MS	Irrigation line repair	repaired irrigation line between MES and MS and added new drainage line	$16,100.00	2013
MS/MHS	Parking lot paving	repaved parking lot at the MS and overlayed parking lot at the HS	$53,713.00	2008
RD	RD tank project	removal of septic tank at Rural Dell	$24,808.00	2010
RD	Asphalt project at RD	repaved play area at RD	$12,440.00	2011
RD	RD Roof repair	repaired portion of RD roof	$7,250.00	2013
RD	RD water system	installed new drinking water treatment system for RD	$7,908.00	2013
RD	RD white building research	hired designer to draw up plans for remodel of White Building at Rural Dell for educational use	$3,000.00	2014
RD/ML	Readerboards at RD and ML	installed electronic readerboards at RD and ML (signs were paid for by MCC-District responsible for installation)	$40,000.00	2011
HS	Bleachers	bleachers added	$26,326.00	2009
	Total		**$2,550,269.00**	

VIII. Facility Assessment and School Profiles

A) Clarkes Elementary School

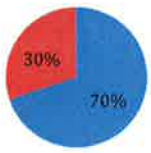
HILL

Hill International

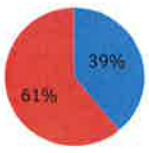
Clarkes Elementary School consists of an original building constructed in 1952 (62 years old) and the following additions: 1954, 1976-1978-unknown remodels or additions, 1965-classrooms 1974-gym addition 1982-heating system remodel 1985-locker room addition,1986-library addition 1990-2 classroom addition 1993-office remodel, totaling 33,500 square feet (SF). There is one covered play area as part of the building (7,200 $ft^{2)}$.

The current (2014) overall Building Condition Evaluation (BCE) score is 58 out of a possible 100. The condition rating of the building is "Fair". The BCE "Suitability Code" rating (OSPI method) is 2 out of 4, "Current use of space is compatible with intended use but needs remodeling."

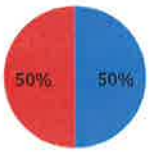
Exterior systems at Clarkes were rated with a component score of 22/31 or 70%. Interiors were rated at 9/23 or 39%. Mechanical was rated 13/26 or 50% and Safety/Code compliance was rated at 14/20 or 70%. As illustrated below, more blue is better.



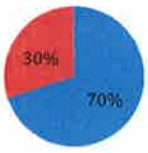
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building are rated in Good condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Fair condition with some noted issues on the concrete block walls. The roofs are rated Fair with only minor work

left to complete recent remodeling work. Exterior Doors, Windows & Trim are rated Poor due mainly to age. Interior systems were rated in Poor to Fair condition. Fixed Equipment is rated in Fair condition. Mechanical, Electrical and Plumbing vary from Fair to Poor condition. In the safety and building code categories, ADA, exiting, fire control, fire alarms, emergency lighting were rated in Good to Unsatisfactory condition.

School Profile Provided by Principal Nickless

Major Facility Improvements Needing Attention

The building , though built well, has a need of a single system for heating. New fixtures for bathrooms (sinks, toilets, urinals, mirrors) and carpet are needed. Repaving the playground area, add new exterior door hinges/latches, phone system, and intercom. The insulation/ceiling coverings are outdated, newer flashing under the roof is needed and some older LP siding needs replacing. In addition the parking lot needs to be paved and the doors to the classrooms need to be lockable from the inside for safety. We have some minor leaks from the roof and definitely need the unused above ground gas tanks removed from the parking lot. The upper floor is not IDEA or ADA accessible and the five classrooms and an office are presently used for staff lounge, TAG office and instructional storage. Presently we have one staff member with a disability having trouble to ascend the stairs.

Design Capacity / Teaching Stations

Clarkes has a full gym/cafeteria facility, eight bathrooms, two storage areas converted from older locker rooms, exterior structures (including pump house, two field sheds, two baseball structures, a brick kiln building, covered play area, and a barn once used as a bus facility). Instructional space: there are eight classrooms (of which 6 ½ are presently used), a music room, library, two reading rooms, a special education room and four offices. We are presently building a greenhouse at the east end of the building.

Community Utilization – Use of the Clarkes facility for basketball leagues in the gym, the bike ride staging areas in the parking lot and the field as a medical evacuation area for Life Flight Services.

Staff and Instructional Organization
½ time Principal
½ time Counselor
Six Classroom teachers
Four Supported Ed instructors @ 2 FTE total
1/3 time music teacher
Secretary, day custodian only, ¾ library assistant and three IA's

Grade Configuration / Enrollment / Demographics
Grade K-5 Enrollment: 175 students

Facility / Program Overview
Attributes:

- Proudly serves the Clarkes area and parts of Oregon City, Beavercreek, Mulino and Dickey Prairie.
- Strong and daily presence by parents and PTG.
- Long history of high academics and music/arts program.
- Beautiful facility both inside and outside- especially the glass atrium, playground, and library.
- This fall all active classrooms have interactive boards and digital cameras.
- Recently baseball field and grounds have been redone.
- Community built Peace garden and new entrance seating enhance the front of school.

Challenges:

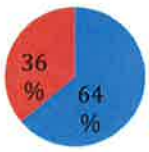
- Outdated heating, plumbing, carpet, bathroom and sink items, flashing, insulation, and ceiling covering.
- Upstairs area is not IDEA or ADA accessible.
- Need video security and updated phone system.
- Parking lot is dusty and has constant pot holes.
- Old underground oil and above ground gas tank.
- Classrooms need better shading of windows.

B) Molalla Elementary School

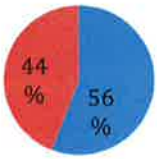
Hill International

Molalla Elementary School consists of an original building (49,400 ft^2) constructed in 1981(33 years old) and a modular addition (2,592 ft^2) added in 1995 (19 years old). There is one covered play area as part of the building (3,136 $ft^{2)}$ and a stand-alone covered play structure constructed in 1993 (3,840 $ft^{2)}$ The current (2014) overall Building Condition Evaluation (BCE) score is 62 out of a possible 100. The condition rating of the building is "Good." The BCE "Suitability Code" rating (OSPI method) is 2 out of 4, "Current use of space is compatible with intended use but needs remodeling."

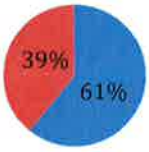
Four categories of systems are rated under the OSPI BCE method: Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Molalla ES were rated with a component score of 20/31 or 64%. Interiors were rated at 13/23 or 56%. Mechanical was rated 16/26 or 61% and Safety/Code compliance was rated at 13/20 or 65%. As illustrated below, more blue is better.



Exterior Rating



Interior Rating



Mechanical Rating

Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building are rated in good condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in fair condition with wood lap siding showing some issues after most areas were replaced. The roofs are rated poor due largely to some prior installation issues and many areas requiring

additional screws, rust removal and painting. Exterior doors, windows and trim are rated fair due mainly to age and caulking deficiencies. Interior systems were rated in poor to good condition. Fixed equipment is rated in poor condition. Mechanical, Electrical and Plumbing vary from good to poor condition. In the safety and building code categories, ADA, exiting, fire control, fire alarms, and emergency lighting were all rated in fair condition.

The survey noted some site issues regarding exterior lighting and play area safety. One notable deficiency regarding poor roof system conditions indicates improved roof specifications could make a significant improvement in life cycle cost and performance.

School Profile Provided by Principal Carlson

Major Facility Improvements Needing Attention

This building is in need of many repairs. To name a few: carpet, roof leaks, gutters, rotten wood on posts (possible dry rot), intercom and phone system, bells, AC units (original), drippy faucets, wetland areas, pavement on playground in bad shape, parking lot, gym floor, leaks down the walls, etc.

Design Capacity / Teaching Stations

MES is designed in pods. A pod holds two grade levels with six classrooms and pod area (each used differently) and two closets for supplies as well as two student restrooms. In the middle of the school our Library is an open area. There are miscellaneous small rooms that host our specialists around the school, as well as a large music room. We also have a lunch room and gym, although both are too small for the size of our building capacity. Our office is straight ahead as you enter the building. Every nook and cranny is used. Our school is at full capacity at 438 students. Our only storage area is the modular building out back.

Community Utilization – There are many groups that use our gym, cafeteria, library and fields for a variety of events. We have an entry at that end of the building near the cafeteria and gym with double doors that can close off the rest of the building.

Staff and Instructional Organization

Staffing

Principal-1.0 FTE
Regular Classroom Teachers-17.5 FTE
Instructional Support- 14 (all part time)
Specialized Programs – 1 Counselor, 2 Special Ed Contained Classes - 2 ELL, 2 Title, 2 Special Ed, 0.6 Music
Secretarial Support-2

Grade Configuration / Enrollment / Demographics

Grade K-5
Student enrollment: 438 students
Mostly White and Hispanic population

Facility / Program Overview

Attributes:

- Centrally located in the community for events .
- Nice layout of pods.
- Each classroom has a Smart Board in place.
- New carpet in the 4/5 Pod.
- Two covered areas on playground.

Challenges:

- Original HVAC system.
- Outdated freezer and coolers in kitchen.
- Outdated Intercom and Phone system (safety issue).
- Classrooms w/o shades on windows (safety issue).
- Carpet (original) needs replacement.
- Lack of security cameras (safety issue).
- Plumbing problems (leaky faucets, no hot water in staff room).
- Playground (swampy, chips not contained, pavement cracks and uneven).
- Lack of storage space.
- Office layout not student friendly.
- At full capacity (classrooms, cafeteria for full kindergarten in 2015)

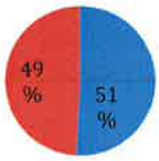
- Cafeteria and gym too small (have to run 3 lunches, cannot hold an open house or concert for all parents).
- Lack of testing and meeting space.
- Annex area is outside the building, which causes some access issues.

C) Mulino Elementary School

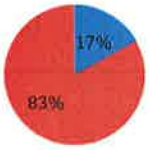
North Building

Mulino Elementary School North campus consists of an original building constructed in 1952 (62 years old) and additions added in the 1960s and 1970. There is one covered play area as part of the old bus barn. This structure is in very poor condition. The current (2014) overall Building Condition Evaluation (BCE) score is 43 out of a possible 100. The condition rating of the building is "Poor." The BCE "Suitability Code" rating (OSPI method) is 2 out of 4, "Current use of space is compatible with intended use but needs remodeling."

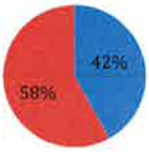
Four categories of systems are rated under the OSPI BCE method, Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Mulino were rated with a component score of 16/31 or 51%. Interiors were rated at 4/23 or 17%. Mechanical was rated 11/26 or 42% and Safety/Code compliance was rated at 12/20 or 60%. As illustrated below, more blue is better.



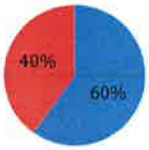
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

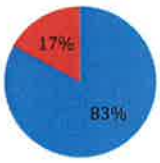
The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building are rated in Fair condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Poor condition.. The roofs are rated Fair due largely to some prior installation design and many areas requiring additional joint coating. Exterior Doors, Windows & Trim are rated Poor due mainly to glass block and single pane windows.. Interior systems were rated in Poor condition. Fixed Equipment is rated in Poor condition.. Mechanical, Electrical and Plumbing vary from Fair to Poor condition. In the safety and building code categories, ADA, exiting, fire

control, fire alarms, emergency lighting were rated Good to Unsatisfactory condition.

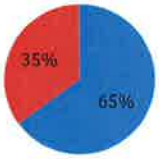
South Building

Mulino Elementary School South Campus consists of an original building (16,320 ft^2) constructed in 1970 (44 years old). There is one covered play area separated from the building. The current (2014) overall Building Condition Evaluation (BCE) score is 73 out of a possible 100. The condition rating of the building is "Good." The BCE "Suitability Code" rating (OSPI method) is 3 out of 4, "Building Suitable."

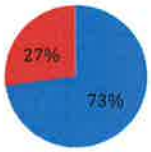
Four categories of systems are rated under the OSPI BCE method: Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Mulino were rated with a component score of 26/31 or 83%. Interiors were rated at 15/23 or 65%. Mechanical was rated 19/26 or 73% and Safety/Code compliance was rated at 13/20 or 70%. As illustrated below, more blue is better.



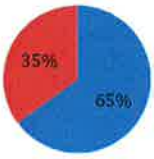
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building are rated in Good condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Good condition. The roofs are rated Fair. Exterior Doors, Windows & Trim are rated Poor due mainly to single pane windows on the north side of the building. Interior systems were rated in Fair condition. Fixed Equipment is rated in Good condition. Mechanical, Electrical and Plumbing vary from Good to Fair condition. In the safety and building code categories, ADA, exiting, fire control, fire alarms, emergency lighting were l rated in Good to Poor condition.

The biggest issues about this facility are the exterior walkways as the only path to restrooms and its separation from the main school building across

Passmore Road necessitating young children frequently crossing this street.

School Profile Provided by Principal Willey

Major Facility Improvements Needing Attention:

- We would like to enclose the south building with hallways. Currently students walk outside to use the bathroom. This is a safety concern with our parents and staff. This would improve school security.
- We have no effective intercom system. I cannot alert classrooms or any other part of the campus to a "lockdown."
- We want doors that lock from the inside so that teachers do not have to walk outside their classroom to lock their doors in an emergency.
- The north building has had perpetual water leaks during my 13 years as principal, although it is better now than it has even been. Getting away from a flat roof would be great.
- Pave our parking area.
- Update heating/cooling system to north building, east wing.

Design Capacity / Teaching Stations

We have housed as many as 340 students. Our current enrollment is 270. We have 12 classrooms, not counting the portable building, which could house an additional classroom (currently used as a music room). Specialists occupy unused classrooms (ELL/SPED/Music).

Staff and Instructional Organization

Certificated Staff

½ time Principal
10 Regular Teachers
.5 reading specialist
1.0 library assistant
Specialized Programs .5 ELL, 1.0 SPED, .5 music,
Secretarial Support 1.0

Grade Configuration/ Enrollment / Demographics

Grade K: 45 students in two sections
Grade 1: 56 students in two classrooms
Grade 2: 48 students in two classrooms
Grade 3: 24 students
Grade 3-4 blend: 21 students
Grade 4: 21 students
Grade 4-5 blend: 26 students
Grade 5: 29 students

Facility / Program Overview

Attributes

1. Excellent custodian who works hard to maintain building. Responsive district staff to special needs.
2. Supportive community has volunteered to paint and make other school improvements (technology purchases, etc.)

Challenges

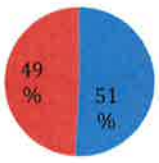
1. Our two buildings are on opposite sides of a county road. Students make over 1,000 combined trips a day on average between buildings, losing instructional time and creating safety concerns regarding traffic.
2. Our campus is unequipped for a lockdown. We have other major safety issues as well (no hallway in primary building). Distance between main office and classrooms across the street are also a concern. No effective communication system.
3. As with most schools built or expanded to accommodate the "baby boomers," our facility has outlived its life span. Ideally, a new school should be built on this site.

D) Rural Dell Elementary School

Hill International

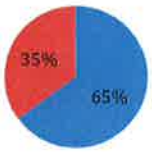
Rural Dell Elementary School consists of an original building (2,918 ft^2) constructed in 1925 (89 years old). This building is now currently condemned for daily use by the Fire Marshall. The functional school was built with additions in 1964 and 1974 and totals 26,500 ft^2 .There is one covered play area that sets away from the building. The current (2014) overall Building Condition Evaluation (BCE) score is 57 out of a possible 100. The condition rating of the building is "Fair." The BCE "Suitability Code" rating (OSPI method) is 2 out of 4, "Current use of space is compatible with intended use but needs remodeling."

Four categories of systems are rated under the OSPI BCE method: Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Rural Dell were rated with a component score of 16/31 or 51%. Interiors were rated at 12/23 or 52%. Mechanical was rated 17/26 or 65% and Safety/Code compliance was rated at 12/20 or 60%. As illustrated below, more blue is better.

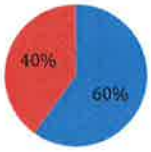


Exterior Rating

Interior Rating



Mechanical Rating



Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building are rated in Fair condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Fair condition while the windows and doors are in Poor condition due glass block and single pane construction. The roofs are rated Poor due largely to the gutter and downspout systems which are in urgent need of replacement. Interior systems were rated in

Poor to Good condition. Fixed Equipment is rated in Good condition. Mechanical, Electrical and Plumbing vary from Good to Poor condition. In the safety and building code categories, ADA, exiting, fire control, fire alarms, emergency lighting were rated from Good to Unsatisfactory condition.

The Survey noted some Site issues regarding exterior lighting, play area and site safety. Two notable deficiencies are the window and gutters systems. Replacement of windows will make a significant improvement in life cycle cost and performance.

School Profile Provided by Principal Nickless

Major Facility Improvements Needing Attention

The two main buildings have severe age issues needing new fixtures for bathrooms-sinks, toilets, urinals, stall dividers, wall and floor coverings, plus mirrors and lighting. Many faucets in classrooms, bathrooms and work areas do not function. Carpet in library needs replacement. Also need new exterior doors with new hinges/latches, new phone/intercom system, replace outdated insulation/ceiling covering. In addition the parking lot and bus lane in front of the school needs to be paved. The doors to the classrooms need to be lockable from the inside for possible lockdowns, water heaters are rusted and leak. There is inefficient heating in the halls during the winter, some water pipes within the buildings and between buildings are shut down. There are bird holes in south hall and white building that need filling. The giant oak tree in playground needs trimming for safety. We have a minor leak in the roof above the gym. A safety concern in the playground is that only one of four sides has a perimeter fence (next to the highway). Though we had a partial fix to our sinkhole due to collapsed drainage tiles in the playground, the area between the north and south halls also shows signs of sinking at the cement pads and one heating unit. Many rooms have older unused heating units still in the walls that leak outside air into the rooms.

Design Capacity / Teaching Stations

Rural Dell has a full gym/cafeteria facility, eight bathrooms, converted locker and shower rooms, exterior structures (including pump house, covered play area , small greenhouse and a former bus facility used

as a storage building.) There are 10 classrooms, library, two small instructional areas, three offices and janitor facility.

Community Utilization – Use of the Rural Dell facility by J.A.M. for basketball, M.Y.S. for soccer and T-ball, the Rural Dell PTG and Willamette Egg Farm for their annual celebration.

Staff and Instructional Organization

Staffing

½ time Principal
½ time Counselor
8 Classroom teachers
4 Supported Ed instructors @ 2 FTE total
½ time music teacher
½ time reading specialist
Secretary, day custodian only, .75 library assistant and 3.0 IA

Grade Configuration / Enrollment / Demographics

Grade K-5 Enrollment: 226 students

Facility / Program Overview

Attributes:

- Proudly serves Rural Dell, Maple Grove and parts of Molalla.
- Strong and daily presence by parents and PTG.
- This fall all active classrooms have interactive boards and digital cameras.
- Recently inducted as an Oregon Green School.
- Recently installed track/walking path, and student garden.
- Recent blacktop on playground.
- Recent re-roofed, new siding, gutters and paint on school, gym, and White Building.
- Video security system installed.
- Four mobile laptop computers and a tablet cart.
- Six of the eight rooms have interactive boards, with all rooms having digital cameras and projectors.

- Recently the addition of a new filter and expanded facility in the pump house alleviated the high lead problems in the water system.
- Installed handicapped parking area at side of school for handicapped teachers.

Challenges:

- Old sinks, drains, faucets, toilets, bathroom dividers, water pipes, water heaters, lighting. Doors create challenges with cleaning and usage.
- Communication between rooms and availability to phones by staff.
- Additional handicapped parking for public.
- Surfacing of parking lot and bus lanes.
- Older desks and chairs in some rooms.
- All but one exterior door meet ADA requirements (two teachers are handicapped).
- Pump and well hole are too small for the general use of a school at times, when in competition with local farmers for the same aquifer in the fall.

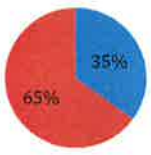
E) Molalla Middle School

Hill International

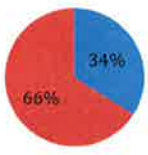
Molalla Middle School consists of an original building constructed in 1954 (60 years old) and the following additions: Classroom Addition – 1955; Electrical Remodel – 1960; Classroom and play area addition – 1965; Gym/Band Room addition – 1972; Office Remodel – 1975; Addition – 1978; Modular classrooms – 1990; Play area - 1993, totaling 91,000 square feet (SF).

There are two (2) covered play areas: one as a continuous segment of the building and the second a free standing structure. The current (2014) overall Building Condition Evaluation (BCE) score is 42 out of a possible 100. The condition rating of the building is "Poor". The BCE "Suitability Code" rating (OSPI method) is 2 out of 4, "Current use of space is compatible with intended use but needs remodeling."

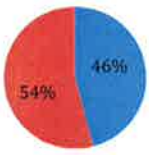
Four categories of systems are rated under the OSPI BCE method: Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Molalla MS were rated with a component score of 11/31 or 35%. Interiors were rated at 8/23 or 34%. Mechanical was rated 12/26 or 46% and Safety/Code compliance was rated at 11/20 or 55%. As illustrated below, more blue is better.



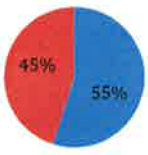
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. There has been degradation due to plumbing failure under concrete slabs on numerous occasions. There are also issues with

SOG concrete floors sinking due to apparent poor original installation. The foundation and structure of the original building are rated in Fair condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Poor condition with some noted issues on wood siding. The roofs are rated Poor due mainly to the condition of classrooms on the west side of the campus which are unsatisfactory. The Main building roof systems are in Good condition. Exterior Doors, Windows & Trim are rated Poor due mainly to age. Interior systems were rated in Poor to Fair condition. Fixed Equipment is rated in Fair condition.. Mechanical, Electrical and Plumbing vary from Fair to Poor condition. Lighting is rated in Good condition. In the safety and building code categories, ADA was rated Poor, Means of Exiting was rated Good, Fire control and Fire Resistance were rated Unsatisfactory, Fire Alarm system was rated Fair, while Emergency Lighting was rated in Good condition.

School Profile Provided by Principal Nelsen

School Site

Molalla River Middle School is located in town at 318 Leroy St. We have extensive well-kept field space that surrounds the building. Classrooms are spread throughout the campus including a 6th grade wing that is separate from the main building. Within the main building the majority of our 7th and 8th grade classes are located in the northern halls. You will also find three 7th and 8th grade classes located on the porch area located in the middle of the school. There are three smaller gyms located behind the office that get extensive use. Behind the gyms you will find a structure that includes our band room, a home economics room, an auxiliary room that we let the Todos Juntos program use and a strip of rooms that can only be used for storage. Next to our room used by the Todos Juntos program are four portable classrooms that are not currently being used. Our small cafeteria is located in the southern part of the main building, and just a few steps from there you will find our well-stocked library that gets extensive use by our students. We are very pleased to include in this description of our campus the fact that we have three updated computer labs that get much use during the year. Finally, a mention needs to be made of our recently repaved lunch time courtyard that includes two covered play areas.

Major Facility Improvements Needing Attention

The original part of this building was built in 1954 with many additions completed through the years. Originally built as an elementary school, our classrooms are smaller than an average middle school room. In the past four years we have been working hard to improve the quality of the environment, but there are still improvements needing attention:

1. Our intercom system is outdated. In the past years we have had the support company come to service it many times, resulting in multiple recommendations from them to replace everything, including new wiring. It has been quite costly to keep this system operational.
2. There is a need for a security system that includes cameras throughout the building. There has been a history of weekend vandalism in the back of the school, and having cameras in the halls would help students make appropriate choices.
3. Last winter we had community members come to the North and South gyms and give those facilities a fresh coat of paint. This summer, in the upstairs mat room, we made some needed repairs and painted the walls in an effort to get it ready for use once again. Presently we are in serious need of painting our main gym and locker room areas. They have not been painted for over twenty, maybe thirty, years.
4. The stair way at the back of our 7th and 8th grade hall that leads to our back buildings has recently been deteriorating and will need to be replaced in the near future.
5. We have some reoccurring leaks that we do a great job of managing. A couple of these problems come from design flaws that create standing water on the roof. Although we have found ways to manage these leaks it would be nice to have these issues addressed at some point.
6. The bubble windows in this building are problematic. During a serious earthquake, because of their age and being made out of

glass, safety is a concern. More importantly, the students and staff are seriously impacted by these windows every year because they can heat up the classrooms to temperatures close to 90 degrees.

7. Underground water pipes. The pipes that supply the water to this building are the originals and have had recent history of failure. This is a concern that will need to be addressed in the near future.

Design Capacity/Teaching Stations

MRMS has an extensive campus that has developed the following characteristics through the years:

1. 28 classrooms- This includes seven in the 6th grade wing and four in the portable buildings.
2. Three computer labs- All of the labs have been updated in the past year.
3. Eight student restrooms.
4. Three staff areas.
5. Two staff lunch rooms.
6. Three gyms- Only one of the gyms has a small amount of bleachers.
7. One band room.
8. One home economics room.
9. One science storage room.
10. Three counseling areas.
11. One in-school suspension / deans office.
12. Eight custodial rooms.
13. Two covered play areas.
14. One conference room.
15. One well stocked library.
16. One boiler room – This room contains two boilers that heat the whole school.
17. One small cafeteria – This causes us to develop a schedule with three lunches.

18. Two restrooms on the porch – These are used as storage rooms.
19. Five T-Building storage rooms.
20. One separate room – Used by Todos Juntos.
21. Five staff restrooms.

Community Utilization

Our campus gets used extensively by the community. During the fall we have soccer and football games happening in the North fields and a football / track facility between MRMS and MES. Beginning in November we have basketball being practiced and played after school and on the weekends. Finally, spring brings baseball and more soccer to our fields. At times our cafeteria and library are used for activities by the public.

Staff and Instructional Organization

Staffing

Principal – 1.0 FTE
21.5 Classroom Teachers
3 Resource Teachers
1 Dean of students
3 Secretaries
3 Custodians
4.5 Classified Support Staff

Grade Configuration/Enrollment/Demographics

Grades 6-8
Student Enrollment: 510

Facility / Program Overview

Attributes:

- All 6th through 8th grade students who live in our District come to our school.
- After extensive effort by staff and students, MRMS has become a school known for strong academic achievement.
- In the past year MRMS has been recognized by the state as one of the top ten middle schools for narrowing the achievement gap for federally identified subgroups.

- In the past, the sixth graders in our school were in self-contained classrooms. In an effort to continually improve our craft, MRMS will discontinue the self-contained classroom practice and have content area teachers deliver instruction in 6th grade.
- Beginning next year we will be upgrading our PE/Health program by hiring an additional teacher and turning our mat room into a fitness center. The new hire was made possible by reconfiguring how instruction is being delivered in 6th grade.
- We offer band, choir, PE and art classes as electives for students.
- We have intervention classes for students who need extra support in the areas of reading and math.
- Recently repaved courtyard area.
- Recent refurbished mat room that is being turned into a fitness center.
-

Challenges:

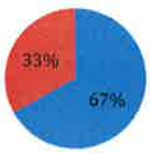
- Intercom and phone systems that are outdated.
- Bubble windows that are unsafe and create excessive heat in classrooms.
- Small cafeteria.
- Limited hallway space in the 6th grade wing.
- Roof leaks that we manage each year.
- Lack of a complete security system.
- Lack of ability to comfortably hold school wide assemblies because of the small amount of bleacher space in the main gym

F) Molalla High School

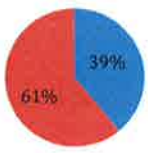
Hill International

Molalla High School consists of an original building constructed in 1976 (38 years old) with additions in 1990 and 1996. The building totals 208,500 square feet (SF). The property is 30.14 acres. There are soft ball fields and a soccer field. The current averaged (2014) overall Building Condition Evaluation (BCE) score is 71 out of a possible 100. There are two total scores for this building as the original and new 1996 wing Mechanical, Electrical and Plumbing were evaluated separately. The (2014) overall Building Condition Evaluation (BCE) score for the older section of the building was 66 out of a possible 100 and the new classroom wing was 76 out of a possible 100 The condition rating of the building is "Good". The BCE "Suitability Code" rating (OSPI method) is 4 out of 4, "Building makes positive contribution to the educational environment."

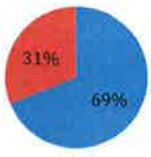
Four categories of systems are rated under the OSPI BCE method, Exterior, Interior, Mechanical and Safety/Code. Exterior systems at Molalla HS were rated with a component score of 21/31 or 67%. Interiors were rated at 14/23 or 61%. Mechanical was rated at an average of 18/26 or 69% and Safety/Code compliance was rated at 18/20 or 90%. As illustrated below, more blue is better.



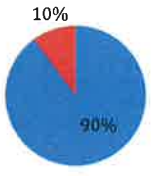
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

The majority of building deficiencies are related to normal wear and tear due to facility age. The foundation and structure of the original building

are rated in Good condition with moderate seismic upgrades anticipated. In exterior conditions, walls are in Poor condition largely due to water intrusion through the EIFS walls from leaking gutters. The roofs are rated Fair, with only minor work left to complete recent remodeling work. Exterior Doors, Windows are rated Fair. Trim is rated at Poor because the gutters are failing significantly. Interior systems were rated in Fair condition. Fixed Equipment is rated in Fair condition. Mechanical, Electrical and Plumbing vary from Fair to Poor condition in the original structure and in Good condition in the new classroom wing. The safety and building code categories, ADA, exiting, fire control and fire alarms, and emergency lighting are rated in Good to Fair condition.

School Profile Provided by Principal Dalton

Major Facility Improvements Needing Attention

The siding on the gym and front of the building is of need of replacement. Exterior lighting needs to be upgraded to LED lighting. Parking lot to the east side of the building needs to be repaved. The heat and air control system (STefA) needs upgraded and replaced (parts not available).

Molalla High School Athletic Department Improvements:

Artificial turf installed on every field, especially the football field. If not turf, then drainage issues solved at Heckard Field, as well as high school softball field. Tennis courts need to be replaced.

Wire electricity to the softball field – we are currently using the church's electricity.

Add new scoreboards to the baseball, softball, soccer, and football fields.

Add a new track shed at the football field.

Add a second gym on campus. Add additional new team rooms for individual sports. Upgrade and expand the weight room.

Add functioning cameras to monitor athletic facilities.

Design Capacity/Teaching Stations-

Four "L" shaped rooms in the corners; teachers not plan in their rooms.

Community Utilization

The community uses mainly the auditorium, wrestling room and main gym. Our school at one point this year housed a charter school of 75 students due to flooding. They used empty classrooms.

Staff and Instructional Organization

Certificated Staff

Principal- 1
Regular Classroom Teachers- 29
Instructional Support- 8
Specialized Programs- 4
Secretarial Support- 6

Grade Configuration / Enrollment / Demographics

Grade 9- 205
Grade 10- 199
Grade 11- 181
Grade 12- 167

Student Transfers

IN from Other School Districts - 111 (as of Jan. 31st)
OUT to Other School Districts - 134 (as of Jan. 31st)

Facility / Program Overview

Attributes

We have a beautiful gym and auditorium. The school is well kept and is functional. We have room to expand classroom wise.

Challenges

The entrance is not welcoming from the outside in. We are trying to beautify the entrance to the building. We have added flags, banners, benches, and soon lights. There really should be some kind of barrier to the entrance. A car could easily come crashing through the doors in the most heavily used portion of the school. As you enter the building, the main office is not apparent. Once you find the office, you are met with metal pull down doors and a very small secretarial space. Once in the main office, there is a lot of unused space, especially in the copy prep area. The camera system is old and almost not functional. The intercom system is also ineffective, with multiple classrooms without appropriate speakers. We very much need a weight room, as the one we have now is a makeshift facility with poor ventilation.

G) Heckard Field Complex

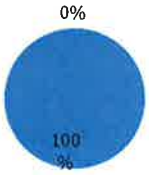
Hill International

Heckard Field Complex consists of 2 parcels of land totaling 19.53 acres. It is identified on the Clackamas County Tax Assessor Records as Parcel I.D.'s: #01099331 and #01099395 and is listed under the address of Eckerd Avenue, Molalla, OR 97308.

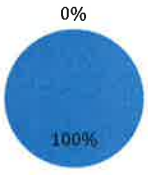
It is improved with a locker room building, grandstand, concession and ticket booths, and several storage buildings. The locker room, which was constructed in 2007, is of CMU (concrete masonry unit) exterior walls. The roofing system is a standing seam metal roof system. The foundation appears to consist of concrete slabs with spread footings load bearing masonry walls.

The current (2014) overall Building Condition Evaluation (BCE) score is 86 out of a possible 100. The condition rating of the building is "Good". The BCE "Suitability Code" rating (OSPI method) is 4 out of 4, "Building makes positive contribution to educational environment."

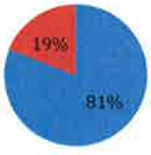
Four categories of systems are rated under the OSPI BCE method: Exterior, Interior, Mechanical and Safety/Code. Exterior systems at the Heckard Field Complex were rated with a component score of 31/31 or 100%. Interiors were rated at 23/23 or 100%. Mechanical was rated 21/26 or 81% and Safety/Code compliance was rated at 11/20 or 55%. As illustrated below, more blue is better.



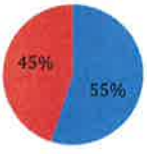
Exterior Rating



Interior Rating



Mechanical Rating



Code Rating

The building deficiencies are related to easily remedied issues. The foundation and structure of the original building are rated in Good condition. In exterior conditions, walls, roofs, windows and doors are in Good condition with some noted issues at the doors of the public handicap restrooms. Interior systems were all rated in Good condition. Mechanical, Electrical and Plumbing vary from Fair to Good condition. In the safety and building code categories, ADA, exiting, fire control, fire alarms, emergency lighting was rated in Good to Unsatisfactory condition

IX. Enrollment Projections & School Capacities

It is a capital mistake to theorize before one has data. – Sir Arthur Conan Doyle

A) Projections

First and foremost, this is an exceptional community in which to raise children. As a committee we would like to believe this is a significant part of what will cause enrollment to increase as projected. Specifically, demographers from PSU contracted by the Board to project enrollment indicate total student population to increase by sixteen percent (16%) over the next ten years.

The following charts come from the Board-commissioned study conducted by demographers from Portland State University. They illustrate the projected enrollment increases from several perspectives – district-wide, by grade level, and by school within the context of current boundaries. Additionally, at the elementary level, the projections assume the district's implementation of full-day kindergarten.

Chart 1
MRSD K-12 Enrollment History and Forecast
2003-04 to 2023-24

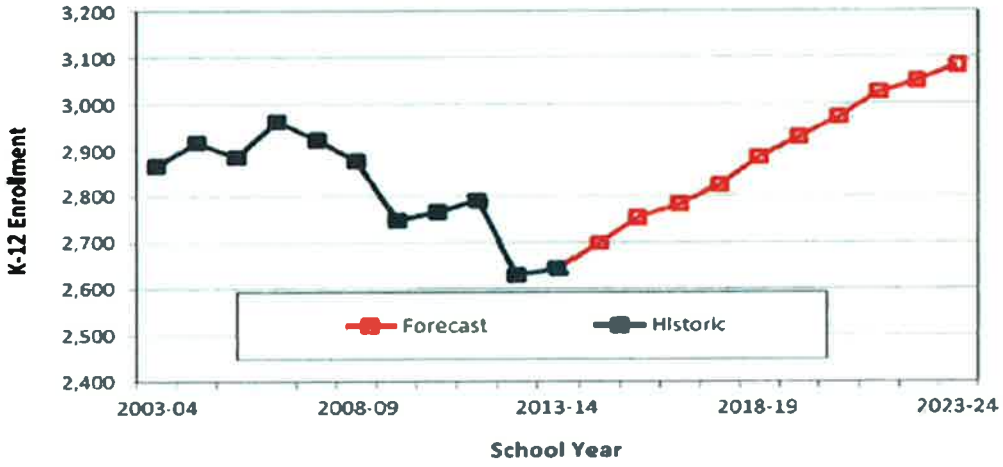


Table 12

Molalla River S.D., Enrollment Forecasts, District-run Schools[1], 2014-15 to 2023-24

	Actual	Forecast									
Grade	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
K	192	193	196	190	194	197	200	203	204	204	205
1	189	197	200	200	195	199	202	204	207	207	208
2	192	191	200	203	203	198	202	204	206	209	209
3	183	196	195	205	209	208	203	206	208	210	214
4	183	176	190	188	200	204	203	197	202	204	205
5	164	187	180	195	192	205	209	209	203	207	209
6	171	155	180	174	189	186	198	203	203	197	201
7	184	180	164	191	185	199	196	208	213	213	207
8	165	188	185	170	198	192	206	202	214	219	219
9	200	176	198	194	181	210	204	217	212	225	230
10	191	192	169	190	187	174	202	196	208	203	216
11	169	185	184	164	184	181	169	197	191	202	198
12	151	161	180	177	159	178	175	164	191	186	196
US[2]	4	4	4	4	4	4	4	4	4	4	4
Total	2,338	2,381	2,425	2,445	2,480	2,535	2,573	2,614	2,666	2,690	2,721
Annual change		*43*	*44*	*20*	*35*	*55*	*38*	*41*	*52*	*24*	*31*
		1.8%	*1.8%*	*0.8%*	*1.4%*	*2.2%*	*1.5%*	*1.6%*	*2.0%*	*0.9%*	*1.2%*
K-5	1,103	1,140	1,161	1,181	1,193	1,211	1,219	1,223	1,230	1,241	1,250
6-8	520	523	529	535	572	577	600	613	630	629	627
9-12	715	718	735	729	715	747	754	778	806	820	844

	2013-14 to 2018-19		2018-19 to 2023-24		2013-14 to 2023-24	
	5 yr. chg.	Pct.	5 yr. chg.	Pct.	10 yr. chg.	Pct.
K-5	108	*9.8%*	39	*3.2%*	147	*13.3%*
6-8	57	*11.0%*	50	*8.7%*	107	*20.6%*
9-12	32	*4.5%*	97	*13.0%*	129	*18.0%*
Total	**197**	***8.4%***	**186**	***7.3%***	**383**	***16.4%***

1. Excludes charter schools -- Molalla River Academy and Renaissance Public Academy.
2. "US" is ungraded secondary; included in grade 9-12 totals.

Population Research Center, Portland State University, July 2014.

The tables below provide specific data regarding enrollment by school under current boundaries.

Table 13

Enrollment Forecasts for Individual Schools, 2014-15 to 2023-24

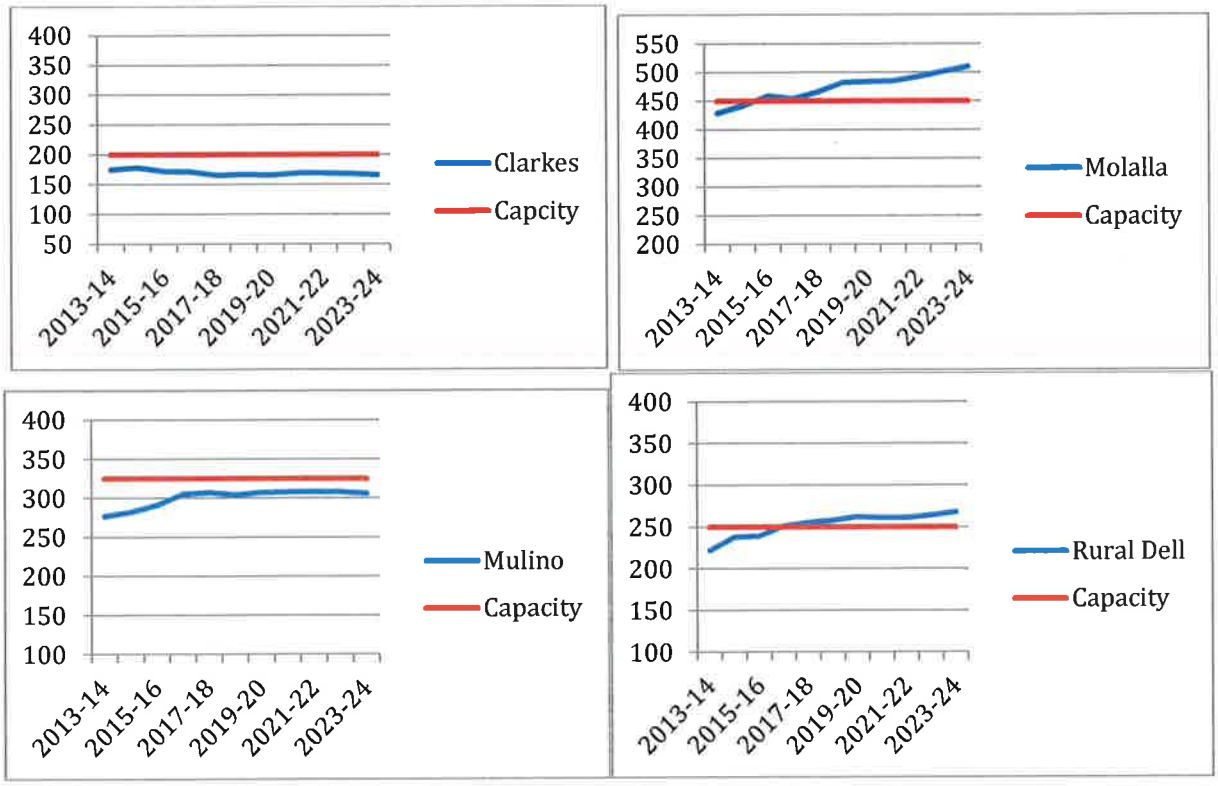
	Actual	Forecast										Change 2013-14 to 2023-24	
School	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Number	Percent
Rural Dell	222	238	239	251	255	258	262	261	261	264	268	46	*21%*
Clarkes	175	178	172	171	165	167	166	169	169	168	166	-9	*-5%*
Mulino	277	282	291	305	307	304	307	308	308	308	306	29	*10%*
Molalla	429	442	459	454	466	482	484	485	492	501	510	81	*19%*
Molalla Rvr. Mid.	520	523	529	535	572	577	600	613	630	629	627	107	*21%*
Molalla High	715	718	735	729	715	747	754	778	806	820	844	129	*18%*
Subtotal	**2,338**	**2,381**	**2,425**	**2,445**	**2,480**	**2,535**	**2,573**	**2,614**	**2,666**	**2,690**	**2,721**	**383**	***16%***
Molalla River Acad.	181	181	182	182	183	183	183	183	183	183	184	3	*2%*
Ren. Public Acad.	125	138	148	156	162	167	172	174	176	177	177	52	*42%*
Charter Subtotal	**306**	**319**	**330**	**338**	**345**	**350**	**355**	**357**	**359**	**360**	**361**	**55**	***18%***
Total Enrollment	**2,644**	**2,700**	**2,755**	**2,783**	**2,825**	**2,885**	**2,928**	**2,971**	**3,025**	**3,050**	**3,082**	**438**	***17%***

Actual: Molalla River School District.
Forecast: Population Research Center, Portland State University, July 2014.

B) Contrasting Capacity with Projections

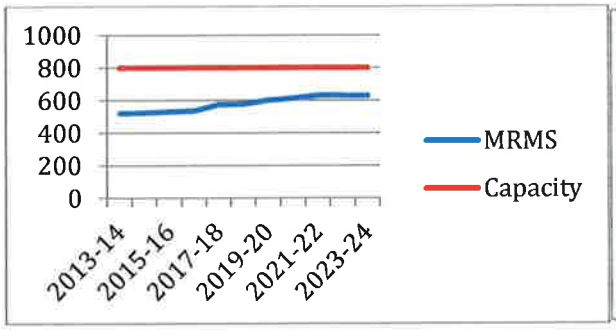
Contrasting these projections with facility capacity is critical. The committee recognized what some described as an "enrollment crisis" as enrollment in grades K-5 with the implementation of full-day kindergarten in 2015-16, pushes the district's elementary schools to capacity.

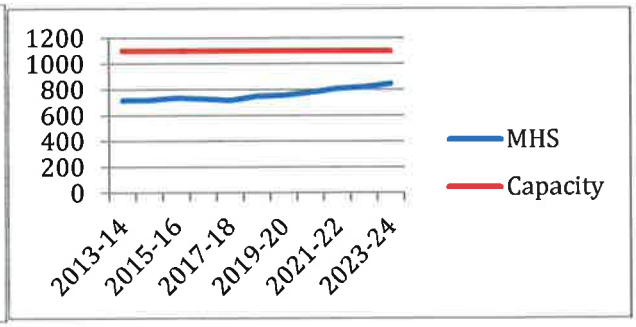
Elementary schools in the district are at, or very, near maximum capacity. Classroom spaces, once the district implements full-day kindergarten in 2015-16, will be full at Molalla Elementary and Rural Dell Elementary. Mulino will reach similar maximum capacity by 2016-17. Clarkes Elementary will not reach capacity during the coming decade as its overall enrollment will remain relatively unchanged compared with 2014-15. The charts below reflect this data, particularly at Molalla Elementary and Rural Dell Elementary



The Molalla River Middle School facility has classrooms and outbuildings currently unoccupied for instructional purposes. Based on the existence of these spaces, the middle school facility will not reach capacity during the period of time studied by PSU.

Molalla High School, like the middle school, will not reach enrollment capacity during the period studied. Unassigned classrooms are currently used for flexible grouping of students (University Room), storage, and community partnerships like that with OSU Extension Office.





X. School Size and Grade Configuration

To accomplish great things, we must not only act,
but also dream; not only plan, but also believe. – Anatole France

A) SCHOOL SIZE

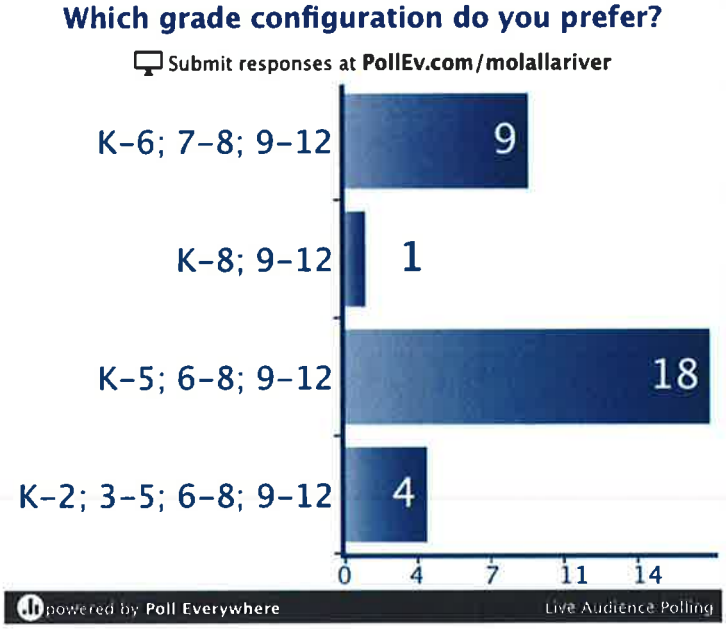
"Big Ideas" understood by the Committee as part of the review of Hill International's white paper on the subject include the following:

- Small secondary schools defined as having less than 400 students (Howley, 2002).
- The Gates Foundation suggests fewer than 100 students per grade level (e.g. 9-12 high school would be 400 students, 6-8 middle school).
- School enrollment of 300 is the largest that could sustain a true educational community (T. Sergiovanni 1993).
- The figure of 150 represents the maximum number of individuals with whom a genuinely social relationship can exist (Gladwell, 2000).
- Elementary schools should be 300-400 students and secondary 400 to 800 students (Williams, 1990).
- On average, research indicates that an effective size for an elementary school is in the range of 300 to 400 students (Heath, 2006).

School size is a critical factor in achieving desired educational outcomes, however, not the sole factor. While current research tends to lean toward "Small is better", variations in optimum size for elementary, mid-level, and high school exist, albeit with a generally accepted line of demarcation of 400 students. In addition to research-based preferences, local determination of school size may be influenced by political considerations, economic considerations, social factors, and student/community demographics. Through this long range planning process an opportunity presents itself to take a new and fresh look at how best to provide quality learning for all students.

B) GRADE CONFIGURATION

The Committee considered grade configurations in the context of meta-research (Hill Intl. white paper summary), discussion with community members between meetings, and personal preferences. After Committee dialogue and consideration of multiple scenarios, voting Committee members cast votes (two per person) for their preferred grade configuration. The results are represented in the chart below.



XI. Local Economic Context

As part of the community engagement process, Scott Mutchie of Hill Intl. conducted a series of interviews with community leaders for the purpose of assessing the future of the local economy and its relationship to the School District. His report to the Committee follows:

As the Long Range Facilities Committee meets to develop a 10-20 year facilities plan for the Molalla School District and submit the ultimate report and set of recommendations to the School Board, it becomes apparent that the Committee is challenged with identifying and giving thought to many moving parts in order to achieve the Goals and Expectations outlined by the School Board in its charge to the Committee.

A topic that frequently surfaces during discussion is one of Economic Development as it relates to the Molalla School District and how the community, including patrons, businesses, city and county government etc., perceive the present and future in terms of growth and health of the economy etc.

The District has reached out to the community with the engagement of the Thought Exchange to solicit thoughts and ideas regarding the schools and its operations. The District engaged the services of Portland State University to develop enrollment projections and give some crystal ball predictions as to what the impact of student enrollment will have on current facilities for the next foreseeable years.

The information gathered through these efforts make reference to the growth of the economy; changing demographics; community perspectives and partnerships with other governmental entities. However, the topic of Economic Development per se is not directly addressed as a focus, but through reference or innuendo. Because the topic is referenced repeatedly and obviously will be of significant importance as part of the Long Range Facilities Report and resulting recommendations, more information is needed.

While the Committee meets and works through the various topics, an effort was put forth to meet with members of the Business Community, City Government, Chamber of Commerce, Clackamas County, Real Estate Representatives, and a sampling of community members at large to conduct interviews and have discussions in an effort to learn specifically what efforts are being made to address Economic Development and to learn the perceptions from those interviewed how the topic is related to the Molalla School District. With the understanding and acknowledgement that this was far from a scientific study with a multitude of data collected; it represents and presents a picture ranging from a perception of some, anticipated action by some, and calculated goal setting by others.

As with any exercise, those interviewed were very interested in sharing the past, especially as it related the school district. It was learned quickly that in order to achieve the overall goal of getting information related to economic development, it was going to take some time to listen about the past and gain some insight as to how and why certain perceptions were what they were. It became apparent many of those interviewed had not been asked for their thoughts either ever, or in a very long time, so they needed to simply get it out and this was an avenue to do that. What follows is a summary of what was learned by each specific group/person interviewed, followed by a summary of what specifically related to the Molalla School District.

General Consensus

-The economy has and is changing as it relates to demographics. The population of Molalla was estimated to be in the range of 3,000 in the 1980's to now a range of 8,000- 8,500;

-In the past Molalla was a small self-contained community reflecting close knit relationships and heavily dependent on timber with an agricultural base of the surrounding areas;

-Universal agreement is that Molalla today is a community that has moved into the commuter based realm where the people for the most part work outside of Molalla and commute to and from work, but enjoy

affordable housing, believe it is a great place to raise a family with less hustle and bustle of larger city surroundings;

-Molalla is competing with every other small town/community in America to attract new businesses and have them relocate within the boundaries of the Molalla Community.

-Universal agreement that the strength of economic development within a community is directly related to an evidence-based school system that reflects student growth and achievement, quality teaching staff, and adequate well maintained facilities. Those businesses looking for a place to locate/relocate are seeking good educational services for employees' families; training and preparation for their workforce and the support that exists within the community for supporting the schools.

Real Estate

Several people were contacted and interviewed on behalf of the real estate industry, with several who had a history of serving the school district in different capacities. Evidence exists that the real estate market is picking up with more listings, sales and new inventory coming on line in terms of new construction, apartments, and planned developments, some of which were on hold during the down turn of the economy. Inquiries are coming in from those looking to purchase their first starter home and begin the process of establishing roots and starting a family.

Business Community

Several Business owners or owner representatives were contacted and interviewed to learn and gain their perspectives.

City of Molalla Government

Discussions with representatives of the City of Molalla relative to economic development offered the following observations:

-Molalla is a commuter city with great growth potential, but when will it happen?

-The City of Molalla is very similar to that of Silverton in terms of its history and make up;

-Permits for construction are rising again with discussion and interest in new/renewed sub divisions currently in the beginning stages;

-The City of Molalla contracts with Clackamas County for the services related to Planning etc. Consequently, the two governmental entities are tied together for economic development and planning in the community.

-While the city has not directly addressed economic development in the past, the City Council established goals in February 2014, one of which addresses economic development. Goal number 4 specifically reads as follows:

"Manage growth and economic development; implement new SDC Methodology and fees (By December 31, 2014); complete the Comprehensive Plan update process; update and streamline Development Code; partnering with Clackamas County Business and Economic Development, develop an economic development plan for Molalla; begin process to examine public facilities including current and future needs; complete Highway 211 improvements; update the Transportation System Plan; and explore bringing planning and intake back in-house."

Chamber of Commerce

Discussions with the Chamber of Commerce representatives strongly indicate a transition from being a "social organization" to one that is in the process of establishing specific goals and agendas that will join forces and energies of other entities to actively seek new opportunities and reinforce collective efforts to position Molalla for positive growth and establishing stronger economic growth opportunities.

Clackamas County Planning Department

As stated previously, Clackamas County provides all the planning services for City of Molalla through contract. The planning staff was

most helpful in discussing the past and present and what they believe the future could look like as we move forward. The pendulum has definitely shifted at times and currently is moving from the left to the right with positive outlook and evidence to support that thinking. Permitting is up, inquiries about land availability are up, and general "feeling tone" is more positive.

The County represents a number of small communities, which places it in a position to see a bigger picture in terms of how small communities are trying to make themselves more attractive to interested businesses and what the land/property availability is in each. Molalla is fortunate in that there is some significant assets in terms of available industrial zoned property available (see attached). The County looks at this availability (even as limited as it is), as very promising compared to other small communities who do not have the same availability and are limited with agricultural zoning and other restraints.

The County and City are very aware of the pitfalls of offering significant tax breaks as incentives to attract new business interest, and will consider carefully as discussion with promising contacts take place.

While attracting new businesses to the area are important, it is equally important to pay attention and be advocates for those existing business to expand and further develop their current business and remain in the community rather than relocating if at all possible.

The County also believes there is great potential and possibilities for new business growth, and it will be crucial for all entities to be on the same page and working proactively together to achieve the desired results.

Emphasis was placed on the importance of the health and status of the school system within the community. This has been a deciding factor for those seriously considering a community for business development.

Relationship of collected information to the Molalla School District

As was mentioned at the beginning of this summary of information, the people sharing information wanted to discuss the school district and

share their perceptions, especially of the past. Some of the people have lived in the community their entire life and others just a few years. A summary of the salient points made is follows:

There is feeling from those who are informed of the current activities and work of the administration/board is that trust between the District and community is building. The efforts of the Superintendent to strive for transparency and responsiveness was especially stressed.

With that said, the general feeling is that the District is moving in the right direction, but there is much work to be done. One of the biggest challenges will be to create an awareness of what is taking place and engaging as many people in the process. The term "curb appeal" was used a number of times as the majority of patrons in the community do not have children in school, are not directly engaged in any manner and only see what is taking place from the curb as they travel the community. It was stressed that the general community needs to "feel and see" the schools in order for them to appreciate the needs and be supportive of whatever recommendations and decisions that are forthcoming. It was pointed out that many people simply get their information from talking to others and hearsay becomes the norm.

Many suggestions and ideas were shared ranging from developing videos/CD's/and student led tours of the current facilities to deliberate and calculated written review of curriculum/instruction and shared with the various media. It was noted and acknowledged that when something controversial or troublesome takes place, the larger networks are on the scene in a minutes notice, but to get something out that is not deemed "news worthy" is a significant challenge.

It was stressed over and again that the school District needs to be a major partner with the city and business community as major decisions are made. Several people made reference to the past, when in their opinion, the District chose to not be a partner and the community lost opportunities to attract new business or opportunities that students could have benefitted from.

Several conversations centered on current facilities. One of special note was the school in Mulino and how the traffic/security must be

addressed—especially with the school campus being split by a public road. Another that was shared was the locker rooms at the middle school etc. When it was shared how the Long Range Facilities Committee members are visiting and touring every school site, relief seemed to be felt that finally someone is going to do something or try to do something.

Several people shared concern regarding safe routes to school and the need for more 4-way stops and possibly more lights and crosswalks.

Many more comments were shared, but only those being reported at this time were the ones that surfaced numerous times by different individuals.

Summary

Hopefully this information is helpful and useful as the Committee continues to deliberate and finalize recommendations as a result of their work and effort.

XII. Necessary Deferred Maintenance/Capital Improvements

	MES	MHS	MRMS	Clarkes	Rural Dell	Mulino
Carpet Replacement	Now 50,000	Now 20,000	Within 5 years 40,000	Now 27,000	Library only 5,000	None
Drainage Improvements	5,000	15,000	Not now	Not now	Not now	Not now
Gutter Replacements	14,400	26,400	Not now	None	7,500	N. Bldg within 10 years
Parking Pavement	Reseal 15,000	Within 10 years	Reseal 20,000	Pave 45,000	Pave 54,000	Pave 50,000
Climatech Installation	None	95,000	48,200	None	18,700	23,300
HVAC Improvements	400,000	1,000,000	1,000,000	125,000	100,000	150,000
Boiler Replacement	300,000	Within 10 years		75,000		75,000
Exterior	Within 15 years	Roof and siding 100,000	Within 10 years	Within 10 years	Replace roof 30,000	Within 10 years
Kitchen	Cooler/freezer replacement 50,000		Cooler/freezer 50,000		Cooler only 5,000	Within 5 years
Remodel front entrance for security		100,000**				
Other considerations					Remodel white building 250,000	Enclose S. Bldg walkway 100,000
Total	834,000	1,356,000	1,158,000	272,000	220,200 + 250k for white building = 470,200	298,300

Total Cost: An estimated $4.4 Million

** See notes in Recommendations (V) regarding the cost analysis and phasing of these projects.

XIII Conclusion

We believe there are a great many opportunities ahead for this wonderful "Community of Communities" in which we invest time and passion. Ours is a community ready to believe in an exceptional future, one based in a community pride like no other. Our children deserve nothing less!

We recognize this report is the beginning of a turn toward optimism, pride and exceptional vision. But it is only a beginning. A great deal of communication with the larger community, continued commitment to engagement through activities like Thought Exchange, and an ongoing focus on excellence in a transparent public school system are critical.

XIV Appendix

Comprehensive Facility Analysis and Records (Large Accompanying Notebooks)

A. Molalla Elementary
B. Clarkes Elementary
C. Mulino Elementary
D. Rural Dell Elementary
E. Administration Building
F. Molalla River Middle School
G. Molalla High School
H. Heckard Field
I. Land Lab
J. Meeting Agendas and Minutes

Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

D-Series Size 1
LED Area Luminaire

Catalog Number

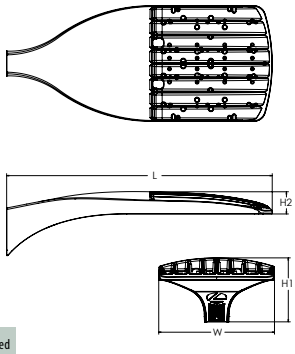
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA:	0.69 ft² (0.06 m²)
Length:	32.71" (83.1 cm)
Width:	14.26" (36.2 cm)
Height H1:	7.88" (20.0 cm)
Height H2:	2.73" (6.9 cm)
Weight:	34 lbs (15.4 kg)



Design Select options indicated by this color background.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature [2]	Color Rendering Index [2]	Distribution		Voltage	Mounting
DSX1 LED	**Forward optics** P1 P6 P2 P7 P3 P8 P4 P9 P5 **Rotated optics** P10 [1] P12 [1] P11 [1] P13 [1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K (this section 80CRI only, extended lead times apply) 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare [3] T4M Type IV medium T4LG Type IV low glare [3] TFTM Forward throw medium	T5M Type V medium T5LG Type V low glare T5W Type V wide BLC3 Type III backlight control [3] BLC4 Type IV backlight control [3] LCCO Left corner cutoff [3] RCCO Right corner cutoff [3]	MVOLT (120V-277V) [4] HVOLT (347V-480V) [5,6] XVOLT (277V - 480V) [7,8] 120 [16, 26] 208 [16, 26] 240 [16, 26] 277 [16, 26] 347 [16, 26] 480 [16, 26]	**Shipped included** SPA Square pole mounting (#8 drilling) RPA Round pole mounting (#8 drilling) SPA5 Square pole mounting #5 drilling [9] RPA5 Round pole mounting #5 drilling [9] SPA8N Square narrow pole mounting #8 drilling WBA Wall bracket [10] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options			Other options		Finish *(required)*	
Shipped installed		PER7 Seven-pin receptacle only (controls ordered separate) [14,21]	**Shipped installed**		DDBXD	Dark Bronze
NLTAIR2 PIRHN	nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [11,12,20,21]	FAO Field adjustable output [15,21]	SPD20KV	20KV surge protection	DBLXD	Black
PIR	High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [13,20,21]	BL30 Bi-level switched dimming, 30% [16,21]	HS	Houseside shield (black finish standard) [22]	DNAXD	Natural Aluminum
PER	NEMA twist-lock receptacle only (controls ordered separate) [14]	BL50 Bi-level switched dimming, 50% [16,21]	L90	Left rotated optics [1]	DWHXD	White
PER5	Five-pin receptacle only (controls ordered separate) [14,21]	DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) [17]	R90	Right rotated optics [1]	DDBTXD	Textured dark bronze
		DS Dual switching [18,19,21]	CCE	Coastal Construction [23]	DBLBXD	Textured black
			HA	50°C ambient operation [24]	DNATXD	Textured natural aluminum
			BAA	Buy America(n) Act and/or Build America Buy America Qualified	DWHGXD	Textured white
			SF	Single fuse (120, 277, 347V) [26]		
			DF	Double fuse (208, 240, 480V) [26]		
			Shipped separately			
			EGSR	External Glare Shield (reversible, field install required, matches housing finish)		
			BSDB	Bird Spikes (field install required)		

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Ordering Information

Accessories

Ordered and shipped separately.

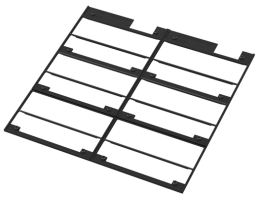
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK	Shorting cap [25]
DSX1HS P#	House-side shield (enter package number 1-13 in place of #)
DSXRPA (FINISH)	Round pole adapter (#8 drilling, specify finish)
DSXSPA5 (FINISH)	Square pole adapter #5 drilling (specify finish)
DSXRPA5 (FINISH)	Round pole adapter #5 drilling (specify finish)
DSX1EGSR (FINISH)	External glare shield (specify finish)
DSX1BSDB (FINISH)	Bird spike deterrent bracket (specify finish)

NOTES

1 Rotated optics available with packages P10, P11, P12 and P13. Must be combined with option L90 or R90.
2 30K, 40K, and 50K available in 70CRI and 80CRI. 27K and 35K only available with 80CRI. Contact Technical Support for other possible combinations.
3 T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
4 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
5 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
6 HVOLT not available with package P1 and P10 when combined with option NLTAIR2 PIRHN or option PIR.
7 XVOLT operates with any voltage between 277V and 480V (50/60 Hz).
8 XVOLT not available in packages P1 or P10. XVOLT not available with fusing (SF or DF).
9 SPA5 and RPA5 for use with #5 drilling only (Not for use with #8 drilling).
10 WBA cannot be combined with Type 5 distributions plus photocell (PER).
11 NLTAIR2 and PIRHN must be ordered together. For more information on nLight AIR2 visit this link
12 NLTAIR2 PIRHN not available with other controls including PIR, PER, PER5, PER7, FAO, BL30, BL50, DMG and DS. NLTAIR2 PIRHN not available with P1 and P10 using HVOLT. NLTAIR2 PIRHN not available with P1 and P10 using XVOLT.
13 PIR not available with NLTAIR2 PIRHN, PER, PER5, PER7, FAO BL30, BL50, DMG and DS. PIR not available with P1 and P10 using HVOLT. PIR not available with P1 and P10 using XVOLT.
14 PER/PER5/PER7 not available with NLTAIR2 PIRHN, PIR, BL30, BL50, FAO, DMG and DS. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
15 FAO not available with other dimming control options NLTAIR2 PIRHN, PIR, PER5, PER7, BL30, BL50, DMG and DS.
16 BL30 and BL50 are not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, FAO, DMG and DS. BL30 or BL50 must specify 120 or 277V.
17 DMG not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DS.
18 DS not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DMG.
19 DS requires (2) separately switched circuits. DS provides 50/50 fixture operation via (2) different sets of leads using (2) drivers. DS only available with packages P8, P9, P10, P11, P12 and P13.
20 Reference Motion Sensor Default Settings table on page 4 to see functionality.
21 Reference Controls Options table on page 4.
22 HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
23 CCE option not available with option BS and EGSR. Contact Technical Support for availability.
24 Option HA not available with performance packages P4, P5, P7, P8, P9 and P13.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
26 Single fuse (SF) requires 120V, 277V, or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).

Shield Accessories

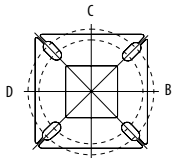
External Glare Shield (EGSR)

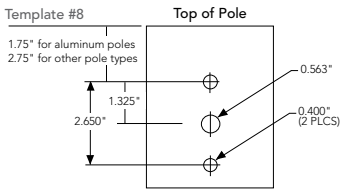


House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION





Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
		Minimum Acceptable Outside Pole Dimension					
SPA	#8	3.5"	3.5"	3.5"	3.5"		3.5"
RPA	#8	3"	3"	3"	3"	3"	3"
SPA5	#5	3"	3"	3"	3"		3"
RPA5	#5	3"	3"	3"	3"	3"	3"
SPA8N	#8	3"	3"	3"	3"		3"

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 with SPA	0.69	1.38	1.23	1.54	---	1.58
DSX1 with SPA5, SPA8N	0.70	1.40	1.30	1.66	---	1.68
DSX1 with RPA, RPA5	0.70	1.40	1.30	1.66	1.60	1.68
DSX1 with MA	0.83	1.66	1.50	2.09	2.09	2.09

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Type: E1, E1.1, E1.2, E1.3, E1.4

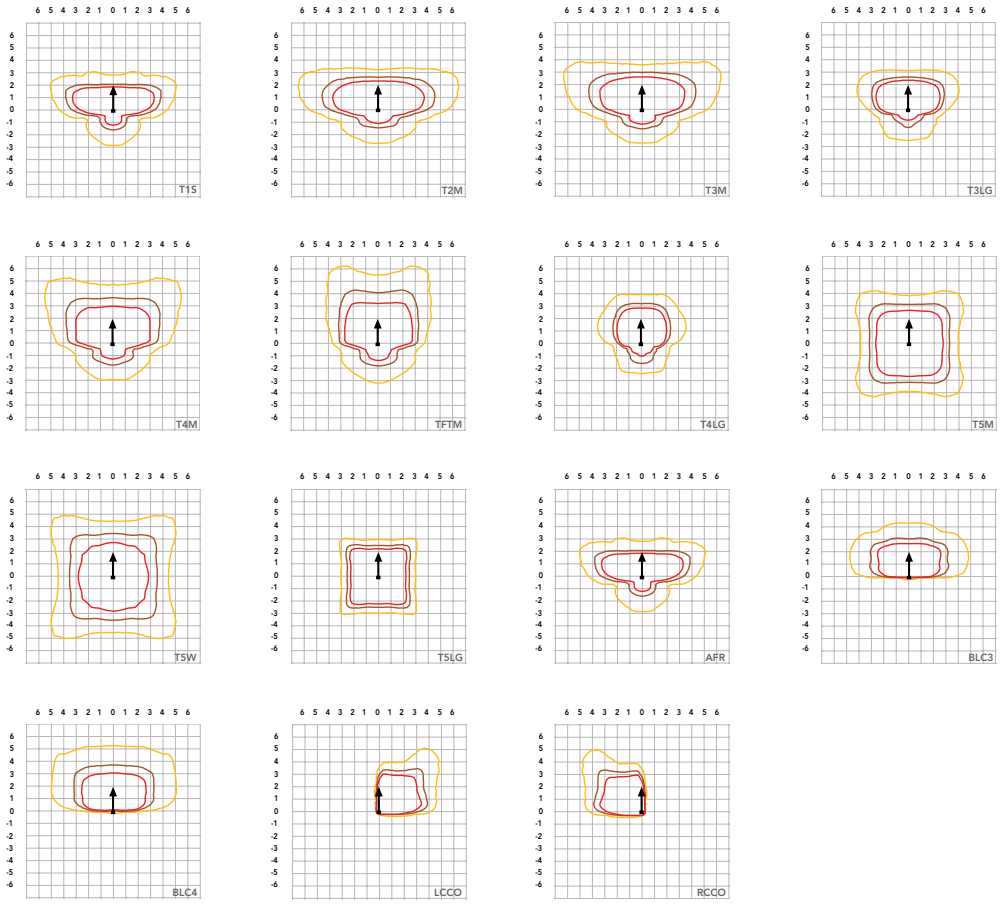
PARKING LOT - HEAD

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's homepage.

Isofootcandle plots for the DSX1 LED P9 40K 70CRI. Distances are in units of mounting height (25').

LEGEND
0.1 fc
0.5 fc
1.0 fc



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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°C**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.95
50,000	0.90
100,000	0.81

FAO Dimming Settings

FAO Position	% Wattage	% Lumen Output
8	100%	100%
7	93%	95%
6	80%	85%
5	66%	73%
4	54%	61%
3	41%	49%
2	29%	36%
1	15%	20%

*Note: Calculated values are based on original performance package data. When calculating new values for given FAO position, use maximum published values by package listed on specification sheet (input watts and lumens by optic type).

Electrical Load

	Performance Package	LED Count	Drive Current (mA)	Wattage	Current (A) 120V	208V	240V	277V	347V	480V
Forward Optics (Non-Rotated)	P1	30	530	51	0.42	0.24	0.21	0.18	0.15	0.11
	P2	30	700	68	0.56	0.33	0.28	0.24	0.20	0.14
	P3	30	1050	104	0.85	0.49	0.43	0.37	0.29	0.21
	P4	30	1250	125	1.03	0.60	0.52	0.45	0.36	0.26
	P5	30	1400	142	1.15	0.66	0.58	0.50	0.40	0.29
	P6	40	1250	167	1.38	0.79	0.69	0.60	0.48	0.34
	P7	40	1400	188	1.54	0.89	0.77	0.67	0.53	0.38
	P8	60	1100	216	1.80	1.04	0.90	0.78	0.62	0.45
	P9	60	1400	279	2.31	1.33	1.15	1.00	0.80	0.58
Rotated Optics (Requires L90 or R90)	P10	60	530	101	0.84	0.49	0.42	0.37	0.29	0.21
	P11	60	700	135	1.12	0.65	0.56	0.49	0.39	0.28
	P12	60	1050	206	1.72	0.99	0.86	0.74	0.59	0.43
	P13	60	1400	279	2.30	1.33	1.15	1.00	0.79	0.57

LED Color Temperature / Color Rendering Multipliers

	70 CRI		80CRI		90CRI	
	Lumen Multiplier	Availability	Lumen Multiplier	Availability	Lumen Multiplier	Availability
5000K	102%	Standard	92%	Extended lead-time	71%	(see note)
4000K	100%	Standard	92%	Extended lead-time	67%	(see note)
3500K	100%	(see note)	90%	Extended lead-time	63%	(see note)
3000K	96%	Standard	87%	Extended lead-time	61%	(see note)
2700K	94%	(see note)	85%	Extended lead-time	57%	(see note)

Note: Some LED types are available as per special request. Contact Technical Support for more information.

Motion Sensor Default Settings

Option	Unoccupied Dimmed Level	High Level (when occupied)	Phototcell Operation	Dwell Time	Ramp-up Time	Dimming Fade Rate
PIR	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min
NLTAIR2 PIRHN	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS (not available on DSX0)	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire. Cannot be used with other controls options that need the 0-10V leads.
PIR	Motion sensor with integral photocell. Sensor suitable for 8' to 40' mounting height.	Luminaires dim when no occupancy is detected.	Acuity Controls rSBG	Cannot be used with other controls options that need the 0-10V leads.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSBG	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app. Cannot be used with other controls options that need the 0-10V leads.
BL30 or BL50	Integrated bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output	BLC device provides input to 0-10V dimming leads on all drivers providing either 100% or dimmed (30% or 50%) control by a secondary circuit	BLC UVOLT1	BLC device is powered off the 0-10V dimming leads, thus can be used with any input voltage from 120 to 480V

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	51W	30	530	T1S	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
				T2M	7,203	1	0	3	142	7,507	2	0	3	147	7,653	2	0	3	150
				T3M	7,287	1	0	3	143	7,594	1	0	3	149	7,742	1	0	3	152
				T3LG	6,509	1	0	1	128	6,783	1	0	1	133	6,916	1	0	1	136
				T4M	7,395	1	0	3	145	7,707	1	0	3	151	7,857	1	0	3	154
				T4LG	6,726	1	0	1	132	7,010	1	0	1	138	7,146	1	0	1	140
				TFTM	7,446	1	0	3	146	7,760	1	0	3	152	7,912	1	0	3	155
				T5M	7,609	3	0	2	149	7,930	3	0	2	156	8,084	3	0	2	159
				T5W	7,732	3	0	2	152	8,058	4	0	2	158	8,215	4	0	2	161
				T5LG	7,631	3	0	1	150	7,953	3	0	1	156	8,108	3	0	1	159
				BLC3	5,300	0	0	2	104	5,524	0	0	2	109	5,631	0	0	2	111
				BLC4	5,474	0	0	3	108	5,705	0	0	3	112	5,816	0	0	3	114
				RCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				LCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				AFR	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
P2	68W	30	700	T1S	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
				T2M	9,260	2	0	3	137	9,651	2	0	3	142	9,839	2	0	3	145
				T3M	9,368	2	0	3	138	9,763	2	0	3	144	9,953	2	0	3	147
				T3LG	8,368	1	0	2	123	8,721	1	0	2	129	8,891	1	0	2	131
				T4M	9,507	2	0	3	140	9,909	2	0	3	146	10,102	2	0	3	149
				T4LG	8,647	1	0	2	128	9,012	1	0	2	133	9,187	1	0	2	136
				TFTM	9,573	2	0	3	141	9,977	2	0	3	147	10,172	2	0	3	150
				T5M	9,782	4	0	2	144	10,195	4	0	2	150	10,393	4	0	2	153
				T5W	9,940	4	0	2	147	10,360	4	0	2	153	10,562	4	0	2	156
				T5LG	9,810	3	0	1	145	10,224	3	0	1	151	10,423	3	0	1	154
				BLC3	6,814	0	0	2	101	7,101	0	0	2	105	7,240	0	0	2	107
				BLC4	7,038	0	0	3	104	7,334	0	0	3	108	7,477	0	0	3	110
				RCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				LCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				AFR	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
P3	102W	30	1050	T1S	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147
				T2M	13,055	2	0	3	128	13,605	2	0	3	133	13,871	2	0	3	136
				T3M	13,206	2	0	4	129	13,763	2	0	4	135	14,031	2	0	4	137
				T3LG	11,797	2	0	2	115	12,294	2	0	2	120	12,534	2	0	2	123
				T4M	13,403	2	0	4	131	13,968	2	0	4	137	14,241	2	0	4	139
				T4LG	12,190	2	0	2	119	12,704	2	0	2	124	12,952	2	0	2	127
				TFTM	13,496	2	0	4	132	14,065	2	0	4	138	14,339	2	0	4	140
				T5M	13,790	4	0	2	135	14,371	4	0	2	141	14,652	4	0	2	143
				T5W	14,013	4	0	3	137	14,605	4	0	3	143	14,889	4	0	3	146
				T5LG	13,830	3	0	2	135	14,413	3	0	2	141	14,694	3	0	2	144
				BLC3	9,606	0	0	2	94	10,011	0	0	2	98	10,206	0	0	2	100
				BLC4	9,921	0	0	3	97	10,340	0	0	3	101	10,541	0	0	3	103
				RCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				LCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				AFR	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P4	124W	30	1250	T1S	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
				T2M	15,207	3	0	4	123	15,849	3	0	4	128	16,158	3	0	4	130
				T3M	15,383	2	0	4	124	16,032	2	0	4	129	16,345	2	0	4	132
				T3LG	13,742	2	0	2	111	14,321	2	0	2	116	14,600	2	0	2	118
				T4M	15,613	2	0	4	126	16,272	2	0	4	131	16,589	2	0	4	134
				T4LG	14,200	2	0	2	115	14,799	2	0	2	119	15,087	2	0	2	122
				TFTM	15,721	2	0	4	127	16,384	2	0	4	132	16,703	2	0	4	135
				T5M	16,063	4	0	2	130	16,741	4	0	2	135	17,067	4	0	2	138
				T5W	16,324	5	0	3	132	17,013	5	0	3	137	17,344	5	0	3	140
				T5LG	16,110	3	0	2	130	16,790	4	0	2	135	17,117	4	0	2	138
				BLC3	11,190	0	0	3	90	11,662	0	0	3	94	11,889	0	0	3	96
				BLC4	11,557	0	0	3	93	12,044	0	0	3	97	12,279	0	0	4	99
				RCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				LCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				AFR	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
P5	138W	30	1400	T1S	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
				T2M	16,723	3	0	4	121	17,428	3	0	4	126	17,768	3	0	4	129
				T3M	16,917	3	0	4	122	17,630	3	0	4	128	17,974	3	0	4	130
				T3LG	15,111	2	0	2	109	15,749	2	0	2	114	16,055	2	0	2	116
				T4M	17,169	3	0	5	124	17,893	3	0	5	130	18,242	3	0	5	132
				T4LG	15,615	2	0	2	113	16,274	2	0	2	118	16,591	2	0	2	120
				TFTM	17,288	2	0	4	125	18,017	2	0	5	130	18,368	3	0	5	133
				T5M	17,664	5	0	3	128	18,410	5	0	3	133	18,768	5	0	3	136
				T5W	17,951	5	0	3	130	18,708	5	0	3	135	19,073	5	0	3	138
				T5LG	17,716	4	0	2	128	18,463	4	0	2	134	18,823	4	0	2	136
				BLC3	12,305	0	0	3	89	12,824	0	0	3	93	13,074	0	0	3	95
				BLC4	12,709	0	0	4	92	13,245	0	0	4	96	13,503	0	0	4	98
				RCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				LCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				AFR	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
P6	165W	40	1250	T1S	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135
				T2M	19,482	3	0	4	118	20,303	3	0	4	123	20,699	3	0	4	125
				T3M	19,708	3	0	5	119	20,539	3	0	5	124	20,939	3	0	5	127
				T3LG	17,604	2	0	2	107	18,347	2	0	2	111	18,704	2	0	2	113
				T4M	20,001	3	0	5	121	20,845	3	0	5	126	21,251	3	0	5	129
				T4LG	18,191	2	0	2	110	18,959	2	0	2	115	19,328	2	0	2	117
				TFTM	20,140	3	0	5	122	20,989	3	0	5	127	21,398	3	0	5	129
				T5M	20,579	5	0	3	125	21,447	5	0	3	130	21,865	5	0	3	132
				T5W	20,912	5	0	3	127	21,795	5	0	3	132	22,219	5	0	3	134
				T5LG	20,638	4	0	2	125	21,509	4	0	2	130	21,928	4	0	2	133
				BLC3	14,335	0	0	3	87	14,940	0	0	3	90	15,231	0	0	3	92
				BLC4	14,805	0	0	4	90	15,430	0	0	4	93	15,731	0	0	4	95
				RCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				LCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				AFR	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P7	184W	40	1400	T1S	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
				T2M	21,066	3	0	4	114	21,955	3	0	4	119	22,383	3	0	4	121
				T3M	21,311	3	0	5	116	22,210	3	0	5	120	22,642	3	0	5	123
				T3LG	19,036	2	0	2	103	19,839	2	0	3	108	20,226	2	0	3	110
				T4M	21,628	3	0	5	117	22,541	3	0	5	122	22,980	3	0	5	125
				T4LG	19,671	2	0	2	107	20,501	2	0	3	111	20,900	2	0	3	113
				TFTM	21,778	3	0	5	118	22,697	3	0	5	123	23,139	3	0	5	125
				T5M	22,252	5	0	3	121	23,191	5	0	3	126	23,643	5	0	3	128
				T5W	22,613	5	0	3	123	23,567	5	0	4	128	24,027	5	0	4	130
				T5LG	22,317	4	0	2	121	23,258	4	0	2	126	23,712	4	0	2	129
				BLC3	15,501	0	0	3	84	16,155	0	0	4	88	16,470	0	0	4	89
				BLC4	16,010	0	0	4	87	16,685	0	0	4	90	17,010	0	0	4	92
				RCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				LCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				AFR	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
P8	216W	60	1100	T1S	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
				T2M	26,587	3	0	5	123	27,709	3	0	5	128	28,249	3	0	5	131
				T3M	26,895	3	0	5	125	28,030	3	0	5	130	28,576	3	0	5	132
				T3LG	24,025	3	0	3	111	25,038	3	0	3	116	25,526	3	0	3	118
				T4M	27,296	3	0	5	127	28,448	3	0	5	132	29,002	3	0	5	134
				T4LG	24,826	3	0	3	115	25,873	3	0	3	120	26,378	3	0	3	122
				TFTM	27,485	3	0	5	127	28,645	3	0	5	133	29,203	3	0	5	135
				T5M	28,084	5	0	4	130	29,269	5	0	4	136	29,839	5	0	4	138
				T5W	28,539	5	0	4	132	29,743	5	0	4	138	30,323	5	0	4	141
				T5LG	28,165	4	0	2	131	29,354	4	0	2	136	29,926	4	0	2	139
				BLC3	19,563	0	0	4	91	20,388	0	0	4	94	20,786	0	0	4	96
				BLC4	20,205	0	0	5	94	21,057	0	0	5	98	21,468	0	0	5	99
				RCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				LCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				AFR	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
P9	277W	60	1400	T1S	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134
				T2M	32,255	3	0	5	116	33,616	3	0	5	121	34,271	3	0	5	124
				T3M	32,629	3	0	5	118	34,006	3	0	5	123	34,668	3	0	5	125
				T3LG	29,146	3	0	3	105	30,376	3	0	4	110	30,968	3	0	4	112
				T4M	33,116	3	0	5	120	34,513	3	0	5	125	35,185	3	0	5	127
				T4LG	30,119	3	0	3	109	31,389	3	0	4	113	32,001	3	0	4	116
				TFTM	33,345	3	0	5	120	34,751	3	0	5	125	35,429	3	0	5	128
				T5M	34,071	5	0	4	123	35,509	5	0	4	128	36,201	5	0	4	131
				T5W	34,624	5	0	4	125	36,084	5	0	4	130	36,788	5	0	4	133
				T5LG	34,170	5	0	3	123	35,612	5	0	3	129	36,306	5	0	3	131
				BLC3	23,734	0	0	4	86	24,735	0	0	4	89	25,217	0	0	4	91
				BLC4	24,513	0	0	5	88	25,547	0	0	5	92	26,045	0	0	5	94
				RCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				LCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				AFR	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - HEAD

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Rotated Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	101W	60	530	T1S	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
				T2M	14,047	4	0	4	139	14,640	4	0	4	145	14,925	4	0	4	147
				T3M	14,208	4	0	4	140	14,807	4	0	4	146	15,096	4	0	4	149
				T3LG	12,693	3	0	3	125	13,229	3	0	3	131	13,487	3	0	3	133
				T4M	14,420	4	0	4	142	15,028	4	0	4	148	15,321	4	0	4	151
				T4LG	13,115	3	0	3	129	13,668	3	0	3	135	13,934	3	0	3	138
				TFTM	14,522	4	0	4	143	15,134	4	0	4	149	15,429	4	0	4	152
				T5M	14,836	4	0	2	146	15,462	4	0	2	153	15,763	4	0	2	156
				T5W	15,076	4	0	3	149	15,712	5	0	3	155	16,019	5	0	3	158
				T5LG	14,879	3	0	2	147	15,507	3	0	2	153	15,809	3	0	2	156
				BLC3	10,335	3	0	3	102	10,771	4	0	4	106	10,981	4	0	4	108
				BLC4	10,674	4	0	4	105	11,124	4	0	4	110	11,341	4	0	4	112
				RCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				LCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				AFR	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
P11	135W	60	700	T1S	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
				T2M	18,005	4	0	4	133	18,765	4	0	4	139	19,131	4	0	4	142
				T3M	18,211	4	0	4	135	18,980	4	0	4	141	19,350	4	0	4	143
				T3LG	16,270	3	0	3	121	16,957	3	0	3	126	17,287	4	0	4	128
				T4M	18,483	4	0	4	137	19,263	5	0	5	143	19,638	5	0	5	146
				T4LG	16,810	3	0	3	125	17,519	3	0	3	130	17,861	3	0	3	132
				TFTM	18,614	4	0	4	138	19,399	4	0	4	144	19,777	5	0	5	147
				T5M	19,017	5	0	3	141	19,819	5	0	3	147	20,205	5	0	3	150
				T5W	19,325	5	0	3	143	20,140	5	0	3	149	20,533	5	0	3	152
				T5LG	19,072	4	0	2	141	19,876	4	0	2	147	20,264	4	0	2	150
				BLC3	13,247	4	0	4	98	13,806	4	0	4	102	14,075	4	0	4	104
				BLC4	13,682	4	0	4	101	14,259	4	0	4	106	14,537	4	0	4	108
				RCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				LCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				AFR	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
P12	206W	60	1050	T1S	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
				T2M	25,436	5	0	5	124	26,509	5	0	5	129	27,025	5	0	5	131
				T3M	25,727	5	0	5	125	26,812	5	0	5	130	27,335	5	0	5	133
				T3LG	22,984	4	0	4	112	23,954	4	0	4	116	24,421	4	0	4	119
				T4M	26,110	5	0	5	127	27,212	5	0	5	132	27,742	5	0	5	135
				T4LG	23,747	4	0	4	115	24,749	4	0	4	120	25,231	4	0	4	123
				TFTM	26,295	5	0	5	128	27,404	5	0	5	133	27,938	5	0	5	136
				T5M	26,864	5	0	4	130	27,997	5	0	4	136	28,543	5	0	4	139
				T5W	27,299	5	0	4	133	28,451	5	0	4	138	29,006	5	0	4	141
				T5LG	26,942	4	0	2	131	28,078	4	0	2	136	28,626	4	0	2	139
				BLC3	18,714	4	0	4	91	19,504	4	0	4	95	19,884	4	0	4	97
				BLC4	19,327	5	0	5	94	20,143	5	0	5	98	20,535	5	0	5	100
				RCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				LCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				AFR	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
P13	276W	60	1400	T1S	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133
				T2M	31,900	5	0	5	116	33,246	5	0	5	121	33,894	5	0	5	123
				T3M	32,265	5	0	5	117	33,626	5	0	5	122	34,282	5	0	5	124
				T3LG	28,826	4	0	4	105	30,042	4	0	4	109	30,628	4	0	4	111
				T4M	32,746	5	0	5	119	34,128	5	0	5	124	34,793	5	0	5	126
				T4LG	29,782	4	0	4	108	31,039	4	0	4	113	31,644	5	0	4	115
				TFTM	32,978	5	0	5	120	34,369	5	0	5	125	35,039	5	0	5	127
				T5M	33,692	5	0	4	122	35,113	5	0	4	127	35,797	5	0	4	130
				T5W	34,238	5	0	4	124	35,682	5	0	4	129	36,378	5	0	4	132
				T5LG	33,789	5	0	3	122	35,215	5	0	3	128	35,901	5	0	3	130
				BLC3	23,471	5	0	5	85	24,461	5	0	5	89	24,937	5	0	5	90
				BLC4	24,240	5	0	5	88	25,262	5	0	5	92	25,755	5	0	5	93
				RCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				LCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				AFR	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133

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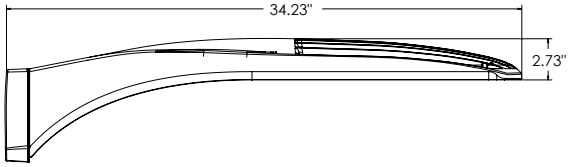
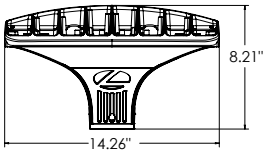
Type: E1, E1.1, E1.2, E1.3, E1.4

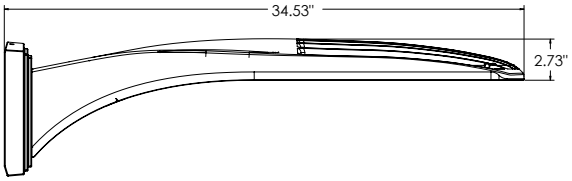
PARKING LOT - HEAD

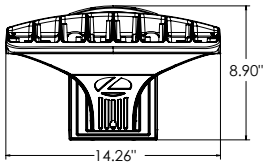
Dimensions



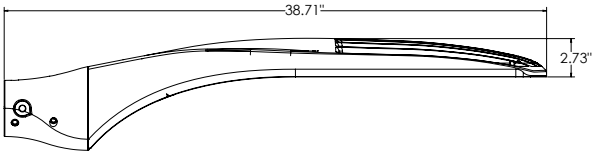


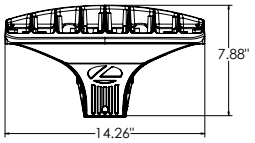
DSX1 with RPA, RPA5, SPA5, SPA8N mount
Weight: 36 lbs





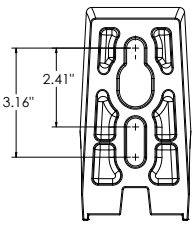
DSX1 with WBA mount
Weight: 38 lbs



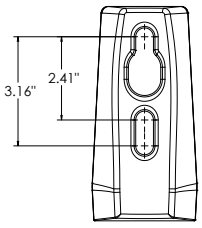


DSX1 with MA mount
Weight: 39 lbs

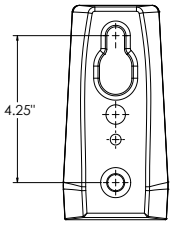
SPA (STANDARD ARM)



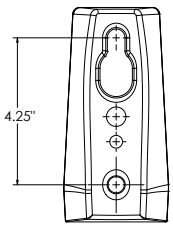
RPA



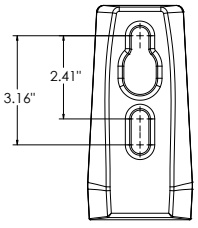
SPA5



RPA5



SPA8N



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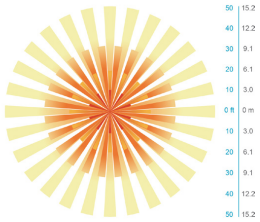
Type: E1, E1.1, E1.2, E1.3, E1.4

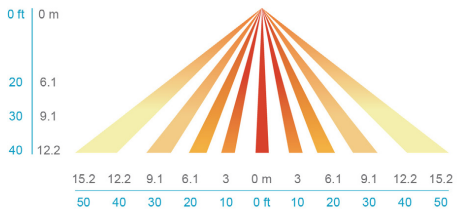
PARKING LOT - HEAD

nLight Control - Sensor Coverage and Settings

nLight Sensor Coverage Pattern
NLTAIR2 PIRHN



Top



Side

FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing driver compartment is completely sealed against moisture and environmental contaminants (IP66). Vibration rated per ANSI C136.31 for 3G for SPA and MA. 1.5G for mountings RPA, RPA5, SPA5 and SPA8N. Low EPA (0.69 ft²) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

Coastal Construction (CCE)
Optional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead-times may apply.

OPTICS
Precision-molded proprietary silicone lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. 80CRI configurations are also available. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L81/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensor with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 40 feet. Control option BL features a bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output.

nLIGHT AIR CONTROLS
The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral mounting arm allows for fast mounting using Lithonia standard #8 drilling and accommodates pole drilling's from 2.41 to 3.12" on center. The standard "SPA" option for square poles and the "RPA" option for round poles use the #8 drilling. For #5 pole drillings, use SPA5 or RPA5. Additional mountings are available including a wall bracket (WBA) and mast arm (MA) option that allows luminaire attachment to a 2 3/8" horizontal mast arm.

LISTINGS
UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP66 rated. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

GOVERNMENT PROCUREMENT
BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - POLE

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

Anchor Base Poles

RSS

ROUND STRAIGHT STEEL

BAA BABA

FEATURES & SPECIFICATIONS

INTENDED USE — **These specifications are for USA standards only.** Round Straight Steel is a general purpose light pole for up to 30-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of 0.120" uniform wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 42,000 psi. Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly round in cross-section down length of shaft with no taper. Standard shaft diameters are 3", 4", 4.5" and 5". 6" diameter shaft available by quote. Shaft wall thickness of .180" is available with certain tube diameters.

Pole Top: Options include tenon top, drilled for side mount fixture, 4" tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable press-fit, black, low density polyethylene top cap.

Handhole: A reinforced handhole with grounding provision is provided at 12" or 18" from the base end of the pole assembly on side A. Every handhole includes a cover and cover attachment hardware. 2.5" x 5" rectangular handhole is provided on pole.

Base Cover: A two-piece ABS round plastic full base cover is provided with each pole assembly. Additional base cover options are available upon factory request. Options include fabricated two-piece sheet steel. All base covers are finished to match pole.

Anchor Base/Bolts: Anchor base is fabricated from hot-rolled carbon steel plate that conforms with ASTM A36. Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" blend on one end. All anchor bolts are hot-dipped galvanized a minimum of 12" nominal on the threaded end. Anchor bolts are made of steel rod having a minimum yield strength of 55,000 psi and a yield strength of 75,000 psi to 95,000 psi.

HARDWARE – All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH – Extra durable standard powder-coat finishes include Dark Bronze, White, Black, Medium Bronze and Natural Aluminum colors. Classic finishes include Sandstone, Charcoal Gray, Tennis Green, Bright Red and Steel Blue colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Hot-dipped Galvanized, Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes. Factory-applied primer paint finish is available for customer field-paint applications.

GOVERNEMENT PROCUREMENT —
BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - POLE

RSS Round Straight Steel Pole

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

Example: RSS 20 4-5B DM32AS DDBXD

RSS					
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness [1]**	**Mounting[2]**	**Options**	**Finish**
RSS	8'-30' (for 1/2 ft increments, add -6 to the pole height. **Ex:** 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	3B 3" 11ga (.120") 4B 4" 11ga (.120") 4-5B 4.5" 11ga (.120") 5B 5" 11ga (.120") (See technical information table for complete ordering information.)	Tenon mounting PT Open top T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) DSX/RSX/OMERO™ Drill mounting [3] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM32AS 3 at 120° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting [3,4] DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM32RAD 3 at 120° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting [3] DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM32ESX 3 at 120° DM39ESX 3 at 90° DM49ESX 4 at 90° Arm drill mounting To be added as series + drill orientations **EX:** SMAC19 for SMAC arm drilling 1 at 90°	Shipped installed VD Vibration damper[5] JHxy J-Hook for cable strain relief[6] HAxy Horizontal arm bracket (1 fixture)[6,7] FDLxy Festoon outlet less electrical[6,8] FDLGFCIxy Festoon with GFCI outlet and in-use cover[6,9] CPL12/xy 1/2" coupling[6] CPL34/xy 3/4" coupling[6] CPL1/xy 1" coupling[6] NPL12/xy 1/2" threaded nipple[6] NPL34/xy 3/4" threaded nipple[6] NPL1/xy 1" threaded nipple[6] EHHxy Extra handhole[6,10] STLHHC Steel handhole cover (standard is plastic, finish is smooth)[11] FBCSTL2PC 2 Piece steel base cover (standard is plastic)[11] IC Interior coating[12] L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant[13] VM/original order# Match pole to prior order or project[14]	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTGXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Other finishes GALV Galvanized finish Architectural colors and special finishes[15] [PAINT] GALV Paint over galvanizing VP30 3 year warranty extension VP53 5 year warranty extension RAL#### Use designated Lithonia Lighting nomenclature in brochure Custom color Nomenclature assigned through Customer Care "Custom Color Process"

Accessories: *Order as separate catalog number.*

PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings
FVD xxFT	Field installed vibration damper (snake style)

NOTES:

1. Wall thickness will be signified with a "B" (11 Gauge) or a "F" (7-Gauge) in nomenclature. "B" - .120" | "F" - .180"
2. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, specify as drilling option/tenon option. The combination includes a required extra handhole.
   Example: DM28/T20.
3. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
4. DM19RAD, DM28RAD and DM32RAD require a minimum top O.D. of 4".
   DM29RAD, DM39RAD and DM49RAD require a minimum top O.D of 4.25".
5. VD not available with 3" pole. On 4" and 5" poles, VD cannot be installed if provisions (EHH, FDL, NPL, CPL) are located higher than 2/3 of the pole's total height.
   Example: Pole height is 25ft, A provision cannot be placed above 16ft.
6. Specify location and orientation when ordering option.
   For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
   Example: 5ft = 5 and 20ft 3in = 20-3
   For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
   Example: 1/2" coupling at 5'8 ", orientation C = CPL12/5-8C
7. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxyy.
   Example: HA20BD.
8. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
9. Festoon option that comes with GFCI and in-use cover. GFCI and in-use cover ship separately from pole.
10. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
11. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
12. N/A with GALV.
13. Use when mill certifications are required.
14. 14. Must add original order number. Not for replacement parts or post sales issues, contact tech support or post sales teams. VM is used to ensure poles match in appearance exactly from order to order, on a single project site. A common use case would be a multi-phase project with multiple orders. *Example: VM/010-36784*
15. Must be quoted through AQD. Finishes do not require RFA. RAL colors available are shown in "Architectural Colors brochure". Lead times may be extended up to 2 weeks due to paint procurement.

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - POLE

RSS Round Straight Steel Pole

TECHNICAL INFORMATION — EPA (ft^2) with 1.3 gust										
Catalog number	Nominal shaft length (ft.)*	Pole shaft size (in. x ft.)	Wall thickness (in.)	80 mph	Max weight	90 mph	Max weight	100 mph	Max weight	Approximate ship weight (lbs.)
RSS 8 4-5B	8	4.5 x 8.0	0.120	24.7	630	19.7	495	16.0	430	55
RSS 10 3B	10	3.0 x 10.0	0.120	10.0	250	7.7	190	6.0	175	55
RSS 10 4B	10	4.0 x 10.0	0.120	19.1	480	15	375	12.2	305	70
RSS 10 4-5B	10	4.5 x 10.0	0.120	24.5	615	19.5	490	15.8	395	75
RSS 12 3B	12	3.0 x 12.0	0.120	7.7	195	5.8	145	4.4	130	60
RSS 12 4B	12	4.0 x 12.0	0.120	15.0	390	11.8	300	9.5	240	80
RSS 12 4-5B	12	4.5 x 12.0	0.120	19.8	495	15.7	395	12.7	320	85
RSS 14 3B	14	3.0 x 14.0	0.120	6.0	175	4.4	130	3.3	90	70
RSS 14 4B	14	4.0 x 14.0	0.120	12.2	305	9.4	250	7.6	195	90
RSS 14 4-5B	14	4.5 x 14.0	0.120	16.2	405	12.8	320	10.3	260	95
RSS 15 4-5B	15	4.5 x 15.0	0.120	12.0	300	9.5	250	7.5	200	96
RSS 16 3B	16	3.0 x 16.0	0.120	4.6	125	3.2	100	2.3	60	80
RSS 16 4B	16	4.0 x 16.0	0.120	9.6	250	7.4	185	5.9	150	100
RSS 16 4-5B	16	4.5 x 16.0	0.120	13.1	330	10.2	265	8.2	205	105
RSS 18 3B	18	3.0 x 18.0	0.120	3.4	90	2.3	60	1.4	70	90
RSS 18 4B	18	4.0 x 18.0	0.120	7.6	190	5.7	180	4.5	130	110
RSS 18 4-5B	18	4.5 x 18.0	0.120	10.5	265	8.2	210	6.5	165	115
RSS 20 3B	20	3.0 x 20.0	0.120	2.4	100	1.4	75	--	--	100
RSS 20 4B	20	4.0 x 20.0	0.120	6.0	150	4.45	150	3.45	125	120
RSS 20 4-5B	20	4.5 x 20.0	0.120	8.5	215	6.6	165	5.2	130	130
RSS 20 5B	20	5.0 x 20.0	0.120	11.75	300	9.1	230	7.25	180	145
RSS 22 4-5B	22	4.5 x 22.0	0.120	6.0	150	4.5	125	3.75	100	134
RSS 25 4B	25	4.0 x 25.0	0.120	2.85	100	1.95	75	1.35	75	145
RSS 25 4-5B	25	4.5 x 25.0	0.120	4.8	130	3.6	90	2.7	90	145
RSS 25 5B	25	5.0 x 25.0	0.120	7.25	180	5.5	150	4.25	150	180
RSS 30 4-5B	30	4.5 x 30.0	0.120	2.3	80	1.5	75	1.0	60	185
RSS 30 5B	30	5.0 x 30.0	0.120	4.2	150	3	125	2.25	100	210

NOTE: EPA values are based ASCE 7-93 wind map.

*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

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Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - POLE

RSS Round Straight Steel Pole

TECHNICAL INFORMATION — EPA (ft^2) WITH 3-SECOND GUST PER AASHTO 2013																	
Series	Mounting Height (ft.)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight	Approximate ship weight (lbs.)
RSS	8	4-5B	18.5	463	15	375	13	325	11	275	9.5	238	8	200	7	175	55
RSS	10	3B	6	150	5	125	4	100	3.5	88	2.5	63	2	50	2	50	55
RSS	10	4B	12	300	9.5	238	8	200	6.5	163	5.5	138	5	125	4.5	113	70
RSS	10	4-5B	15.5	388	12.5	313	10.5	263	9	225	7.5	188	6.5	163	6	150	75
RSS	12	3B	5	125	4	100	3	75	2.5	63	2	50	1.5	38	1	25	60
RSS	12	4B	10	250	8	200	6.5	163	5.5	138	4.5	113	4	100	3.5	88	80
RSS	12	4-5B	13	325	10.5	263	9	225	7.5	188	6.5	163	5.5	138	4.5	113	85
RSS	14	3B	4	100	3	75	2.5	63	2	50	1.5	38	1	25	0.5	13	70
RSS	14	4B	8.5	213	6.5	163	5.5	138	4	100	3.5	88	3	75	2.5	63	90
RSS	14	4-5B	11	275	9	225	7	175	6	150	5	125	4.5	113	4	100	95
RSS	15	4-5B	10	250	8	200	6.5	163	5.5	138	4.5	113	4	100	3.5	88	96
RSS	16	3B	3	75	2.5	63	1.5	38	1	25	0.5	13	0.5	13	-	-	80
RSS	16	4B	7	175	5.5	138	4	100	3	75	2.5	63	2	50	2	50	100
RSS	16	4-5B	9	225	7	175	6	150	5	125	4	100	3.5	88	3	75	105
RSS	18	3B	2.5	63	1.5	38	1	25	0.5	13	-	-	-	-	-	-	90
RSS	18	4B	5.5	138	4	100	3	75	2.5	63	2	50	1.5	38	1	25	110
RSS	18	4-5B	7.5	188	6	150	4.5	113	4	100	3	75	2.5	63	2	50	115
RSS	20	3B	2	50	1	25	0.5	13	-	-	-	-	-	-	-	-	100
RSS	20	4B	4.5	113	3	75	2	50	1.5	38	1	25	1	25	0.5	13	120
RSS	20	4-5B	6	150	4.5	113	3.5	88	3	75	2.5	63	2	50	1.5	38	130
RSS	20	5B	8	200	6.5	163	5.5	138	4.5	113	3.5	88	3	75	2.5	63	145
RSS	22	4-5B	5	125	3.5	88	2.5	63	2	50	1.5	38	1	25	1	25	134
RSS	25	4B	2.5	63	1	25	0.5	13	-	-	-	-	-	-	-	-	145
RSS	25	4-5B	3.5	88	2	50	1.5	38	1	25	0.5	13	-	-	-	-	145
RSS	25	5B	5	125	3.5	88	3	75	2	50	1.5	38	1.5	38	1	25	180
RSS	30	4-5B	1.5	38	-	-	-	-	-	-	-	-	-	-	-	-	185
RSS	30	5B	2.5	63	1.5	38	1	25	0.5	13	-	-	-	-	-	-	210

NOTE: AASHTO 2013 design criteria is the most common EPA and uses wind map ASCE7-05. Please review the project Spec document to determine the correct design criteria for the poles on your jobsite.

*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

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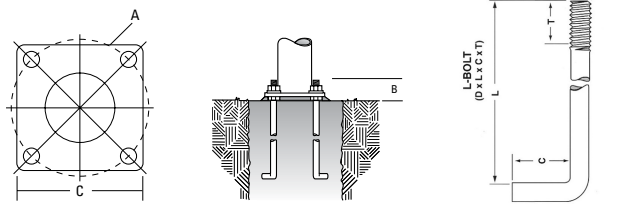
Type: E1, E1.1, E1.2, E1.3, E1.4

PARKING LOT - POLE

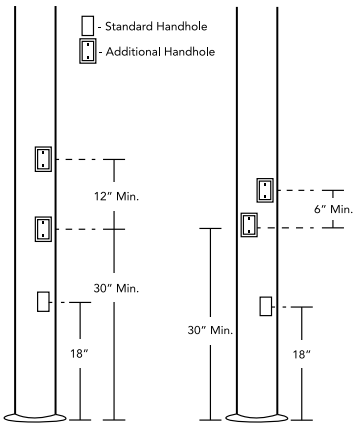
RSS Round Straight Steel Pole

ANCHORAGE AND TEMPLATE INFORMATION						
Shaft base size	**Bolt circle A**	**Bolt projection B**	**Base square C**	**Template description**	**Anchor bolt description**	**Bolt size (in.) D x L x C**
3"	7.5" - 8.5"	3.50"-3.75"	10.50"	ABTEMPLATE PJ50041	AB18-0	3/4 x 18 x 3
4"	7.5" - 8.5"	3.50"-3.75"	10.50"	ABTEMPLATE PJ50041	AB18-0	3/4 x 18 x 3
4.5"	7.5" - 8.5"	3.50"-3.75"	10.50"	ABTEMPLATE PJ50041	AB18-0	3/4 x 18 x 3
5"	7.5" - 8.5"	3.50"-3.75"	10.50"	ABTEMPLATE PJ50041	AB18-0	3/4 x 18 x 3

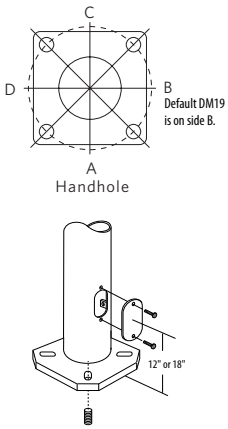
BASE & BOLT DETAIL



ROUND STEEL HANDHOLE AND FESTOON - PLACEMENT RULES



HANDHOLE DETAIL



IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

CAUTION: These specifications are intended for general purposes only. Lithonia Lighting reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

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Type: E2

OUTDOOR STORAGE, COURTYARDS

WDGE3 LED

Architectural Wall Sconce

Catalog Number

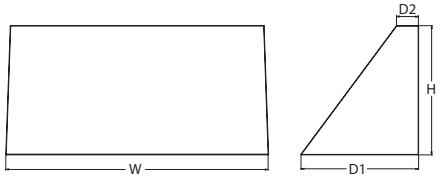
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1):	8"
Depth (D2):	1.5"
Height:	9"
Width:	18"
Weight: (without options)	19.5 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE3 has been designed to deliver up to 12,000 lumens through a precision refractive lens with wide distribution, perfect for augmenting the lighting from pole mounted luminaires.

design select — Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI)						
					P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	6,000	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE3 LED P3 40K 70CRI R3 MVOLT SRM DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE3 LED	P0 P1 P2 P3 P4	30K 3000K 40K 4000K 50K 5000K	70CRI 80CRI	R2 Type 2 R3 Type 3 R4 Type 4 RFT Forward Throw	MVOLT 347[1] 480[1]	**Shipped included** SRM Surface mounting bracket ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only)[2] **Shipped separately** AWS 3/8 inch Architectural wall spacer[3] PBBW Surface-mounted back box (top, left, right conduit entry). Use when there is no junction box available.[3]

Options

E15WH	Emergency battery backup, Certified in CA Title 20 MAEDBS (15W, 5°C min)
E20WC	Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)
PE	Photocell, Button Type[4]
DMG	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)[5]
BCE	Bottom conduit entry for back box (PBBW). Total of 4 entry points.
SPD10KV	10kV Surge pack[6]
CCE	Coastal Construction[3]

Standalone Sensors/Controls

PIR	Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.
PIRH	Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching
PIR1FC3V	Bi-level (100/35%) motion sensor for 8-15'mounting heights with photocell pre-programmed for dusk to dawn operation.
PIRH1FC3V	Bi-level (100/35%) motion sensor for 15-30'mounting heights with photocell pre-programmed for dusk to dawn operation.

Networked Sensors/Controls

NLTAIR2 PIR	Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights.
NLTAIR2 PIRH	Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 15'-30' mounting heights.
NLTAIREM2 PIR	Embedded wireless controls by nLight with UL924 listed emegency operation, Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights[7]
NLTAIREM2 PIRH	Embedded wireless controls by nLight with UL924 listed emegency operation, Passive Infrared Occ sensor and on/off photocell for 15'-30' mounting heights

See page 4 for out of box functionality

Finish

DDBXD	Dark bronze
DBLXD	Black
DNAXD	Natural aluminum
DWHXD	White
DSSXD	Sandstone
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white
DSSTXD	Textured sandstone

Accessories

Ordered and shipped separately.

WDGEAWS DDBXD	WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGE3PBBW DDBXD U	WDGE3 surface-mounted back box (specify finish)

NOTES

1. 347V and 480V not available with E15WH and E20WC.
2. Not qualified for DLC. Not available with emergency battery backup or sensors/controls
3. For PBBW and AWS with CCE option, require an RFA.
4. PE not available in 480V and with sensors/controls.
5. DMG option not available with sensors/controls.
6. Not available with E20WC option.
7. Available with MVOLT only and only rated to 25C ambient.

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Type: E2

OUTDOOR STORAGE, COURTYARDS

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	41W	R2	6,172	151	1	0	1	6,104	149	2	0	1	6,394	156	2	0	1
		R3	6,071	148	1	0	2	6,004	146	1	0	2	6,290	153	1	0	2
		R4	6,256	153	1	0	2	6,187	151	1	0	2	6,481	158	1	0	2
		RFT	6,126	149	1	0	2	6,058	148	1	0	2	6,347	155	1	0	2
P1	52W	R2	7,037	136	1	0	1	7,649	148	2	0	1	7,649	148	2	0	1
		R3	6,922	134	1	0	2	7,524	145	1	0	2	7,524	145	1	0	2
		R4	7,133	138	1	0	2	7,753	150	1	0	2	7,753	150	1	0	2
		RFT	6,985	135	1	0	2	7,592	147	1	0	2	7,592	147	1	0	2
P2	59W	R2	7,968	135	2	0	1	8,661	147	2	0	1	8,661	147	2	0	1
		R3	7,838	133	1	0	2	8,519	144	1	0	2	8,519	144	1	0	2
		R4	8,077	137	1	0	2	8,779	149	1	0	2	8,779	149	1	0	2
		RFT	7,909	134	1	0	2	8,597	146	2	0	2	8,597	146	2	0	2
P3	71W	R2	9,404	132	2	0	1	10,221	143	2	0	1	10,221	143	2	0	1
		R3	9,250	130	2	0	2	10,054	141	2	0	2	10,054	141	2	0	2
		R4	9,532	134	2	0	2	10,361	145	2	0	2	10,361	145	2	0	2
		RFT	9,334	131	2	0	2	10,146	142	2	0	2	10,146	142	2	0	2
P4	88W	R2	11,380	129	2	0	1	12,369	140	2	0	1	12,369	140	2	0	1
		R3	11,194	127	2	0	2	12,167	138	2	0	2	12,167	138	2	0	2
		R4	11,535	131	2	0	2	12,538	142	2	0	2	12,538	142	2	0	2
		RFT	11,295	128	2	0	2	12,277	139	2	0	2	12,277	139	2	0	2

Lumen Output in Emergency Mode (4000K, 70 CRI)

Option	Dist. Type	Lumens
E15WH	R2	3,185
	R3	3,133
	R4	3,229
	RFT	3,162
E20WC	R2	3,669
	R3	3,609
	R4	3,719
	RFT	3,642

Electrical Load

Performance Package	System Watts	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	52W	0.437	0.246	0.213	0.186	0.150	0.110
P2	59W	0.498	0.287	0.251	0.220	0.175	0.126
P3	71W	0.598	0.344	0.300	0.262	0.210	0.152
P4	88W	0.727	0.424	0.373	0.333	0.260	0.190

Lumen Multiplier for 80CRI

CCT	Multiplier
30K	0.891
40K	0.906
50K	0.906

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.05
10°C	50°F	1.03
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.98	>0.97	>0.92

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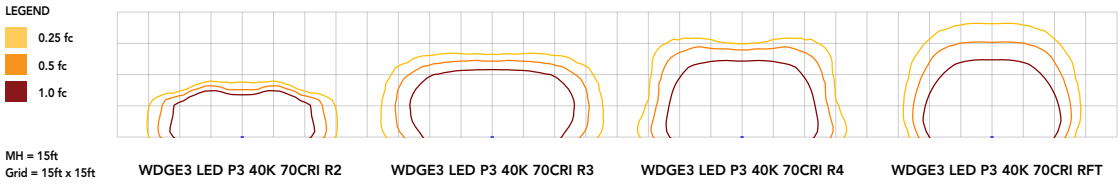
Type: E2

OUTDOOR STORAGE, COURTYARDS

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.



Emergency Egress Options

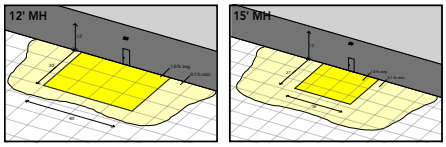
Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain, minimum of 60% of the light output at the end of 90minutes.

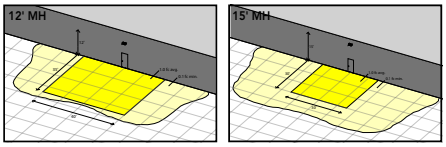
Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The examples below show illuminance of 1 fc average and 0.1 fc minimum in emergency mode with E15WH or E20WC and R4 distribution.

Grid = 10ft x 10ft



WDGE3 LED xx 40K 70CRI R4 MVOLT E15WH



WDGE3 LED xx 40K 70CRI R4 MVOLT E20WC

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Type: E2

OUTDOOR STORAGE, COURTYARDS

Control / Sensor Options

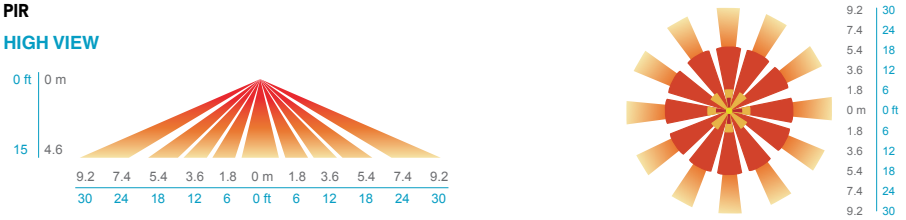
Motion/Ambient Sensor (PIR_, PIRH_)

Motion/Ambeint sensor (Sensor Switch MSOD) is integrated into the the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

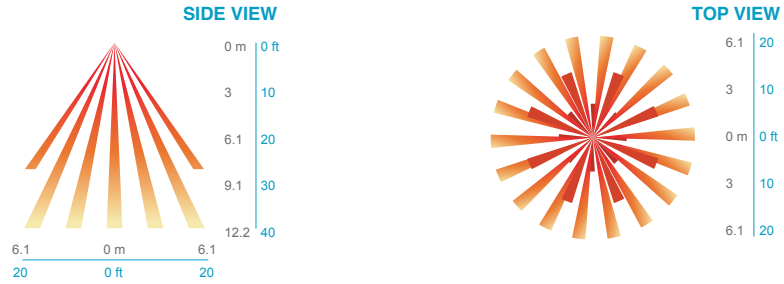
Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CLAIRITY™ Pro) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

PIR



PIRH



Motion/Ambient Sensor Default Settings

Option	Dim Level	High Level (when triggered	Photocell Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR1FC3V, PIRH1FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 1fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
NLTAIR2 PIR, NLTAIR2 PIRH, NLTAIREM2 PIR, NLTAIREM2 PIRH (out of box)	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	7.5 min	5 min	Motion - 3 sec Photocell - 45 sec

UL 924 Response - nLight AIR Devices with EM Option

- NLTAIREM2 devices will remain at their high-end trim and ignore wireless lighting control commands, unless a normal-power-sensed (NPS) broadcast is received at least every 8 seconds.
- Using the CLAIRITY+ mobile app, NLTAIREM2 devices must be associated with a group that includes a normal power sensing device to receive NPS broadcasts.
- The non-emergency devices, NLTAIR2 PIR and NLTAIR2 PIRH, with version 3.4 or later firmware can be used for normal power sensing.

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Type: E2

OUTDOOR STORAGE, COURTYARDS

Mounting, Options & Accessories

NLTAIR2 PIR – nLight AIR Motion/Ambient Sensor

D = 8"

H = 11"

W = 18"

PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"

H = 9"

W = 18"

AWS – 3/8inch Architectural Wall Spacer

D = 0.38"

H = 4.4"

W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE
Common architectural look, with clean rectilinear shape, of the WDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION
The single-piece die-cast aluminum housing to optimize thermal transfer from the light engine and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Individually formed acrylic lenses are engineered for superior application efficiency which maximizes the light in the areas where it is most needed. Light engines are available in 3000 K, 4000 K or 5000 K configurations. The WDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L92/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature and SRM mounting only.

GOVERNMENT PROCUREMENT
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Type: E3

SLOPED CANOPIES

AERA 4" SEAL CYLINDER

PENDANT
DIRECT/INDIRECT, DIRECT

Lumenwerx

5 YEAR WARRANTY

The Aera 4" Seal Cylinder, available as a pendant, surface, or wall mounted luminaire, takes the Aera family's clean esthetic and performance assets to wet locations and outdoor environments, delivering lighting that's visually comfortable with minimal glare.

Beam Angles

15° 25° 35° 50° 80° 90° 80°-Up

Low UGR < 10 in 15°, 25°, 35°, and 50° beams

Performance

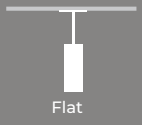
LUMEN OUTPUT [1]	WATTS	EFFICACY
1308 lm	14 W	93 lm/W
1824 lm	20 W	91 lm/W
2450 lm	28 W	87 lm/W

[1] Lumen packages are assuming 3500K, 80+ CRI, 25° beam, gasketed bevel baffle, LSDL lens option.

Light Source

Static White
SOLA - Dim-to-Warm
DUO - Tunable White

Mounting



Flat

COB

2 Step Color Binning
Up to 95+ CRI

Certification

IP66

Driver

1%, 0.1% Dimming Available
0-10V, TRIAC, ELV, Lutron EcoSystem, DALI, DMX
Emergency Battery (optional)

Aera Family (Refer to other spec sheets)

Downlight

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Multi-aperture

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Cylinder

2" / 3" / 4" / 5" 4" Seal Pendant Pendant Asymmetric Pendant Wall Wash
2" / 3" / 4" / 5" 4" Seal Wall Wall Asymmetric
2" / 3" / 4" / 5" 4" Seal Surface Surface Asymmetric Surface Wall Wash

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AERA4-SEAL-CYLINDER-PENDANT-SPEC-REV5 February 6, 2025

PoE

Type: E3

SLOPED CANOPIES

AERA 4" SEAL CYLINDER

Lumenwerx

PENDANT

DIRECT/INDIRECT, DIRECT

Project: _____

Type: _____

Order Guide

LUMINAIRE ID	DISTRIBUTION	ENVIRONMENT	CYLINDER HEIGHT	CYLINDER FINISH [3]	BAFFLE STYLE	BAFFLE FINISH
AE4SEALCYP					**BVLG**	
AE4SEALCYP [1] - Aera 4" Seal Cylinder Pendant [1] IP66 rated gasketed construction with an additional clear tempered glass lens.	**DI** - Direct/Indirect **D** - Direct	**STR** - Standard temperature range, 0°C to 25°C (32°F to 77°F) **ETR** - Extended temperature range, -30°C to 40°C (-22°F to 104°F)	**DIRECT/INDIRECT**: **10IN** - 10", **12IN** - 12", **14IN** - 14" **DIRECT**: **8IN** - 8", **10IN** - 10", **12IN** - 12" **CH#IN** [2] - Custom height [2] Specify height (#) in 1" increments only. Up to maximum 36".	**FTMWE** - Textured matte white exterior finish **FTMBE** - Textured matte black exterior finish [3] Consult factory for custom exterior finishes.	**BVLG** - Gasketed bevel	**FTMW** - Textured matte white **FTMB** - Textured matte black **FSPC** - Specular **FSSPC** - Semi-specular **CF#** - Custom finish, specify RAL#

LIGHT SOURCE	DIRECT BEAM	COLOR QUALITY	CRI	COLOR TEMP.	ACCESSORY [6] See page 3 for details	VOLTAGE
SW - Static white	**15DEG** - 15° Narrow spot **25DEG** - 25° Spot **35DEG** - 35° Narrow flood **50DEG** - 50° Wide flood **80DEG** - 80° Very wide flood **90DEG** - 90° Open flood	**2STP** - 2 Step MacAdam Ellipse **3STP** - 3 Step MacAdam Ellipse	**90CRI** - 90+ CRI **95CRI** - 95+ CRI **80CRI** - 80+ CRI	**27K** - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K	**At light element** (choose up to 1 option) **LSDL** - Soft diffused lens, Solite **LFDL** - Frosted diffused lens **HEX** [7] - Hex louver **NA** - None	**120V** - 120V **277V** - 277V **UNV** - 120V-277V **347V** [8] - 347V
SOLA - Dim-to-warm single channel control **DUO** - Tunable white 2-channel control	**50DEG** - 50° Wide flood	**3STP** - 3 Step MacAdam Ellipse	**90CRI** - 90+ CRI	**SOLA** [4] - Dim-to-warm single channel control **DUO** [5] - Tunable white 2-channel control [4] 3500K to 2200K [5] 6500K to 2700K	[6] For SOLA/DUO, one of the following lenses must be specified: LSDL or LFDL. [7] Not available with 80°/90° beam options. Not available with extended temperature range option (ETR).	[8] Available with RD1 driver only. Please consult factory.

DIRECT WATTAGE	INDIRECT WATTAGE Specify NA for Direct	DIMMING [12]	
14W - 14 W output, up to 1308 lm **20W** - 20 W output, up to 1824 lm **28W** [9,10] - 28 W output, up to 2450 lm	**14W** [11] - 14 W output, up to 827 lm **20W** [10] - 20 W output, up to 1163 lm **NA** - Not applicable	**INTEGRAL** **D1** - 1% 0-10V **ELV** [13] - ELV 120V **TRI** [13] - TRIAC 120V	**REMOTE** [14,15] **RD1** - 1% 0-10V **RELV** [16] - ELV 120V **RTRI** [16] - TRIAC 120V **RLDE1** [17] - Lutron Hi-lume 1% Eco **RDA** [17] - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V **+EB** [18] - Emergency battery
[9] Not available for a DI fixture. [10] Not available with extended temperature range option (ETR). [11] Not available with extended temperature range option (ETR) when specified with 20 W direct wattage.		[12] PoE (Power-over-Ethernet) compatible. Consult factory for details. [13] Available with 120V only.	[14] A remote driver box is provided, see page 5 for details. [15] The remote driver box must be installed in dry/damp environments with ambient temperatures of 0°C to 25°C (32°F to 77°F). [16] Available with 120V only. [17] On-site commissioning is required. [18] For emergency battery, code will be like the following example: RD1+EB.
SOLA **25W** - 25 W output, up to 1400 lm DUO **19W** - 19 W output, up to 1100 lm	SOLA **12W** - 12 W output, up to 483 lm DUO **11W** - 11 W output, up to 305 lm **NA** - Not applicable	SOLA **SD1** - Single 0-10V input **SELV** [13] - ELV 120V **STRI** [13] - TRIAC 120V	SOLA **RSD1** - Single 0-10V input **RSELV** [16] - ELV 120V **RSTRI** [16] - TRIAC 120V DUO **RDMX** [17] - DMX **RDDA** [17] - DALI DT6 **RDDA8** [17] - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** [17] - Lutron DALI-2 digital

ELECTRICAL	CANOPY TYPE [20]	CANOPY FINISH [21]	SUSPENSION [22,23,24]
	FLR		
1C - 1 circuit **2C** [19] - 2 circuits [19] Available with Direct/Indirect only.	**FLR** - Flat round canopy, 4" octagonal junction box [20] See page 3 for details.	**FTMWE** - Textured matte white exterior finish **FTMBE** - Textured matte black exterior finish [21] Consult factory for custom exterior finishes.	**BKES##IN** - Textured black exterior finish stem **WHES##IN** - Textured white exterior finish stem [22] For a Direct fixture, the total stem length does not include a 1" tall bracket located at the top of the cylinder. See page 4 details. [23] Stem Min 10" - max 72", specify length (##) in inches. [24] Consult factory for custom exterior finishes.

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PoE

AERA 4" SEAL CYLINDER

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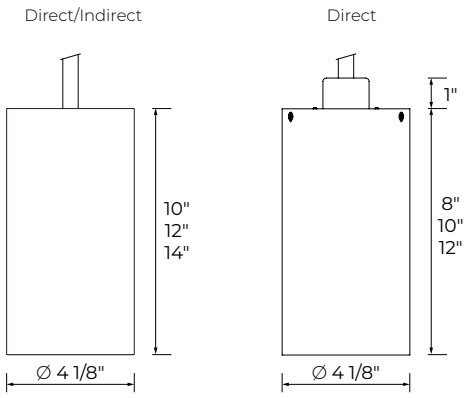
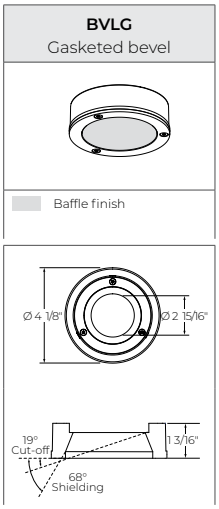
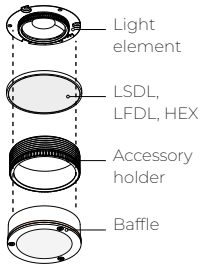
DIRECT/INDIRECT, DIRECT

Dimensions



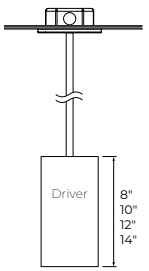
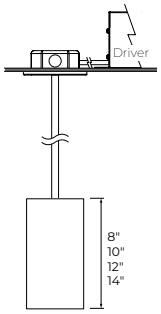


Accessories



Mounting

CANOPY

INTEGRAL DRIVER	REMOTE DRIVER
FLR Flat round canopy, 4" octagonal junction box	
	
Canopy size: Ø 4 1/2" Height 3/8"	
Min. height: D/I - 10" D - 8"	

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Type: E3

SLOPED CANOPIES

AERA 4" SEAL CYLINDER

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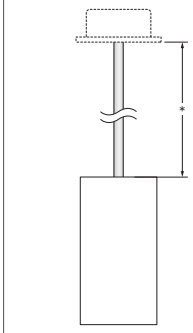
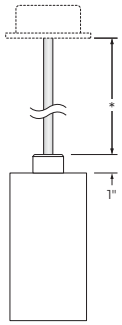
DIRECT/INDIRECT, DIRECT

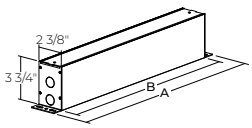
SUSPENSION

STEM	
DIRECT/INDIRECT	DIRECT [1]
	
Stem Lengths (*)	
Min 10" - Max 72"	

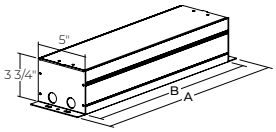
[1] For a Direct fixture, the total stem length does not include a 1" tall bracket located at the top of the cylinder.

REMOTE DRIVER BOX

RDB8 / RDB18 / RDB24



RDB24W



	RDB8	RDB18	RDB24	RDB24W
A	10"	20"	26"	26"
B	8"	18"	24"	24"
DRIVER	**RD1** - 1% 0-10V **RELV** - ELV 120V **RTRI** - TRIAC 120V	**RLDE1** - Lutron Hi-lume 1% Eco **RDA** - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V	Emergency battery (+EB) with the following driver options. **RD1+EB** - 1% 0-10V **RELV+EB** - ELV 120V **RTRI+EB** - TRIAC 120V	Emergency battery (+EB) with the following driver options. **RLDE1+EB** - Lutron Hi-lume 1% Eco **RDA+EB** - DALI **RELD1+EB** - eldoLED 1% ECOdrive 0-10V **RELD0+EB** - eldoLED 0.1% SOLOdrive 0-10V
	SOLA **RSD1** - Single 0-10V input **RSELV** - ELV 120V **RSTRI** - TRIAC 120V		DUO **RDMX** - DMX **RDDA** - DALI DT6 **RDDA8** - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** - Lutron DALI-2 digital	

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PoE

AERA 4" SEAL CYLINDER

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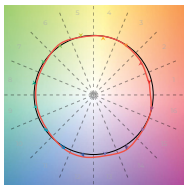
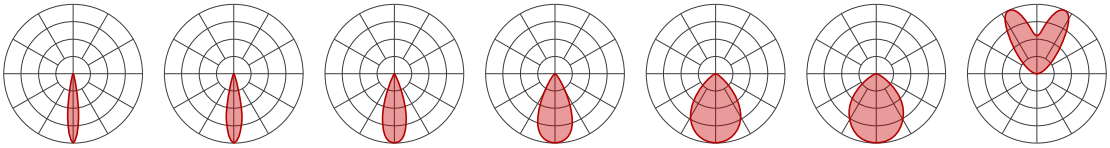
Color Quality

COLOR QUALITY - 3500K	
TM-30 R_f	90
TM-30 R_g	100
CRI	90
R9	> 50



Photometrics

Values calculated based on 3500K, gasketed bevel baffle, and SDL lens option.



15° 25° 35° 50° 80° 90° 80° Uplight

Delivered lumens

CRI	90+ CRI							95+ CRI							80+ CRI						
BEAM	15°	25°	35°	50°	80°	90°	Uplight	15°	25°	35°	50°	80°	90°	Uplight	15°	25°	35°	50°	80°	90°	Uplight
14 W	1189	1221	1177	1153	1037	1037	772	915	940	906	887	799	799	594	1272	1308	1259	1234	1110	1110	827
20 W	1659	1705	1641	1610	1449	1449	1086	1278	1313	1264	1239	1115	1115	836	1776	1824	1756	1722	1549	1549	1163
28 W	2228	2290	2204	2160	1944	1944	NA	1716	1763	1697	1663	1497	1497	NA	2383	2450	2358	2311	2080	2080	NA

Efficacy

CRI	90+ CRI							95+ CRI							80+ CRI						
BEAM	15°	25°	35°	50°	80°	90°	Uplight	15°	25°	35°	50°	80°	90°	Uplight	15°	25°	35°	50°	80°	90°	Uplight
14 W	85	87	84	82	74	74	55	65	67	64	64	57	57	43	91	93	90	88	79	79	59
20 W	83	85	82	81	73	73	54	64	65	63	62	56	56	42	88	91	87	86	77	77	58
28 W	80	82	79	77	70	70	NA	61	63	61	59	53	53	NA	85	87	84	82	74	74	NA

MULTIPLIERS

Please follow the multiplier tables to ensure correct lumen value. Beams, CCT, baffle colors and accessories will change the lumen value.

CCT	
2700K	0.9
3000K	0.95
3500K	1
4000K	1.05

BAFFLE COLOR		
Gasketed bevel	White	1
	Black	1

ACCESSORIES	
Soft diffused lens, Solite	1
Frosted lens	0.8
Hex louver	0.86

For SOLA and DUO, please consult factory.

DIRECT/INDIRECT - EFFICACY CALCULATION

For Direct/Indirect performance values, follow the formula.

$$\frac{(\text{DIRECT DELIVERED LM} + \text{INDIRECT DELIVERED LM})}{(\text{DIRECT WATTAGE} + \text{INDIRECT WATTAGE})} = \text{EFFICACY}$$

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AERA4-SEAL-CYLINDER-PENDANT-SPEC-REV5 February 6, 2025

PoE

Type: E3
SLOPED CANOPIES

AERA 4" SEAL CYLINDER

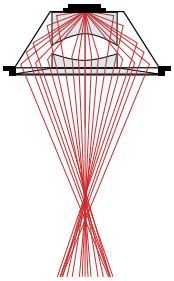
Lumenwerx

PENDANT
DIRECT/INDIRECT, DIRECT

Technical Specifications

OPTIC

XPoint™ Refraction Technology optics provide precise optical control in a remarkably compact form. Micro optical paths from the chip on board converge and then disperse in precise beam angles, resulting in a crisp and exacting light quality.



LIGHT SOURCE

Static white
Compact COB (Chip-On-Board) LED module, available in 2700K, 3000K, 3500K and 4000K with a choice of 80+ CRI, 90+ CRI, or 95+ CRI, with elevated R9 value for 90+ CRI and above. Color consistency is maintained to within 2 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

Chromawerx SOLA
Chromawerx SOLA is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple analog control adjusts a specially populated LED array to emulate the effect of dimming a filament source.

Chromawerx DUO
Chromawerx DUO offers a two-channel control system which uses analog or digital protocols for synchronous control of both cool (6500K) to warm (2700K) LED arrays - maintaining a CRI above 90. The range of color DUO offers is useful for entraining circadian rhythms, stimulating alertness, and compensating for jet lag among other applications. The Chromawerx drivers are programmed to limit maximum light output and power usage across all color temperatures. When paired with DALI drivers (DDA/DDA8), color tuning follows a linear dimming curve.

ELECTRICAL

Unless otherwise specified, dimming down to 1%. At maximum driver load: efficiency>84%, PF>0.9, THD<20%.
Integral: 0-10V, ELV, TRIAC
Remote: 0-10V, ELV, TRIAC, Lutron Hi-Lume 1% EcoSystem, DALI, eldoLED 0.1% SOLOdrive 0-10V, eldoLED 1% ECOdrive 0-10V, DMX, Lutron DALI-2 digital
Emergency battery option: Remotely-installed, long-life, high-temperature, maintenance-free, Bodine Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. IOTA and Fulham options available upon request. Minimum of 90 minutes operation, and recharge time of 24 hours. For fixtures less than 10 W, the battery provides 6 W of emergency light output. For fixtures 10 W and over, the battery provides 10 W.

PoE
Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, DUO (tunable white), QUADRO (RGBW), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

CONSTRUCTION

Housing: Die-cast and extruded aluminum
Stem: Ø 1/2" rigid stem 10" to 72" standard length
Canopy: Flat
Finish: Textured matte white and black. Custom colors also available (provide RAL #). Specular and semi-specular finishes are also available for Baffle.
Heat sink: Die-cast aluminum
Baffle: Die-cast aluminum
Baffle style: Gasketed bevel

WEIGHT

Direct/Indirect	Direct
10": 6.5 lbs - 2.9 kg	**8"**: 4.4 lbs - 2.0 kg
12": 7.8 lbs - 3.5 kg	**10"**: 5.5 lbs - 2.5 kg
14": 9.1 lbs - 4.1 kg	**12"**: 6.6 lbs - 3.0 kg

ACCESSORIES

Soft diffused lens, Solite

Frosted diffused lens

Hex louver

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PoE

Type: E3

SLOPED CANOPIES

AERA 4" SEAL CYLINDER

Lumenwerx

PENDANT

DIRECT/INDIRECT, DIRECT

ENVIRONMENT

For the standard temperature range (STR) option, ambient temperature at fixture location shall be within 0°C/32°F to 25°C/77°F.
For the extended temperature range (ETR) option, ambient temperature at fixture location shall be within -30°C/-22°F to 40°C/104°F.

CERTIFICATION

ETL: Suitable for wet locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.

WARRANTY

Lumenwerx provides a five-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

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PoE

Type: E3.1
FLAT CANOPIES

AERA 4" SEAL CYLINDER
SURFACE

Lumenwerx

5 YEAR WARRANTY

8" Height

10" Height

12" Height

The Aera 4" Seal Cylinder, available as a pendant, surface, or wall mounted luminaire, takes the Aera family's clean esthetic and performance assets to wet locations and outdoor environments, delivering lighting that's visually comfortable with minimal glare.

Beam Angles

15° 25° 35° 50° 80° 90°

Low UGR < 10 in 15°, 25°, 35°, and 50° beams

Performance

LUMEN OUTPUT [1]	WATTS	EFFICACY
1308 lm	14 W	93 lm/W
1824 lm	20 W	91 lm/W
2450 lm	28 W	87 lm/W

[1] Lumen packages are assuming 3500K, 80+ CRI, 25° beam, gasketed bevel baffle, LSDL lens option.

Mounting Options

Flat Direct

Light Source

Static White
SOLA - Dim-to-Warm
DUO - Tunable White

COB

2 Step Color Binning
Up to 95+ CRI

Certification

IP66

Driver

1%, 0.1% Dimming Available
0-10V, TRIAC, ELV, Lutron EcoSystem, DALI, DMX
Emergency Battery (optional)

Aera Family (Refer to other spec sheets)

Downlight

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Multi-aperture

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Cylinder

2" / 3" / 4" / 5" 4" Seal Pendant
Pendant Asymmetric
Pendant Wall Wash
2" / 3" / 4" / 5" 4" Seal Wall
Wall Asymmetric
2" / 3" / 4" / 5" 4" Seal Surface
Surface Asymmetric
Surface Wall Wash

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AERA4-SEAL-CYLINDER-SURFACE-SPEC-REV5 February 6, 2025

PoE

Type: E3.1
FLAT CANOPIES

AERA 4" SEAL CYLINDER
SURFACE

Lumenwerx

Project: _____

Type: _____

Order Guide

LUMINAIRE ID	DISTRIBUTION	ENVIRONMENT	CYLINDER HEIGHT	CYLINDER FINISH [3]	BAFFLE STYLE	BAFFLE FINISH
AE4SEALCYS	**D**				**BVLG**	
AE4SEALCYS [1] - Aera 4" Seal Cylinder Surface [1] IP66 rated gasketed construction with an additional clear tempered glass lens.	**D** - Direct	**STR** - Standard temperature range, 0°C to 25°C (32°F to 77°F) **ETR** - Extended temperature range, -30°C to 40°C (-22°F to 104°F)	**8IN** - 8" **10IN** - 10" **12IN** - 12" **CH#IN** [2] - Custom height [2] Specify height (#) in 1" increments only. Up to maximum 36".	**FTMWE** - Textured matte white exterior finish **FTMBE** - Textured matte black exterior finish [3] Consult factory for custom exterior finishes.	**BVLG** - Gasketed bevel	**FTMW** - Textured matte white **FTMB** - Textured matte black **FSPC** - Specular **FSSPC** - Semi-specular **CF#** - Custom finish, specify RAL#

LIGHT SOURCE	BEAM	COLOR QUALITY	CRI	COLOR TEMP.	ACCESSORY [6] See page 3 for details	VOLTAGE
SW - Static white	**15DEG** - 15° Narrow spot **25DEG** - 25° Spot **35DEG** - 35° Narrow flood **50DEG** - 50° Wide flood **80DEG** - 80° Very wide flood **90DEG** - 90° Open flood	**2STP** - 2 Step MacAdam Ellipse **3STP** - 3 Step MacAdam Ellipse	**90CRI** - 90+ CRI **95CRI** - 95+ CRI **80CRI** - 80+ CRI	**27K** - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K	**At light element** (choose up to 1 option) **LSDL** - Soft diffused lens, Solite **LFDL** - Frosted diffused lens **HEX** [7] - Hex louver **NA** - None [6] For SOLA/DUO, one of the following lenses must be specified: LSDL or LFDL. [7] Not available with 80°/90° beam options. Not available with extended temperature range option (ETR).	**120V** - 120V **277V** - 277V **UNV** - 120V-277V **347V** [8] - 347V [8] Available with RD1 driver only. Please consult factory.
SOLA - Dim-to-warm single channel control **DUO** - Tunable white 2-channel control	**50DEG** - 50° Wide flood	**3STP** - 3 Step MacAdam Ellipse	**90CRI** - 90+ CRI	**SOLA** [4] - Dim-to-warm single channel control **DUO** [5] - Tunable white 2-channel control [4] 3500K to 2200K [5] 6500K to 2700K		

WATTAGE	DIMMING [10]		CANOPY TYPE [17]	CANOPY FINISH [18] Specify NA for DM
	INTEGRAL	**REMOTE** [12, 13]		
14W - 14 W output, up to 1308 lm **20W** - 20 W output, up to 1824 lm **28W** [9] - 28 W output, up to 2450 lm [9] Not available with extended temperature range option (ETR).	**D1** - 1% 0-10V **ELV** [11] - ELV 120V **TRI** [11] - TRIAC 120V [10] PoE (Power-over-Ethernet) compatible. Consult factory for details. [11] Available with 120V only.	**RD1** - 1% 0-10V **RELV** [14] - ELV 120V **RTRI** [14] - TRIAC 120V **RLDE1** [15] - Lutron Hi-lume 1% Eco **RDA** [15] - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V **+EB** [16] - Emergency battery [12] A remote driver box is provided, see page 4 for details. [13] The remote driver box must be installed in dry/damp environments with ambient temperatures of 0°C to 25°C (32°F to 77°F). [14] Available with 120V only. [15] On-site commissioning is required. [16] For emergency battery, code will be like the following example: RD1+EB.	**FLR** - Flat round canopy, 4" octagonal junction box **DM** - Direct mount [17] See page 4 for details.	**FTMWE** - Textured matte white exterior finish **FTMBE** - Textured matte black exterior finish **NA** - None [18] Consult factory for custom exterior finishes.
SOLA **25W** - 25 W output, up to 1400 lm DUO **19W** - 19 W output, up to 1100 lm	SOLA **SD1** - Single 0-10V input **SELV** [11] - ELV 120V **STRI** [11] - TRIAC 120V	SOLA **RSD1** - Single 0-10V input **RSELV** [14] - ELV 120V **RSTRI** [14] - TRIAC 120V DUO **RDMX** [15] - DMX **RDDA** [15] - DALI DT6 **RDDA8** [15] - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** [15] - Lutron DALI-2 digital		

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PoE

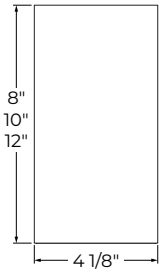
AERA 4" SEAL CYLINDER

SURFACE

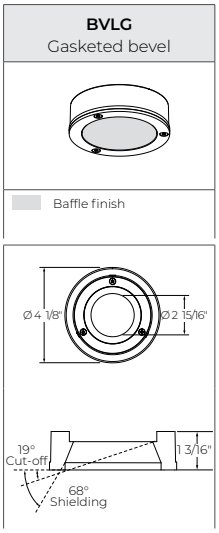
Lumenwerx

Dimensions

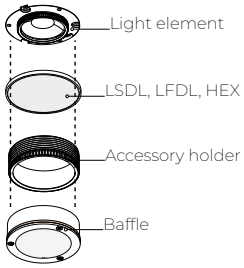
CYLINDER



BAFFLE



Accessories



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PoE

Type: E3.1
FLAT CANOPIES

AERA 4" SEAL CYLINDER

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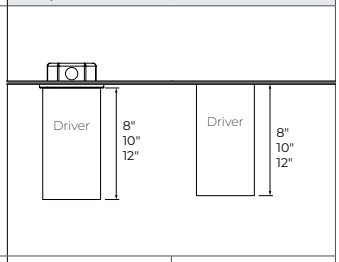
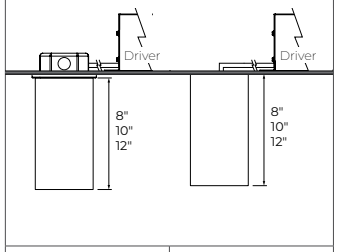
SURFACE

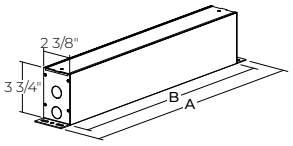
Mounting

CANOPY

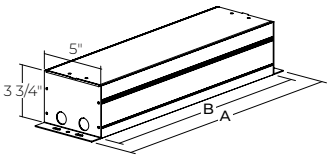
	INTEGRAL DRIVER		REMOTE DRIVER	
Order code	**FLR** Flat round canopy, 4" octagonal junction box	**DM** Direct mount	**FLR** Flat round canopy, 4" octagonal junction box	**DM** Direct mount
Canopy type				
Canopy size	Ø 5" Height 1/4"	NA	Ø 5" Height 1/4"	NA

REMOTE DRIVER BOX

RDB8 / RDB18 / RDB24



RDB24W



	RDB8	RDB18	RDB24	RDB24W
A	10"	20"	26"	26"
B	8"	18"	24"	24"
DRIVER	**RD1** - 1% 0-10V **RELV** - ELV 120V **RTRI** - TRIAC 120V SOLA **RSD1** - Single 0-10V input **RSELV** - ELV 120V **RSTRI** - TRIAC 120V	**RLDE1** - Lutron Hi-lume 1% Eco **RDA** - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V	Emergency battery (+EB) with the following driver options. **RD1+EB** - 1% 0-10V **RELV+EB** - ELV 120V **RTRI+EB** - TRIAC 120V DUO **RDMX** - DMX **RDDA** - DALI DT6 **RDDA8** - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** - Lutron DALI-2 digital	Emergency battery (+EB) with the following driver options. **RLDE1+EB** - Lutron Hi-lume 1% Eco **RDA+EB** - DALI **RELD1+EB** - eldoLED 1% ECOdrive 0-10V **RELD0+EB** - eldoLED 0.1% SOLOdrive 0-10V

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AERA 4" SEAL CYLINDER

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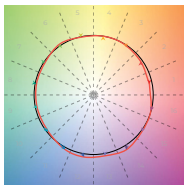
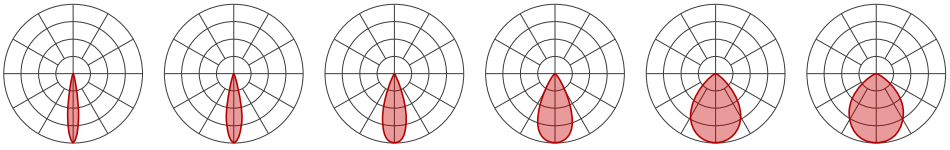
Color Quality

COLOR QUALITY - 3500K	
TM-30 R_f	90
TM-30 R_g	100
CRI	90
R9	> 50



Photometrics

Values calculated based on 3500K, gasketed bevel baffle, and SDL lens option.



Delivered lumens

CRI	90+ CRI						95+ CRI						80+ CRI					
BEAM	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°
14 W	1189	1221	1177	1153	1037	1037	915	940	906	887	799	799	1272	1308	1259	1234	1110	1110
20 W	1659	1705	1641	1610	1449	1449	1278	1313	1264	1239	1115	1115	1776	1824	1756	1722	1549	1549
28 W	2228	2290	2204	2160	1944	1944	1716	1763	1697	1663	1497	1497	2383	2450	2358	2311	2080	2080

Efficacy

CRI	90+ CRI						95+ CRI						80+ CRI					
BEAM	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°
14 W	85	87	84	82	74	74	65	67	64	64	57	57	91	93	90	88	79	79
20 W	83	85	82	81	73	73	64	65	63	62	56	56	88	91	87	86	77	77
28 W	80	82	79	77	70	70	61	63	61	59	53	53	85	87	84	82	74	74

MULTIPLIERS

Please follow the multiplier tables to ensure correct lumen value. Beams, CCT, baffle colors and accessories will change the lumen value.

CCT	
2700K	0.9
3000K	0.95
3500K	1
4000K	1.05

BAFFLE COLOR		
Gasketed bevel	White	1
	Black	1

ACCESSORIES	
Soft diffused lens, Solite	1
Frosted lens	0.8
Hex louver	0.86

For SOLA and DUO, please consult factory.

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AERA4-SEAL-CYLINDER-SURFACE-SPEC-REV5 February 6, 2025

PoE

AERA 4" SEAL CYLINDER

SURFACE

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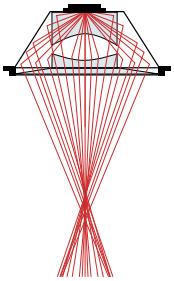
Technical Specifications

OPTIC

XPoint™ Refraction Technology optics provide precise optical control in a remarkably compact form. Micro optical paths from the chip on board converge and then disperse in precise beam angles, resulting in a crisp and exacting light quality.



LIGHT SOURCE

Static white

Compact COB (Chip-On-Board) LED module, available in 2700K, 3000K, 3500K and 4000K with a choice of 80+ CRI, 90+ CRI, or 95+ CRI, with elevated R9 value for 90+ CRI and above. Color consistency is maintained to within 2 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

Chromawerx SOLA

Chromawerx SOLA is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple analog control adjusts a specially populated LED array to emulate the effect of dimming a filament source.

Chromawerx DUO

Chromawerx DUO offers a two-channel control system which uses analog or digital protocols for synchronous control of both cool (6500K) to warm (2700K) LED arrays - maintaining a CRI above 90. The range of color DUO offers is useful for entraining circadian rhythms, stimulating alertness, and compensating for jet lag among other applications. The Chromawerx drivers are programmed to limit maximum light output and power usage across all color temperatures. When paired with DALI drivers (DDA/DDA8), color tuning follows a linear dimming curve.

ELECTRICAL

Unless otherwise specified, dimming down to 1%. At maximum driver load: efficiency>84%, PF>0.9, THD<20%.
Integral: 0-10V, ELV, TRIAC
Remote: 0-10V, ELV, TRIAC, Lutron Hi-Lume 1% EcoSystem, DALI, eldoLED 0.1% SOLOdrive 0-10V, eldoLED 1% ECOdrive 0-10V, DMX, Lutron DALI-2 digital
Emergency battery option: Remotely-installed, long-life, high-temperature, maintenance-free, Bodine Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. IOTA and Fulham options available upon request. Minimum of 90 minutes operation, and recharge time of 24 hours. For fixtures less than 10 W, the battery provides 6 W of emergency light output. For fixtures 10 W and over, the battery provides 10 W.

PoE

Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, DUO (tunable white), QUADRO (RGBW), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

CONSTRUCTION

Housing: Die-cast and extruded aluminum
Canopy: Flat and direct
Finish: Textured matte white and black. Custom colors also available (provide RAL #). Specular and semi-specular finishes are also available for Baffle.
Heat sink: Die-cast aluminum
Baffle: Die-cast aluminum
Baffle style: Gasketed bevel

WEIGHT

8": 4.4 lbs - 2.0 kg
10": 5.5 lbs - 2.5 kg
12": 6.6 lbs - 3.0 kg

ACCESSORIES

Soft diffused lens, Solite

Frosted diffused lens

Hex louver

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AERA4-SEAL-CYLINDER-SURFACE-SPEC-REV5 February 6, 2025

PoE

AERA 4" SEAL CYLINDER

SURFACE

Lumenwerx

ENVIRONMENT

For the standard temperature range (STR) option, ambient temperature at fixture location shall be within 0°C/32°F to 25°C/77°F.
For the extended temperature range (ETR) option, ambient temperature at fixture location shall be within -30°C/-22°F to 40°C/104°F.

CERTIFICATION

ETL: Suitable for wet locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.

WARRANTY

Lumenwerx provides a five-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

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Type: E4

SIDEWALKS, BIKE PARKING

WDGE1 LED

Architectural Wall Sconce

Catalog Number

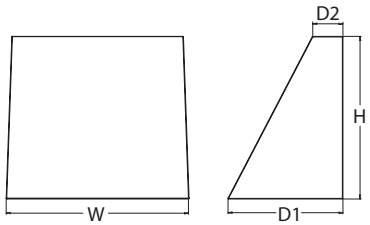
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 5.5"
Depth (D2): 1.5"
Height: 8"
Width: 9"
Weight: (without options) 9 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing true site-wide solution.

WDGE1 delivers up to 2,000 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. The compact size of WDGE1, with its integrated emergency battery backup option, makes it an ideal over-the-door wall-mounted lighting solution.

design select Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI)						
					P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	6,000	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE1 LED P2 40K 80CRI VF MVOLT SRM PE DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE1 LED	P0 P1 P2	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K[1] 5000K	80CRI 90CRI	VF Visual comfort forward throw VW Visual comfort wide	MVOLT 347[2]	**Shipped included** SRM Surface mounting bracket ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only)[3] **Shipped separately** AWS 3/8inch Architectural wall spacer[4] PBBW Surface-mounted back box (top, left, right conduit entry) Use when there is no junction box available.[4]

Options		Finish			
E4WH	Emergency battery backup, Certified in CA Title 20 MAEDBS (4W, 0°C min)[5]	DDBXD	Dark bronze	DDBTXD	Textured dark bronze
PE	Photocell, Button Type[6]	DBLXD	Black	DBLBXD	Textured black
DS	Dual switching (comes with 2 drivers and 2 light engines; see page 3 for details)[7]	DNAXD	Natural aluminum	DNATXD	Textured natural aluminum
DMG	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)	DWHXD	White	DWHGXD	Textured white
BCE	Bottom conduit entry for back box (PBBW). Total of 4 entry points.	DSSXD	Sandstone	DSSTXD	Textured sandstone
DSLE	Dual Switching (1 Driver, 2 Light Engines)				
CCE	Coastal Construction[4]				

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Type: E4

SIDEWALKS, BIKE PARKING

Accessories
Ordered and shipped separately.

WDGEAWS DDBXD	WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGE1PBBW DDBXD U	WDGE1 surface-mounted back box (specify finish)

NOTES
1 50K not available in 90CRI.
2 347V not available with E4WH, DS, DSLE or PE.
3 Not qualified for DLC. Not available with E4WH.
4 For PBBW and AWS with CCE option, require an RFA.
5 E4WH not available with PE or DS.
6 PE not available with DS.
7 DS is not available with P0.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI)					30K (3000K, 80 CRI)					35K (3500K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P0	7W	VF	693	99	0	0	0	718	103	0	0	0	739	106	0	0	0	759	108	0	0	0	764	109	0	0	0
		VW	694	99	0	0	0	720	103	0	0	0	740	106	0	0	0	760	109	0	0	0	766	109	0	0	0
P1	10W	VF	1,120	112	0	0	0	1,161	116	0	0	0	1,194	119	0	0	0	1,227	123	0	0	0	1,235	123	0	0	0
		VW	1,122	112	0	0	0	1,163	116	0	0	0	1,196	120	0	0	0	1,229	123	0	0	0	1,237	124	0	0	0
P2	15W	VF	1,806	120	1	0	0	1,872	125	1	0	0	1,925	128	1	0	0	1,978	132	1	0	0	1,992	133	1	0	0
		VW	1,809	120	1	0	0	1,876	125	1	0	0	1,929	128	1	0	0	1,982	132	1	0	0	1,996	133	1	0	0

Electrical Load

Performance Package	System Watts	Current (A)				
		120V	208V	240V	277V	347V
P0	7W	0.060	0.035	0.030	0.026	--
	9W	--	--	--	--	0.026
P1	10W	0.082	0.049	0.043	0.038	--
	13W	--	--	--	--	0.046
P2	15W	0.132	0.081	0.072	0.064	--
	18W	--	--	--	--	0.056

Lumen Multiplier for 90CRI

CCT	Multiplier
27K	0.845
30K	0.867
35K	0.845
40K	0.885
50K	0.898

Lumen Output in Emergency Mode (4000K, 80 CRI)

Option	Dist. Type	Lumens
E4WH	VF	646
	VW	647

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.95	>0.91

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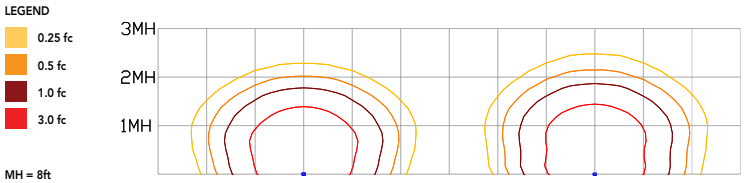
Type: E4

SIDEWALKS, BIKE PARKING

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.



WDGE1 LED P2 40K 80CRI VW

WDGE1 LED P2 40K 80CRI VF

Emergency Egress Options

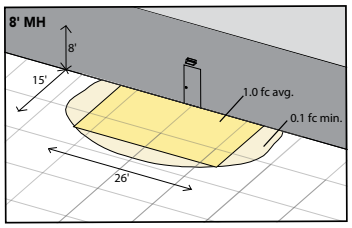
Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The example below shows illuminance of 1 fc average and 0.1 fc minimum in emergency mode with E4WH and VF distribution.

Grid = 10ft x 10ft

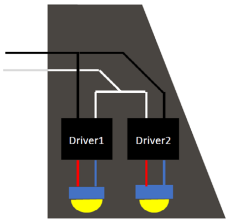


WDGE1 LED xx 40K 80CRI VF MVOLT E4WH

Dual Switching (DS) Option

The dual switching option offers operational redundancy that certain codes require. With this option the luminaire comes integrated with two drivers and two light engines. These work completely independent to each other so that a failure of any individual component does not cause the whole luminaire to go dark.

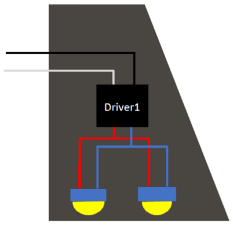
Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9



Dual Switching Light Engine (DSLE) Option

The dual switching option offers operational redundancy that certain codes require. With this option the luminaire comes integrated with one driver and two light engines. These work completely independent to each other so that a failure of either light engine does not cause the whole luminaire to go dark.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9



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Type: E4

SIDEWALKS, BIKE PARKING

Mounting, Options & Accessories

E4WH – 4W Emergency Battery Backup

D = 5.5"
H = 8"
W = 9"

PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"
H = 8"
W = 9"

AWS – 3/8inch Architectural Wall Spacer

D = 0.38"
H = 4.4"
W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE
Common architectural look, with clean rectilinear shape, of the WDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP66 rating for the luminaire.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Well crafted reflector optics allow the light engine to be recessed within the luminaire, providing visual comfort, superior distribution, uniformity, and spacing in wall-mount applications. The WDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP66 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 2700K and 3000K color temperature only and SRM mounting only.

GOVERNMENT PROCUREMENT
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Type: E5

CTE COURTYARD CANOPY

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

VIA 3 SEAL

SURFACE
DIRECT
STATIC WHITE, BIOS

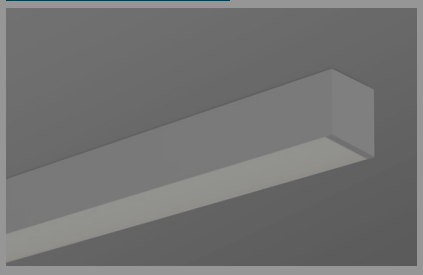
VIA WEATHER SERIES

Lumenwerx

5 YEAR WARRANTY

Project:

Type:



DESCRIPTION

Sealed with silicone gaskets, Via Seal fixtures are intended for wet locations and can be pendant, surface, wall, or recessed mounted. They can be used one as discrete luminaires, or be arranged in continuous lines or patterns. Via Seal is suitable for wet locations where temperatures are moderate, and in which spaces are regularly wiped down and frequently in contact with debris and moisture. The fixture can be used to create continuous, unbroken lines of light. Via 3 Seal is also offered as Wet Listed certified by ETL (Electrical Testing Laboratories), in which case, it is able to withstand smaller particles of debris and light water infiltration. Via 3 Seal Wet Listed can also be used to create continuous lines of light, but with subtle breaks at 12' increments. See separate specsheets for pendants and other available mountings.

SENSORS
For latest information on sensors, click here.

IMPORTANT
Fixture must be installed with sensor shown.

IK05

LEVEL 1 LEVEL 2

Up to 113 lm/W performance

Order Guide

LUMINAIRE ID	DISTRIBUTION	ENVIRONMENT [1]	OPTIC	LIGHT SOURCE [4]
V3SEALS	**D**			
V3SEALS - Via 3" Seal Surface	**D** - Direct	**WET** [2] - Wet Suitable (IP44) **WETL** [2,3] - Wet Listed (IP54) [1] See page 2 for more information on each environment option. [2] Suitable for outdoor environments only when installed under canopy. Not suitable for extreme weather environments. Consult factory for low temperature applications. [3] Can be slightly exposed to water. A minimal shadow line is visible every 12'.	**EPDO** - Environmentally Protected Direct Optic **ASDO** - Asymmetric Soft Direct Optic	**SW** - Static white **BIOSST** [5] - BIOS Biological Static **BIOSDY** [5] - BIOS Biological Dynamic **BIOSTU** [5] - BIOS Biological Tunable [4] Chromawerx SOLA and DUO also available. Consult other spec sheet. [5] See page 4 for details.

CRI	LUMEN PACKAGE	COLOUR TEMP.	LUMINAIRE LENGTH	VOLTAGE	DRIVER [11]
80CRI - 80 CRI **90CRI** [6] - 90 CRI [6] Not available with BIOS.	**500LMF** - Low output 500 lm/ft **750LMF** [7] - Medium output 750 lm/ft **1000LMF** [7] - High output 1000 lm/ft [7] Not available with BIOS.	**27K** [8] - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K **50K** - 5000K [8] Not available with BIOS.	**#FT#IN** [9] - Specify nominal length (#) in 1' and/or 1" increments **Standard nominal lengths:** Single units: 2' to 12' Continuous runs: lengths over 12' [9] Minimum 2'.	**120V** - 120V **277V** - 277V **UNV** - 120V-277V **347V** [10] - 347V [10] Available with D1 driver only.	**D1** - 1% 0-10V **DA** [12] - DALI **LDE1** [12] - Lutron Hi-lume 1% Eco **ELD1** - eldoLED 1% ECOdrive 0-10V **ELD0** - eldoLED 0.1% SOLOdrive 0-10V **RLTD10** [13] - Low-temperature 10% 0-10V [11] PoE (Power-over-Ethernet) compatible. Consult factory for details. [12] On-site commissioning is required. [13] Remote driver box required. Suitable for temperatures down to -40°C/F.

ELECTRICAL	ELECTRICAL SECTIONS (optional) [18,19]	POWER FEED	MOUNTING	FINISH	OPTION
			GSM		
1C - 1 circuit **#C** [14] - Multi circuit **E** - Emergency-powered fixture **NL** - Night light fixture **DL** - Daylight fixture **GTD** [15,16,17] - Generator transfer device fixture [14] Specify total number of circuits (#), including any circuits required for electrical section options. Provide drawing or layout specifications. Minimum 4' section per circuit. [15] Minimum 4' fixture. [16] Not available with 347V. [17] Not available for environments where the ambient temperature falls below 0°C (32°F).	**#EC##** [20] - Emergency-powered section **#NL##** [20] - Night light section **#DL##** [20] - Daylight section **#GTD##** [20,21,22,23] - Generator transfer device section **#EMB** [22,23,24] - Emergency battery **NA** - None [18] Specify with multi circuit (#MC) electrical option only. [19] Provide drawing or layout specifications. Consult factory for other configurations. Default section length is 4'. [20] Specify quantity (#), and section length in inches (##). [21] Minimum 4' section. [22] Not available with 347V. [23] Not available for environments where the ambient temperature falls below 0°C (32°F). [24] Specify quantity (#). All batteries will be on the same circuit. Each battery powers a 4' section.	**TF** - Top feed **EF** - End feed	**GSM** - Gasketed surface mount	**W** - Matte white **AL** - Aluminum **B** - Matte black **WA** - White antimicrobial Silverwerx **CF#** - Custom finish, specify RAL#	**CRF** - Corrosion-resistant finish **NA** - None

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bios PoE WELL WELL

Type: E5

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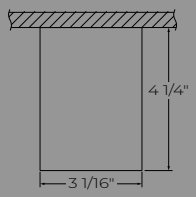
Dimensions



Environment Options

The Via Weather Series offers four levels of protective sealing: Level 1, Level 2, Level 3, and Level 4.
Via 3 Seal is available with two environment options: Wet Suitable (WET) at Level 1 and Wet Listed (WETL) at Level 2.
For other levels of protective sealing, please see Via Wet spec sheets for Level 3 and Via Splash spec sheets for Level 4.

FEATURES	Wet Suitable (IP44) (WET)	Wet Listed (IP54) (WETL)
Indoor application that requires wipe down	•	•
Healthcare application	•	•
Outdoor application with restrictions: under canopy only	•	•
Outdoor application with restrictions: under canopy, slightly exposed	x	•
Continuous line of light over 12'	•	x
Water and dust resistant	•	•
Water and dust protected	x	•
Not suitable for extreme weather applications	•	•
Damp listed	•	x
Wet listed	x	•

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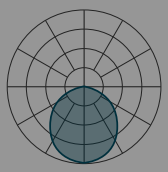
Photometrics

MULTIPLIER TABLE

Please follow the multiplier table to ensure correct lumen value. CCT and CRI, will change the lumen output

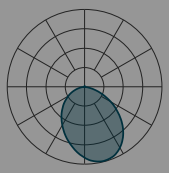
Multiplier - CCT/CRI

CCT	WATTS		LPW	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	1.06	1.27	0.94	0.79
3000K	1.02	1.23	0.98	0.81
3500K	1.00	1.19	1.00	0.84
4000K	1.00	1.18	1.00	0.85
5000K	0.95	1.12	1.05	0.89



EPDO - Delivered Lumens at 4000K at 80 CRI

LUMENS PER FOOT	TOTAL LUMENS PER 4FT	INPUT WATTS	LPW
500	2000	19.8	101
750	3000	30.7	98
1000	4000	42.3	95



ASDO - Delivered Lumens at 4000K at 80 CRI

LUMENS PER FOOT	TOTAL LUMENS PER 4FT	INPUT WATTS	LPW
500	2000	17.7	113
750	3000	27.9	107
1000	4000	39	103

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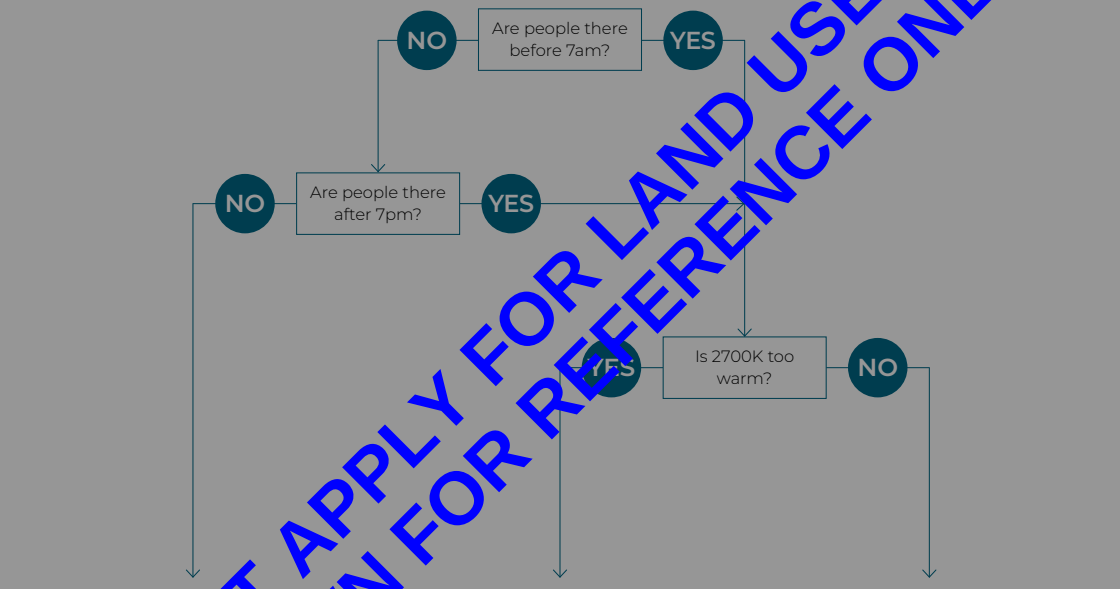
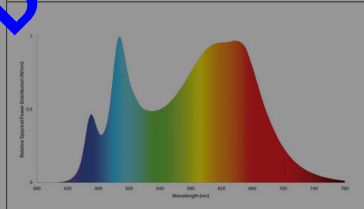
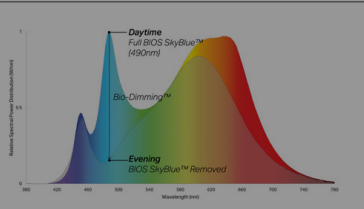
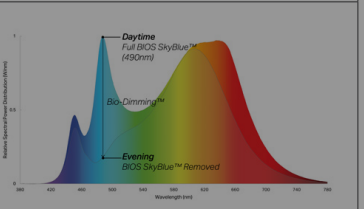
BIOS

Three BIOS Circadian LED solutions are offered – Biological Static, Biological Dynamic, and Biological Tunable. Use the decision tree below to identify when and where to use BIOS Wellness LED Lighting Solutions.



Biological Static BIOSST	Biological Dynamic BIOSDY	Biological Tunable BIOSTU
No CCT change when dimmed	500K shift when dimmed	Dims to 2700K
Daytime solution	Daytime + evening solution	Daytime + evening solution
Spaces in operation during daytime hours, between 7am and 7pm	Spaces in operation overnight, after 7pm and before 7am, and when CCT color shift in the evening is not preferred	Suitable for spaces in operation overnight, after 7pm and before 7am, and where people do not sleep (CCT color shift in the evening is preferred)
E.g. offices, medical/dental offices	E.g. hospitals	E.g. offices, shiftwork
		

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Technical Specifications

OPTICS

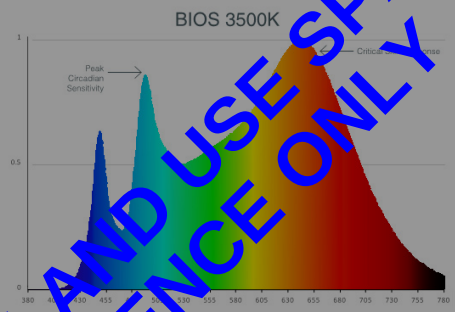
Environmentally Protected Direct Optic (EPDO)
The Environmentally Protected Direct Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. This extruded snap-in lens has a gasket to ensure proper sealing. The lens is 1/16" thick and made of frosted polycarbonate. Internally, white, side kicking reflectors guide the light through the lens. The EPDO suits moderate climate environments.

Asymmetric Soft Direct Optic (ASDO)
The Asymmetric Soft Direct Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. This extruded snap-in lens has a gasket to ensure proper sealing. The lens is 1/16" thick and made of frosted polycarbonate. Internally, white, side kicking reflectors specifically angled to guide the light through the lens to create a nice asymmetric distribution. The ASDO suits moderate climate environments.

LIGHT SOURCE

Static white
Custom linear array of mid-flux LEDs are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 2700K, 3000K, 3500K, 4000K and 5000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

BIOS
BIOS SkyBlue™ Technology is designed to provide the specific circadian stimulus to improve overall sleep quality, recovery during the night and overall feelings of well-being.
The non-visual light signals that stimulate our circadian system have a peak intensity in the "sky blue" region. As the diagram below illustrates, BIOS SkyBlue technology shifts the peak LED spectral intensity (490 nm) to align better with the peak response of circadian stimulus. Also note the enhanced deep-red (near 660 nm) spectrum.



Three BIOS solutions are offered: BIOS Biological Static (BIOSST), BIOS Biological Dynamic (BIOSDY), and BIOS Biological Tunable (BIOSTU). See page 4 for details.

WELL BUILDING STANDARD

WELL for Light: The WELL building standard focuses on light quality in several features. There are three categories that are fully attributed to the construction and features of a luminaire. In WELL V1, it's Feature 54 Circadian Lighting, Feature 55 Glare Control, and Feature 58 Color Quality. In WELL V2, it's Feature L03 Circadian Lighting, Feature L04 Glare Control, and Feature L07 Electric Light Quality.

This fixture meets Features:
- Feature 54 or L03 when BIOS LED is selected
- Feature 55 or L04 meets WELL glare category (c-d) (not applicable with 1000 lm/ft)
- Feature 58 or L07 when 90 CRI is selected

All LED drivers used at Lumenwerx are deemed to have a low risk level of flicker, of 5 % or less below 90Hz operational as defined by IEEE standard 1789-2015 LED.

WELL for Mind: This luminaire meets WELL for mind as it is a human centric luminaire offering quality light, excellent color, and smooth optics. If any of these features are incorporated in a luminaire, it can improve the ability to focus, concentrate, and persist longer on a given task. This fixture harmoniously operates in a space to assist the mind.

For more information, please contact well@lumenwerx.com

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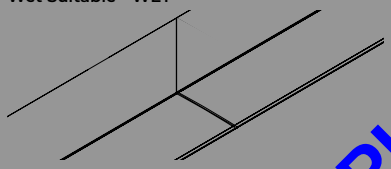
LUMINAIRE LENGTH

Via 3 Seal is available in standard lengths of 2' to 12'. Continuous runs are available for run lengths over 12'. Exact run length must be noted in the product code. The minimum length is 2' and can be ordered in 1' and/or 1" increments. All individual sections are joined together onsite using the joiner kits provided. Lumenwerx joiner kits are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.

JOINING SYSTEM

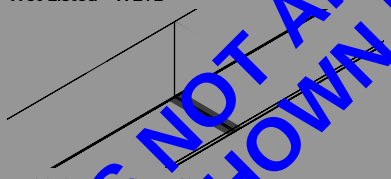
All individual sections are joined together onsite using the ¼"-20 screws and nuts provided. With the Wet Suitable (WET) option, the junction between two adjacent sections creates a continuous line of light without shadows. With the Wet Listed (WETL) option, the junction between two adjacent sections is sealed with a silicone gasket, creating a slight visible break in the line of light every 12'.

Wet Suitable - WET



Continuous line of light

Wet Listed - WETL



Visible break in line of light

ELECTRICAL

Factory set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours @50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% Ecosystem, eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant. An optional low-temperature 10% 0-10V driver, suitable for temperatures down to -40°C/F is also available.

PoE

Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lamp package, DUO (tunable white), QUADRO (RGBW), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

ELECTRICAL SECTION OPTIONS

Electrical section options are available for fixtures specified as multi circuit (#MC). With MC specify the total number of circuits (#), including any circuits required for optional electrical sections. A drawing is required to specify the layout. Please consult factory for custom configurations.

Electrical sections

Options include emergency-powered light (#EC##), night light (#NL##), daylight (#DL##), and generator transfer device (#GTD##) sections. Specify the quantity (#), as well as the section length in inches (##).

Example 1: A 32' Direct fixture with two 8' emergency light sections on a second circuit.
Code: 2MC-2EC96

Example 2: A 24' Direct fixture with one 4' generator transfer device section.
Code: 1MC-1GTD48

Battery

Each emergency battery (#EMB) powers a 4' section. All batteries will be on the same circuit. Specify the number of batteries (#) required.
Factory installed long life, high temperature, maintenance-free Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. Minimum of 90 minutes operation, up to 1000 lumens per 4' (25°C) emergency lighting output and recharge time of 24 hours. Suited for ambient temperatures of 0°C (32°F) to 55°C (131°F).

Generator Transfer Device (GTD)

A UL924 listed shunt relay that can bypass both line voltage (120-277V) and 0-10V dimming signal. Suited for ambient temperatures of 0°C (32°F) to 60°C (140°F).

MOUNTING

Fixtures can be mounted directly to hard surface ceilings only. Hardware supplied by others. Long runs require a minimum of 6" from the vertical wall.

3737 Cote Vertu St-Laurent, Quebec, Canada H4R 2C9
T (514) 225-4304 F (514) 931 -4862
www.Lumenwerx.com

Intertek

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VIA3SEAL-SURFACE-SPEC-REV4 January 22, 2025

bios PoE WELL WELL

Type: E5

CTE COURTYARD CANOPY

VIA 3 SEAL

SURFACE
DIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

Lumenwerx

DOES NOT APPLY FOR LAND USE SPACES
SHOWN FOR REFERENCE ONLY

FINISH

Interior: 95%, reflective matte powder coated white paint
Exterior: Powder-coat paint in matte white, matte black, or aluminum. Custom finishes are also available. Optional antimicrobial finish.

CONSTRUCTION

Housing: Extruded aluminum, up to 90% recycled content
Interior brackets: Die-formed cold rolled sheet steel
Joining system (WETL): Steel joiners with closed-cell silicone foam joiner gasket
Reflectors: Die-formed cold rolled sheet steel, 95% reflective matte white painted
End cap: Die-cast aluminum
End cap gasket: 1/16" closed-cell silicone foam
Mounting: Sealing washer for 1/4" threaded rods

WEIGHT

4': 12.8 lbs - 5.8 kg
8': 23.6 lbs - 10.7 kg
12': 34.4 lbs - 15.6 kg

CERTIFICATIONS

ETL: WET environment option is rated for dry/damp locations. WETL environment option is ETL Wet Listed. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0. During the installation of WETL fixtures, the contractor is responsible for properly sealing all mounting and electrical connection points.
IK05: Impact resistance rated to IK05.

WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

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VIA3SEAL-SURFACE-SPEC-REV4 January 22, 2025

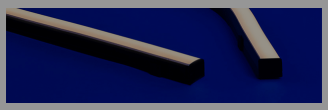
Type: E6

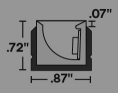
BENCHES, STAIRS

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures





- Flexible encapsulated fixture with black housing
- Side bend
- 10" bend radius
- Interior and exterior rated
- Five different mounting options
- Available in a seamless configuration for a continuous line of light
- Utilize clear endcaps for continuous runs
- Q-CAP flexible fixtures are not field cuttable
- IK10 impact rated

1 PRODUCT	2 MOUNTING	3 RATED	4 CCT	5 WATTAGE	6 LENS	7 WIRE INPUT/ OUTPUT	8 CONNECTOR/ WIRE IN	9 CONNECTOR/ WIRE OUT	10 END CAPS	11 LENGTH (IN)	12 EXACT/ OPTIMAL
KURV-BK-SW											

Sample Part Number: **KURV-BK-SW-PPS-2-DRY-30-5.0-ENC/TL-P1-BW-BW-N/A-48"-E**

1 PRODUCT

KURV-BK-SW

See last page for compatible power supplies.

2 MOUNTING

PL	Plastic Clip
PPS-2	PVC Clip
PPS-96	PVC Channel
PPS-FT	PVC Channel Custom Length
BN-SB-BK-16'	16' BENDIT Side Black Stainless Channel
BN-SB-BK-32'	32' BENDIT Side Black Stainless Channel

PPS mounting clip recommended for seamless applications

3 RATED

DRY	IP20
WET	IP67

4 CCT

24	2400K
27	2700K
30	3000K
35	3500K
40	4000K

5 WATTAGE

1.5	1.5W-SO
3.0	3.0W-HO
5.0	5.0W-VHO
1.5HE	1.5WHE-SO
3.0HE	3.0WHE-HO
6.0HE	6.0WHE-VHO

SO: Standard Output
HO: High Output
VHO: Very High Output

6 LENS

ENC/CL	Encapsulated in Clear
ENC/TL	Encapsulated in Translucent

For representation of LED visibility, see Diode Visibility section on following pages

7 WIRE INPUT/OUTPUT

S1	Single 1 (Input only) - End Feed
S2	Single 2 (Input only) - Bottom Feed
S3	Single 3 (Input only) - Left Side Feed
S4	Single 4 (Input only) - Right Side Feed
S5	Single 5 (Input only) - Seamless Feed
S6	Single 6 (Input only) - Seamless Feed

P1	Pass Through 1 (Input/Output) - End Feed
P2	Pass Through 2 (Input/Output) - Bottom Feed
P3	Pass Through 3 (Input/Output) - Left Side Feed
P4	Pass Through 4 (Input/Output) - Right Side Feed
P5	Pass Through 5 (Input/Output) - Seamless Feed
P6	Pass Through 6 (Input/Output) - Seamless Feed

8 CONNECTOR/WIRE IN

BW	Bare Wire (Standard 24")
BRL	Barrel
CON6	Connector 6"
CON24	Connector 24"

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

BW	Bare Wire (Standard 24")
BRL	Barrel
CON6	Connector 6"
CON24	Connector 24"

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

9 CONNECTOR/WIRE OUT

N/A	Closed End (No feed)

BW	Bare Wire (Standard 24")
BRL	Barrel
CON6	Connector 6"
CON24	Connector 24"

Connector/Wire Out not needed to specify product. Typical selection is N/A or BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

10 END CAPS

Single

CL	Clear
BK	Black

Pass Through

N/A	Not Applicable

11 LENGTH (IN)

Fixture length min 12", max 188". Consult factory for lengths under 12".
SW: Available in 1" increments.
SW-HE: Available in 2" increments.

12 EXACT/OPTIMAL

O	Optimal Illumination
E	Exact Specified Length

Exact fixtures are the exact length specified +0 – 1/8".
Optimal fixtures' length is rounded down with illumination end to end.
See Exact/Optimal Fixture Length charts.

PRODUCT NOT USED IN CALCULATIONS
SHOWN FOR REFERENCE ONLY

5 year warranty | Field modifications are not covered under QTL warranty | Side Bend | Data subject to change, all data has +/- 5% tolerance | PPS-FT is to be cut at QTL to requested length | Ambient or mounting surface must not be lower than -4°F or higher than: SO - 125°F; HO - 115°F; VHO - 108°F | Not field cuttable

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Specification subject to change. Rev-12-20-24

Type: E6

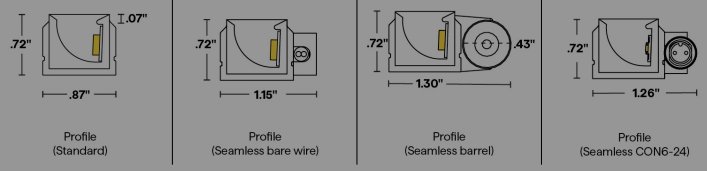
BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

PRODUCT NOT USED IN CALCULATIONS
SHOWN FOR REFERENCE ONLY

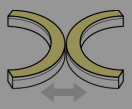
1 PRODUCT - DIMENSIONS



Profile (Standard) | Profile (Seamless bare wire) | Profile (Seamless barrel) | Profile (Seamless CON6-24)

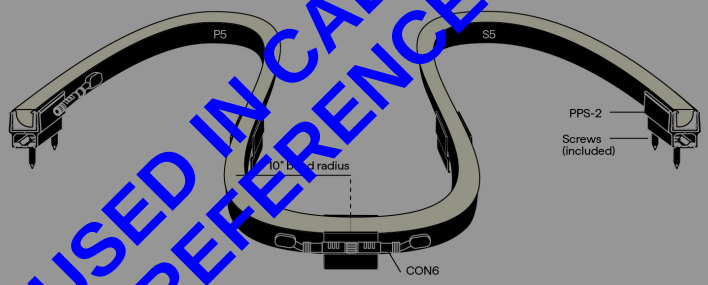
BEND RADIUS

Side Bend



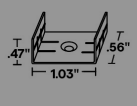
10" bending radius

FLEXIBILITY



2 MOUNTING

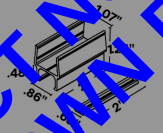
PL



Plastic Clip
Black clip standard
black extrusion

To order separately use PLC-03-

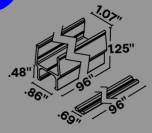
Each clip comes with a #4x5/8" flat screw



Mounting Clip

To order separately use KURV-BK-PPS-2

PPS-96

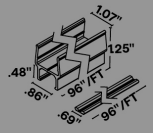


96" straight linear run

To order separately use KURV-BK-PPS-96

Each clip comes with a #8" flat screw

PPS-FT

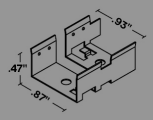


PVC channel
Custom length

To order separately use KURV-BK-PPS-FT

Each clip comes with a #8" flat screw

BN-SB



BENDIT Channel
Horizontal Stainless Steel Flexible Channel

Continuous mounting solution for flexible fixtures, 16' or 32' field cuttable lengths

To order separately use either STND-QCAP-BN-SB-W-BK-16', or STND-QCAP-BN-SB-W-BK-32'

64 #4-40 1/2" screws provided per 16'

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Specification subject to change. Rev-12-20-24

Type: E6

BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

4/5 DELIVERED LUMENS

[Calculated L70 = 40000 hrs]
Tested with KURV-BK-SW-PL-DRY

CCT	1.5W/FT				1.5HE W/FT				3.0W/FT				3.0HE W/FT				5.0W/FT				6.0HE W/FT			
	ENC/CL		ENC/TL		ENC/CL		ENC/TL		ENC/CL		ENC/TL		ENC/CL		ENC/TL		ENC/CL		ENC/TL		ENC/CL		ENC/TL	
	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI	LM	CRI
2400K	109	94	102	95	132	93	132	92	195	93	180	93	269	94	267	93	271	94	258	95	460	93	455	92
2700K	108	97	101	97	150	95	143	95	205	97	192	98	276	96	259	94	275	99	243	99	483	96	459	97
3000K	116	98	107	98	146	97	158	95	209	98	194	98	302	97	286	96	292	98	271	97	513	97	500	96
3500K	119	96	113	95	156	98	141	98	210	96	200	97	289	98	289	98	300	97	291	96	545	98	476	97
4000K	127	96	120	96	146	97	126	97	227	97	211	97	295	97	255	97	291	97	281	97	513	97	441	97

6 DIODE VISIBILITY

ENC/CL - Clear encapsulation

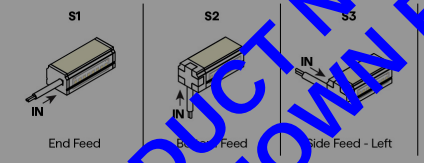
ENC/TL - Translucent encapsulation

TEMPERATURE RATINGS

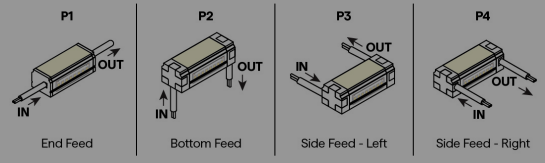
	1.5 W/FT		1.5 HE W/FT		3.0 W/FT		3.0 HE W/FT		5.0 W/FT		6.0 HE W/FT	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Ambient Operating Temp - Surface	-4°F	135°F	-4°F	140°F	-4°F	125°F	-4°F	125°F	-4°F	110°F	-4°F	100°F
Storage Temp	-4°F	140°F	-4°F	140°F	-4°F	140°F	-4°F	140°F	-4°F	140°F	-4°F	140°F
Installation Temp	50°F	100°F	50°F	100°F	50°F	100°F	50°F	100°F	50°F	100°F	50°F	100°F

7 WIRE INPUT/OUTPUT

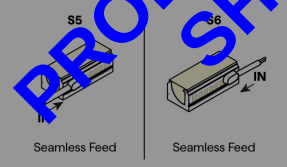
SINGLE (Input only)



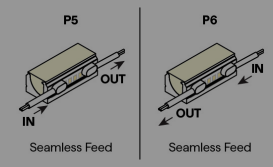
PASS THROUGH (Input/Output)



SEAMLESS SINGLE (Input only)



SEAMLESS PASS THROUGH (Input/Output)



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Specification subject to change. Rev-12-20-24

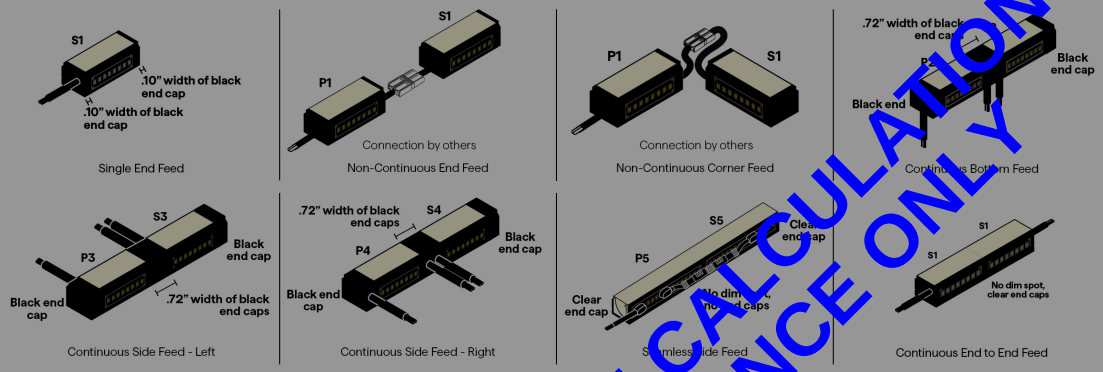
Type: E6

BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

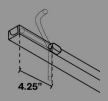
24VDC Flexible Fixtures

CONFIGURATION OPTIONS



SEAMLESS

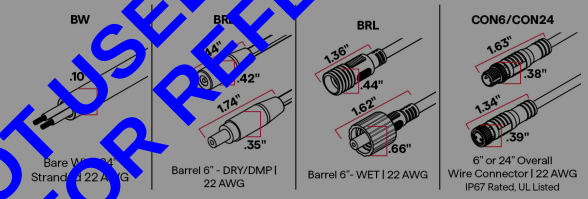
Shown with bare wire, connectors vary



Omnidirectional wireways
S5, S6, P5, P6

8/9 CONNECTOR/WIRE - IN/OUT

Connector/Wire In or Out not specified to specify product. Typical selection is S1 for Wire Input/Output, BW for Connector/Wire In, N/A for Connector/Wire Out, and BK for End Caps.



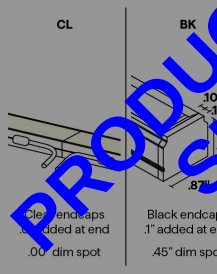
Bare Wire 4 Stranded 22 AWG

Barrel 6" - DRY/DMP | 22 AWG

Barrel 6"- WET | 22 AWG

6" or 24" Overall Wire Connector | 22 AWG
IP67 Rated, UL Listed

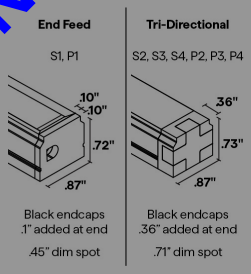
10 END CAPS (NO FEED)



Clear endcaps
.0" added at end
.00" dim spot

Black endcaps
.1" added at end
.45" dim spot

END CAPS (WITH FEED)

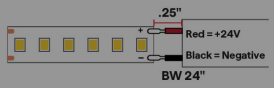


Black endcaps
.1" added at end
.45" dim spot

Black endcaps
.36" added at end
.71" dim spot

11 LENGTH - WIRING DETAIL

1.5W, 3.0W, 5.0W | Available in 1" increments 12"-188"



1.5HEW, 3.0HEW, 6.0HEW | Available in 2" increments 12"-188"

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Specification subject to change. Rev-12-20-24

Type: E6

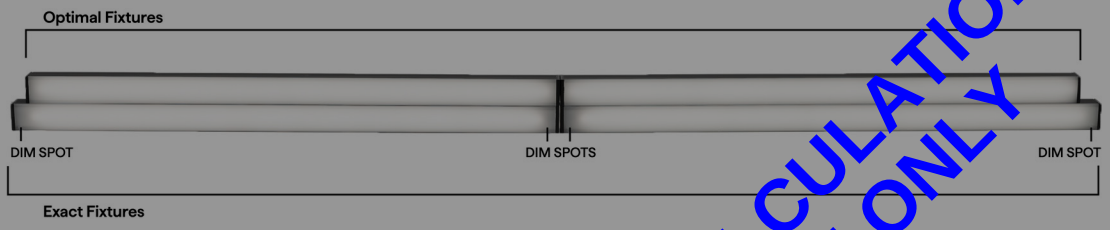
BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

12 EXACT/OPTIMAL FIXTURE LENGTH

Exact fixtures are the exact length specified. Optimal fixtures' length is rounded down based on LED cut points to allow the fixture to be illuminated end to end. For runs with multiple fixtures that need to fill a specific length, it's recommended to order all optimal fixtures with an exact fixture at the end of the run.



SW LENGTHS BY INCH

Available in any length in between 12" and 191", chart below shows example lengths. Exact fixtures are the length specified. Optimal fixture length is rounded down with illumination end to end. All fixtures' tolerance is +0 – 1/8". Consult factory for lengths under 12".

EXACT LENGTH

Requested Length	Potential dim spot on either end of fixture
12"	.5"
13"	.5"
14"	.5"
15"	.5"
16"	.5"
17"	.5"
18"	.5"
19"	.5"
20"	.5"
21"	.5"
22"	.5"
23"	.5"
24"	.5"
36"	.5"
48"	.5"
60"	.5"
72"	.5"
84"	.5"
96"	.5"

OPTIMAL LENGTH

Requested Nominal Length	S1	S2 & S3 & S4	P1	P2 & P3 & P4	S5 & S6 & P5 & P6
	End Feed	Bottom Feed / Side Feed - Left / Side Feed - Right	End Feed	Bottom Feed / Side Feed - Left / Side Feed - Right	Seamless Feed
12"	11.75"	12"	12"	11.625"	11.5"
13"	12.75"	13"	13"	12.625"	12.5"
14"	13.75"	14"	14"	13.625"	13.5"
15"	14.75"	15"	15"	14.625"	14.5"
16"	15.75"	16"	16"	15.625"	15.5"
17"	16.75"	17"	17"	16.625"	16.5"
18"	17.75"	18"	18"	17.625"	17.5"
19"	18.75"	19"	19"	18.625"	18.5"
20"	19.75"	20"	20"	19.625"	19.5"
21"	20.75"	21"	21"	20.625"	20.5"
22"	21.75"	22"	22"	21.625"	21.5"
23"	22.75"	23"	23"	22.625"	22.5"
24"	23.75"	24"	24"	23.625"	23.5"
36"	35.75"	36"	36"	35.625"	35.5"
48"	47.75"	48"	48"	47.625"	47.5"
60"	59.75"	60"	60"	59.625"	59.5"
72"	71.75"	72"	72"	71.625"	71.5"
84"	83.75"	84"	84"	83.625"	83.5"
96"	95.75"	96"	96"	95.625"	95.5"

PRODUCT NOT USED IN CALCULATIONS
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Type: E6

BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

SW-HE LENGTHS BY INCH

Available in any length in between 12" and 191", chart below shows example lengths. Exact fixtures are the length specified. Optimal fixtures' length is rounded down with illumination end to ensure all fixtures' tolerance is +0 – 1/8". Consult factory for lengths under 12".

EXACT LENGTH

Requested Length	Potential dim spot on either end of fixture
12"	1"
13"	.5"
14"	1"
15"	.5"
16"	1"
17"	.5"
18"	1"
19"	.5"
20"	1"
21"	.5"
22"	1"
23"	.5"
24"	1"
36"	1"
48"	1"
60"	1"
72"	1"
84"	1"
96"	1"

OPTIMAL LENGTH: highlighted rows are closest to requested nominal length

Requested Nominal Length	S1	S2 & S3 & S4			P1	P2 & P3 & P4			S5 & S6 & P5 & P6	
	S1 End Feed	S2 Bottom Feed	S3 Side Feed - Left	S4 Side Feed - Right	P1 End Feed	P2 Bottom Feed	P3 Side Feed - Left	P4 Side Feed - Right	S5 Seamless Feed	P5 Seamless Feed
12"	10.75"	11.125"			11"				10.5"	
13"	12.75"	13.125"			13"				12.5"	
14"	12.75"	13.125"			13"				12.5"	
15"	14.75"	15.125"			15"				14.5"	
16"	14.75"	15.125"			15"				14.5"	
17"	16.75"	17.125"			17"				16.5"	
18"	16.75"	17.125"			17"				16.5"	
19"	18.75"	19.125"			19"				18.5"	
20"	18.75"	19.125"			19"				18.5"	
21"	20.75"	21.125"			21"				20.5"	
22"	20.75"	21.125"			21"				20.5"	
23"	22.75"	23.125"			23"				22.5"	
24"	22.75"	23.125"			23"				22.5"	
36"	34.75"	35.125"			35"				34.5"	
48"	46.75"	47.125"			47"				46.5"	
60"	58.75"	59.125"			59"				58.5"	
72"	70.75"	71.125"			71"				70.5"	
84"	82.75"	83.125"			83"				82.5"	
96"	94.75"	95.125"			95"				94.5"	

COMPATIBLE POWER SUPPLIES

See power supplies cut sheets for more information. Data subject to change, all data has +/- 5% tolerance.

DIM TO LEVEL	INDOOR		OUTDOOR	
	SW24/1.5-4.0	SW24/5.0, SW-HE, SW-HE+	SW24/1.5-4.0	SW24/5.0, SW-HE, SW-HE+
Dim to Black	Q6M-DC+CAP QTM-DC+CAP iQ-PH iQ-PH+QD1	Q6M-DC+CAP QTM-DC+CAP iQ-PH iQ-PH+QD1	QOM-DC+CAP QOM-PH	QOM-DC+CAP QOM-PH
0.1%	QT-CAB-QZ-PH/0-10V QT-CAB-eLED+0-10V QT-CAB-eLED+0-10V-AWN QTM-eLED+0-10V QTM-eLED+0-10V-AWN QZ-BOWTIE+DIMMER QZ-DMX QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP	QT-CAB-QZ-PH/0-10V QT-CAB-eLED+0-10V QT-CAB-eLED+0-10V-AWN QTM-eLED+0-10V QTM-eLED+0-10V-AWN QZ-BOWTIE+DIMMER QZ-DMX QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP	Q-SET-QZ-DMX Q-SET-QZ-PH/0-10V Q-SET-eLED+0-10V QOM-eLED+0-10V QZ-DMX QZ-PH/0-10V	Q-SET-QZ-DMX Q-SET-QZ-PH/0-10V Q-SET-eLED+0-10V QOM-eLED+0-10V QZ-DMX QZ-PH/0-10V
1%	QT-CAB-eLED+DALI-DT6 QT-CAB-eLED+DALI-DT6-AWN QTM-eLED(E) QTM-eLED+DALI-DT6 QTM-eLED+DALI-DT6-AWN QZ-DALI-DT6	QT-CAB-eLED+DALI-DT6 QT-CAB-eLED+DALI-DT6-AWN QTM-eLED(E) QTM-eLED+DALI-DT6 QTM-eLED+DALI-DT6-AWN QZ-DALI-DT6	Q-SET+QZ-DALI-DT6 QOM-eLED+DALI-DT6 QOM-eLED+PS-DALI-DT6	Q-SET+QZ-DALI-DT6 QOM-eLED+DALI-DT6 QOM-eLED+PS-DALI-DT6
10%	Non-Dim Power Supply with SW App Dongle	Non-Dim Power Supply with SW App Dongle	Q-HEX-mini-DC Q-SET-mLED	

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Type: E6

BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

DIMMING PROTOCOL	INDOOR		OUTDOOR	
	SW24/1.5-4.0	SW24/5.0, SW-HE, SW-HE+	SW24/1.5-4.0	SW24/5.0, SW-HE, SW-HE+
Non-Dim	QT-CAB-eLED-ND QTM-eLED-ND QZ-ND	QT-CAB-eLED-ND QTM-eLED-ND QZ-ND	Q-SET-QZ-ND Q-SET-eLED-ND QOM-eLED-ND QZ-ND iQ-ND-50-65	Q-SET-QZ-ND Q-SET-eLED-ND QOM-eLED-ND QZ-ND iQ-ND-50-65
Phase	Q6M-DC+CAP QT-CAB-QZ-PH/0-10V QTM-DC+CAP QTM-eLED(E) QZ-BOWTIE+DIMMER QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP iQ-PH iQ-PH+QD1	Q6M-DC+CAP QT-CAB-QZ-PH/0-10V QTM-DC+CAP QTM-eLED(E) QZ-BOWTIE+DIMMER QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP iQ-PH iQ-PH+QD1	Q-HEX-mini-DC Q-SET-QZ-PH/0-10V Q-SET-mLED QOM-DC+CAP QOM-PH QZ-PH/0-10V	Q-SET-QZ-PH/0-10V QOM-DC+CAP QOM-PH QZ-PH/0-10V
0-10V	QT-CAB-QZ-PH/0-10V QT-CAB-eLED+0-10V QT-CAB-eLED+0-10V-AWN QTM-eLED+0-10V QTM-eLED+0-10V-AWN QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP	QT-CAB-QZ-PH/0-10V QT-CAB-eLED+0-10V QT-CAB-eLED+0-10V-AWN QTM-eLED+0-10V QTM-eLED+0-10V-AWN QZ-PH/0-10V QZ-STICK-PH/0-10V QZLP	Q-SET-QZ-PH/0-10V Q-SET-eLED+0-10V QOM-eLED+0-10V QZ-PH/0-10V	Q-SET-QZ-PH/0-10V Q-SET-eLED+0-10V QOM-eLED+0-10V QZ-PH/0-10V
Lutron Athena	QT-CAB-eLED+0-10V-AWN QT-CAB-eLED+DALI-DT6-AWN QTM-eLED+0-10V-AWN QTM-eLED+DALI-DT6-AWN	QT-CAB-eLED+0-10V-AWN QT-CAB-eLED+DALI-DT6-AWN QTM-eLED+0-10V-AWN QTM-eLED+DALI-DT6-AWN		
ECO System	QTM-eLED(E)	QTM-eLED(E)		
DMX	QZ-DMX	QZ-DMX	Q-SET-QZ-DMX QZ-DMX	Q-SET-QZ-DMX QZ-DMX
DALI-2: DT6	QT-CAB-eLED+DALI-DT6 QT-CAB-eLED+DALI-DT6-AWN QTM-eLED+DALI-DT6 QTM-eLED+DALI-DT6-AWN QZ-DALI-DT6	QT-CAB-eLED+DALI-DT6 QT-CAB-eLED+DALI-DT6-AWN QTM-eLED+DALI-DT6 QTM-eLED+DALI-DT6-AWN QZ-DALI-DT6	Q-SET+QZ-DALI-DT6 QOM-eLED+DALI-DT6	Q-SET+QZ-DALI-DT6 QOM-eLED+DALI-DT6
SCENE App Dimmed	Non-Dim Power Supply with SW App Dongle	Non-Dim Power Supply with SW App Dongle		

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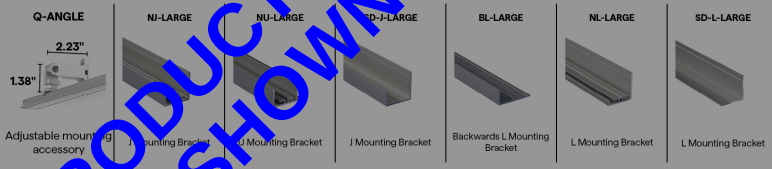
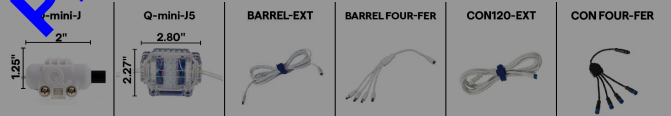
COMPATIBLE MOUNTING ACCESSORIES



Adjustable mounting accessory | J Mounting Bracket | U Mounting Bracket | J Mounting Bracket | Backwards L Mounting Bracket | L Mounting Bracket | L Mounting Bracket

COMPATIBLE WIRING ACCESSORIES



UL Listed, miniature junction box, DRY/DMP (WET rated with silicone) | UL Listed, miniature junction box, DRY/DMP (WET rated with silicone) | 8ft barrel cable extender DRY ONLY | Splits lead from one to four LED Barrel connector fixtures, DRY/DMP | 10ft Con cable extender DRY/DMP/WET | Splits lead from one to four LED Con connectors DRY/DMP/WET

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Specification subject to change. Rev-12-20-24

Type: E6

BENCHES, STAIRS

Q-CAP KURV™-BK STATIC WHITE

24VDC Flexible Fixtures

COMPATIBLE CONTROL ACCESSORIES

SCENE APP DONGLE

Wi-Fi or Bluetooth Connectivity

COMPATIBLE APPS

NFC APP

Q-NFC

Read and write DMX addresses and adjust voltage

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Specification subject to change. Rev-12-20-24

Type: E7

FLAGPOLE

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

POLELED
PROFESSIONAL FLAGPOLE LIGHT

CONCORD AMERICAN FLAGPOLE

O², EXTENDED, AND BASIC LIGHTS

FLAGPOLE 360° ILLUMINATION

PRODUCT NOT USED IN CALCULATIONS
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MORE VISABILITY

The PoleLED O2, Extended, and Basic uplights contain LEDs arranged in a circular unit. Giving off light from every angle ensuring that your flag is fully illuminated at all times.

HOW IT WORKS

- CREE LEDs create a clear and uniform light distribution
- PoleLED lighting units can be used on almost every type of existing and new poles including: Aluminum, wood, fiberglass, or steel
- Made of Aluminum
- Patented and developed focusing on sustainability and energy efficiency.
- Available in 3 Sizes
- The PoleLED Extended and O2 are fully customizable
- Theft is virtually impossible

	O²	EXTENDED	BASIC
Wattage	0 Watt	38 Watt	24 Watt
Light output	9500 Lumen	3250 lumen	2300 lumen
Voltage	24 volts DC	24 volts DC	24 volts DC
Lifetime LEDs	+50,000 hours	+50,000 hours	+50,000 hours
Material	Aluminum	Aluminum	Aluminum
Number of LEDs	28 pcs CREE	10 pcs CREE	12 pcs CREE
Available color temperature (Kelvin)	3000/4000/5000	3000/4000/5000	3000/4000/5000
Angle	11°	11°	11°
Cable length	33 ft	33 ft	23 ft
Size (wxh)	14 x 12.5 inch	10.2 x 8.3 inch	9.1 x 7.1 inch
Warranty	5 years	5 years	5 years
Pole	Suitable for poles with a diameter up to 9"	Suitable for poles with a diameter up to 5"	Suitable for poles with a diameter up to 4"

All fixtures are available in:
Special colors available upon request
Black Grey White

UL CERTIFIED
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E466441

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Type: E7

FLAGPOLE

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

POLELED
PROFESSIONAL FLAGPOLE LIGHT

CONCORD AMERICAN FLAGPOLE

HALYARD SYSTEM

FLAGPOLE 360° ILLUMINATION

PRODUCT NOT USED IN CALCULATIONS
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Type: E7
FLAGPOLE

MRSD MIDDLE SCHOOL REPLACEMENT
Land Use Lighting Cutsheets
May 21, 2025

POLELED
PROFESSIONAL FLAGPOLE LIGHT

CONCORD AMERICAN FLAGPOLE
Exclusive American Distributor

POLELED
MOUNTING HEIGHT GUIDE

With PoleLED lighting you can ensure the flag is illuminated regardless of wind direction.

Only one light per pole is needed.

To ensure the best result, mount the light at the proper height based on the pole and flag size using the chart below.

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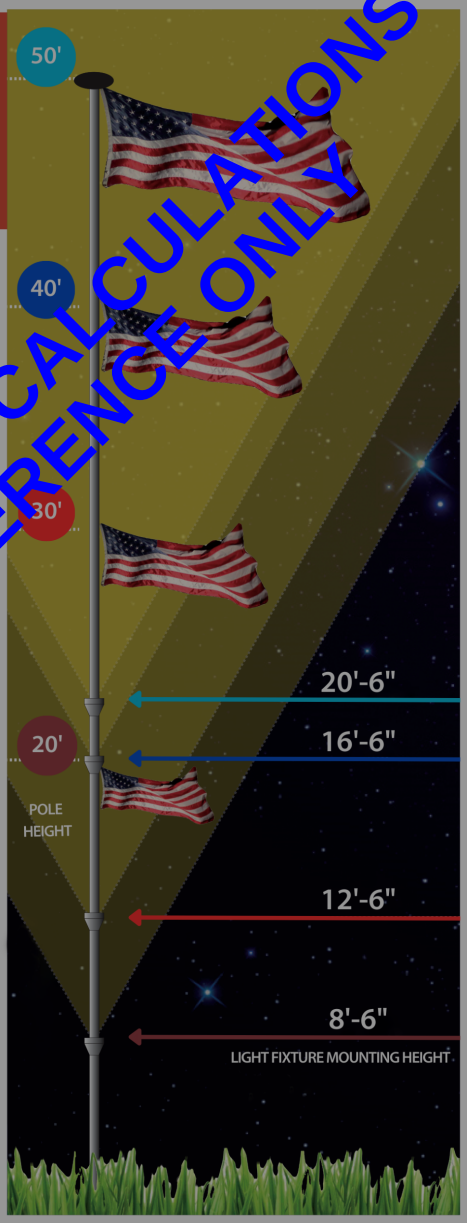

SPECIFICATIONS

POLE HEIGHT	FLAG SIZE	MOUNTING HEIGHT
15'	3'x5'	6'-6"
20'	4'x6'	8'-6"
25'	5'x8'	10'-6"
30'	6'x10'	12'-6"
35'	6'x10'	14'-6"
40'	8'x12'	16'-6"
45'	8'x12'	18'-6"
50'	10'x15'	20'-6"

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Type: E8

RECEIVING CANOPY

VCPG LED
Parking Garage

BAA BABA

Catalog Number

Notes

Type

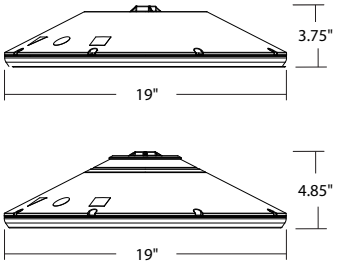
Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Diameter: 19"

Height: 3.75" (4.85" with Up-Light)

Weight (max, with no options): 18 lbs



A+ Capable options indicated by this color background.

Introduction

The all new VCPG LED (Visually Comfortable Parking Garage) luminaire is designed to bring glare control, optical performance and energy savings into one package. The recessed lens design of VCPG LED minimizes high angle glare, while its precision molded acrylic lens eliminates LED pixilation and delivers the required minimums, verticals and uniformity. The dedicated up-light module option reduces the contrast between the luminaire and the ceiling creating a more visually comfortable environment.

The VCPG LED delivers up to 87% in energy savings when replacing 175W metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the VCPG LED luminaire provides significant maintenance savings over traditional luminaires.

Ordering Information

EXAMPLE: VCPG LED V4 P4 40K 70CRI T5M MVOLT SRM DNAXD

VCPG LED

Series	LED Light Engines	Package	Color temperature	Color Rendering Index	Distribution	Voltage		Mounting
VCPG LED	V4 4 Light Engines V8 8 Light Engines	P1 P2 P3 P4 P5 P6 P7 (with V8 only)	30K 3000 K 35K 3500 K 40K 4000 K 50K 5000 K	70CRI 80CRI	T5M Type V, medium T5R[1] Type V, rectangular T5W Type V, wide T5E Type V entry LANE[1] Drive lane	MVOLT 347 480	For ordering with fuse 120 208 240 277 347 480	**Shipped included** PM Pendant mount standard (24-inch length supply leads) SRM Surface mount (24-inch length supply leads) ARM Arm mount (use RSXWBA accessory to mount to a wall) **Shipped separately** YK Yoke/trunnion mount[2]

Options

Shipped installed

UPL1	Up-Light: 500 lumens[3]
UPL2	Up-Light: 700 lumens[4]
E7WC	Emergency battery backup, AC Activate, Certified in CA Title 20 MAEDBS (7W, -20°C min)[5,6,7]
E10WH	Emergency battery backup, AC Activate, Certified in CA Title 20 MAEDBS (10W, 0°C, min)[5,6,7]
E18WC	Emergency battery backup, AC Activate, Certified in CA Title 20 MAEDBS (18W, -20°C, min)[5,6,7]
HA	High ambient (50°C, only P1-P4)
SF	Single fuse (120V, 277V, 347V)
DF	Double fuse (208V, 240V, 480V)
SPD10KV	10KV Surge Pack
LDS36	36in (3ft) lead length
LDS72	72in (6ft) lead length
LDS108	108in (9ft) lead length
DMG	External 0-10V leads (no controls)[8]
TP	Tamper proof screws
CCE	Coastal Construction

Shipped Separately

WG	Wire Guard
BDS	Bird Shroud[9]
HS	House Side Shield
BSW	Bird Spikes

Standalone Sensors/Controls[1]

PIR	Motion/ambient sensor for 8-15' mounting heights
PIRH	Motion/ambient sensor for 15-30' mounting heights
PIR3FC3V	Motion/ambient sensor for 8-15' mounting heights, pre programmed to 3fc and 35% light output
PIRH3FC3V	Motion/ambient sensor for 15-30' mounting heights, pre programmed to 3fc and 35% light output

Networked Sensors/Controls[1]

NLTAIR2 PIR	nLIGHT AIR Wireless enabled motion/ambient sensor for 8-15' mounting heights (provides NPS signal)
NLTAIR2 PIRH	nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights (provides NPS signal)
NLTAIREM2 PIR	nLIGHT AIR Wireless enabled, UL924 Listed motion/ambient sensor for 8-15' mounting heights
NLTAIREM2 PIRH	nLIGHT AIR Wireless enabled, UL924 Listed motion/ambient sensor for 15'-30' mounting heights

Finish *(required)*

DWHXD	White
DNAXD	Natural aluminum
DDBXD	Dark bronze
DBLXD	Black

Packaging

(blank)	Job Pack/Units (ships as job pack of 18pcs per; balance in units)
U	Unit packs only

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Type: E8

RECEIVING CANOPY

Ordering Information Cont.

Accessories

Ordered and shipped separately.

VCPGBDS DWHXD U	Bird shroud for PM (specify finish)	VCPGWG U	Wire guard
VCPGBDS YK DWHXD U	Bird shroud for YK (specify finish)	SLVSQ	Quick mount pendant swivel kit, square
VCPGUBDS DWHXD U	Bird shroud for PM with Up-Light (specify finish)	SLVRD	Quick mount pendant swivel kit, round
VCPGUBDS YK DWHXD U	Bird shroud for YK with Up-Light (specify finish)	VCPG YK DWHXD U	Yoke mount kit (specify finish)
VCPGSRM U	Surface mount kit, with no Up-Light	RSXWBA DWHXD U	RSX WBA wall bracket (specify finish)
VCPGUSRM U	Surface mount kit, with Up-Light	VCPGHS U	House side shield
VCPGSC120	Safety cable 120"		

NOTES

1 Not available in P7 package or with V8 option.
2 Only vertical height adjustment. No angle adjustment. Use PM and SLVSQ or SLVRD for mounting to angled ceiling or canopies.
3 UPL1 not available with dim-to-off functionality.
4 UPL2 available with dim-to-off upon request.
5 Not available with 347V or 480V.
6 E7WC, E10WH, and E18WC only rated up to 35°C, ambient.
7 E7WC and E18WC only available with P1-P4 packages. E10WH available with P1-P5 packages.
8 DMG option not available with standalone or networked sensors/controls.
9 BDS is only available with PM and YK mounting options.
10 Needs an nLight AIR Normal Power Sensing (NPS) device in the group.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	Watts	Distribution Type	30K (3000K, 70 CRI)		35K (3500K, 70 CRI)		40K (4000K, 70 CRI)		50K (5000K, 70 CRI)	
			Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
P1	27W	T5E	3,581	135	3,670	138	3,815	144	3,876	146
		T5M	3,620	136	3,710	140	3,856	145	3,917	147
		T5W	3,592	135	3,681	139	3,827	144	3,888	146
		T5R	3,464	130	3,550	134	3,690	139	3,749	141
		LANE	3,507	132	3,594	135	3,736	141	3,796	143
P2	34W	T5E	4,577	135	4,691	138	4,876	144	4,954	146
		T5M	4,626	136	4,741	140	4,928	145	5,007	147
		T5W	4,591	135	4,705	139	4,891	144	4,968	146
		T5R	4,427	130	4,537	134	4,716	139	4,791	141
		LANE	4,482	132	4,594	135	4,775	141	4,851	143
P3	43W	T5E	5,808	134	5,952	137	6,187	143	6,286	145
		T5M	5,870	135	6,015	139	6,253	144	6,353	146
		T5W	5,825	134	5,970	138	6,205	143	6,304	145
		T5R	5,617	130	5,757	133	5,984	138	6,079	140
		LANE	5,688	131	5,829	134	6,059	140	6,155	142
P4	56W	T5E	7,391	131	7,575	135	7,874	140	7,999	142
		T5M	7,470	133	7,656	136	7,958	141	8,085	144
		T5W	7,414	132	7,597	135	7,898	140	8,023	143
		T5R	7,149	127	7,326	130	7,615	135	7,737	137
		LANE	7,238	129	7,418	132	7,711	137	7,834	139
P5	82W	T5E	10,189	124	10,442	127	10,854	132	11,027	134
		T5M	10,298	125	10,553	128	10,970	134	11,145	136
		T5W	10,220	124	10,473	128	10,887	133	11,060	135
		T5R	9,855	120	10,099	123	10,498	128	10,665	130
		LANE	9,978	121	10,226	124	10,629	129	10,799	131
P6	108W	T5E	12,878	120	13,197	123	13,719	127	13,937	129
		T5M	13,015	121	13,338	124	13,865	129	14,086	131
		T5W	12,917	120	13,237	123	13,760	128	13,979	130
		T5R	12,455	116	12,764	119	13,268	123	13,480	125
		LANE	12,611	117	12,924	120	13,435	125	13,649	127
P7	122W	T5E	15,503	125	15,887	128	16,515	133	16,778	135
		T5M	15,668	126	16,057	129	16,691	135	16,957	137
		T5W	15,549	125	15,935	129	16,564	134	16,828	136

Up-light Lumen Output

Up-light Option	Watts	Lumens
UPL1	6.5W	519
UPL2	8.5W	715

Lumen Multiplier for 80CRI

CCT	Multiplier
30K	0.926
35K	0.945
40K	0.967
50K	0.965

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.97	0.94	0.89

Electrical Load

Power Package	System Watts	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	27W	0.22	0.13	0.12	0.10	0.08	0.06
P2	34W	0.28	0.16	0.14	0.13	0.10	0.08
P3	43W	0.37	0.21	0.18	0.16	0.13	0.09
P4	56W	0.48	0.28	0.24	0.21	0.16	0.12
P5	82W	0.68	0.40	0.35	0.30	0.24	0.18
P6	108W	0.91	0.52	0.45	0.39	0.32	0.23
P7	124W	1.03	0.59	0.51	0.44	0.37	0.27

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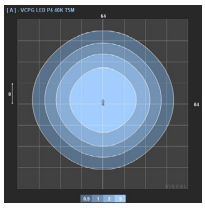
Type: E8

RECEIVING CANOPY

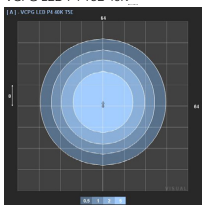
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting VCPG LED homepage.
Tested in accordance with IESNA LM-79 and LM-80 standards

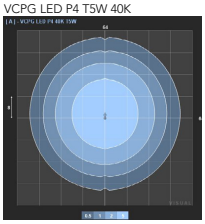
VCPG LED P4 T5M 40K



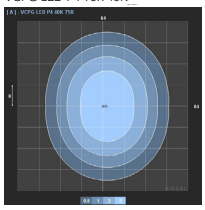
VCPG LED P4 T5E 40K



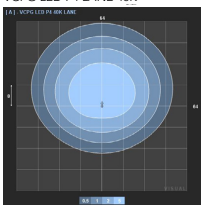
VCPG LED P4 T5W 40K



VCPG LED P4 T5R 40K



VCPG LED P4 LANE 40K



Control/Sensor Options

Motion/Ambient Sensor (PIR_, PIRH)

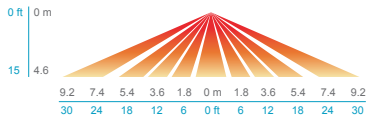
Motion/Ambeint sensor (Sensor Switch MSOD, nLight AIR RMSOD) is integrated into the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

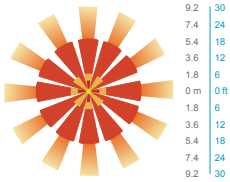
Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CL**AIR**ITY™**+**) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

PIR

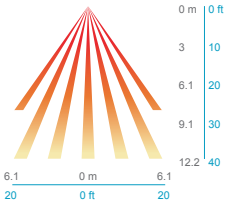
HIGH VIEW



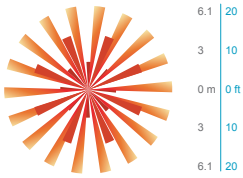


PIRH

SIDE VIEW



TOP VIEW



Motion/Ambient Sensor Default Settings

Option	Dim Level	High Level (when triggered)	Photocell Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR3FC3V or PIRH3FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 3fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec

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Type: E8

RECEIVING CANOPY

Mounting, Options & Accessories

PM – Pendant Mount
(compatible with ¾ NPT, pendant stem provided by others)

D = 19"
H = 4.1"

SRM – Surface Mount

D = 19"
H = 4.1"

SRM – Surface Mount with Up-Light

D = 19"
H = 5.3"

YK – Yoke/Trunnion Mount

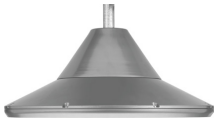
D = 19"
H (Yoke) = 10"-18"

ARM – Arm Mount

L = 28"
W = 19"
H = 8"

PIR & PIRH – Motion/ Ambient sensor

D = 19"
H = 4.6" or
+1.2" (with up-light)
+2" (with nLight AIR)



BDS – Bird shroud for pendant mount

D = 19"
H = 8"

BDS – Bird shroud for yoke mount

D = 19"
H (Yoke) = 10"-18"

WG – Wire guard

D = 19"
H = 4.9" (no up-light) or
5.9" (with up-light)

HS – House side shield

D = 19"
H = 7.1" (no up-light) or
8.1" (with up-light)

FEATURES & SPECIFICATIONS

INTENDED USE
The visually comfortable optics, energy savings, and long life of the VCPG LED Parking Garage luminaire make it an ideal choice for new commercial installations and retrofit parking garage opportunities. It is designed to meet or exceed recommended illuminance criteria when installed as a direct replacement of most HID parking garage luminaires. Its modern dayform and aesthetics also make it appealing for indoor low-bay applications.

CONSTRUCTION
Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is separated from the heat generating light engines and mounted in direct contact with the casting to promote low operating temperatures, higher lumen maintenance and long life. The housing is completely sealed against moisture and environmental contaminants (IP66) and is suitable for hose-down application.

FINISH
Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Light guide technology provides a diffused light source, reducing glare from direct view of the LEDs. The light source is recessed into the luminaire, further reducing the high angle glare from the luminaire. A combination of precision molded micro prismatic acrylic lenses and back reflectors provide five different photometric distributions tailored specifically to parking garage applications. Up-light option comes with a dedicated light engine and custom optic designed to efficiently spread light on to the ceiling, thus reducing the cave effect.

ELECTRICAL
Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L89/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%, and a minimum 6.0 KV surge rating. When ordering the SPD10KV option, a separate 10kV (5kA) surge protection device is installed within the luminaire which meets a minimum Category C low operation (per ANSI/IEEE C62.41.2). Luminaire is 0-10V dimmable down to 10% or lower.

INSTALLATION
Standard configuration accepts a rigid or free-swinging 3/4" NPT stem for pendant mounting. The surface mount option attaches to a 4x4" recessed or surface mount outlet box using a quick-mount kit (included); kit contains galvanized steel luminaire and outlet box plates and a full pad gasket. Kit has an integral mounting support that allows the luminaire to hinge down for easy electrical connections. Luminaire and plates are secured with set screws. Also, available with a yoke/trunnion mount option with 3/4" NPT provision for flexible conduit entry (conduit by others); height can be adjusted from 10-18". Supply leads are 24" in length as standard. Longer supply leads are available as additional options. Design can withstand up to a 3.0 G vibration load rating per ANSI C136.31.

LISTINGS
CSA certified to U.S. and Canadian standards. IP66 rated for outdoor applications. PIR options are rated for wet location. IK08 Rated. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

GOVERNMENT PROCUREMENT
BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Type: E9

EXTERIOR SOFFIT

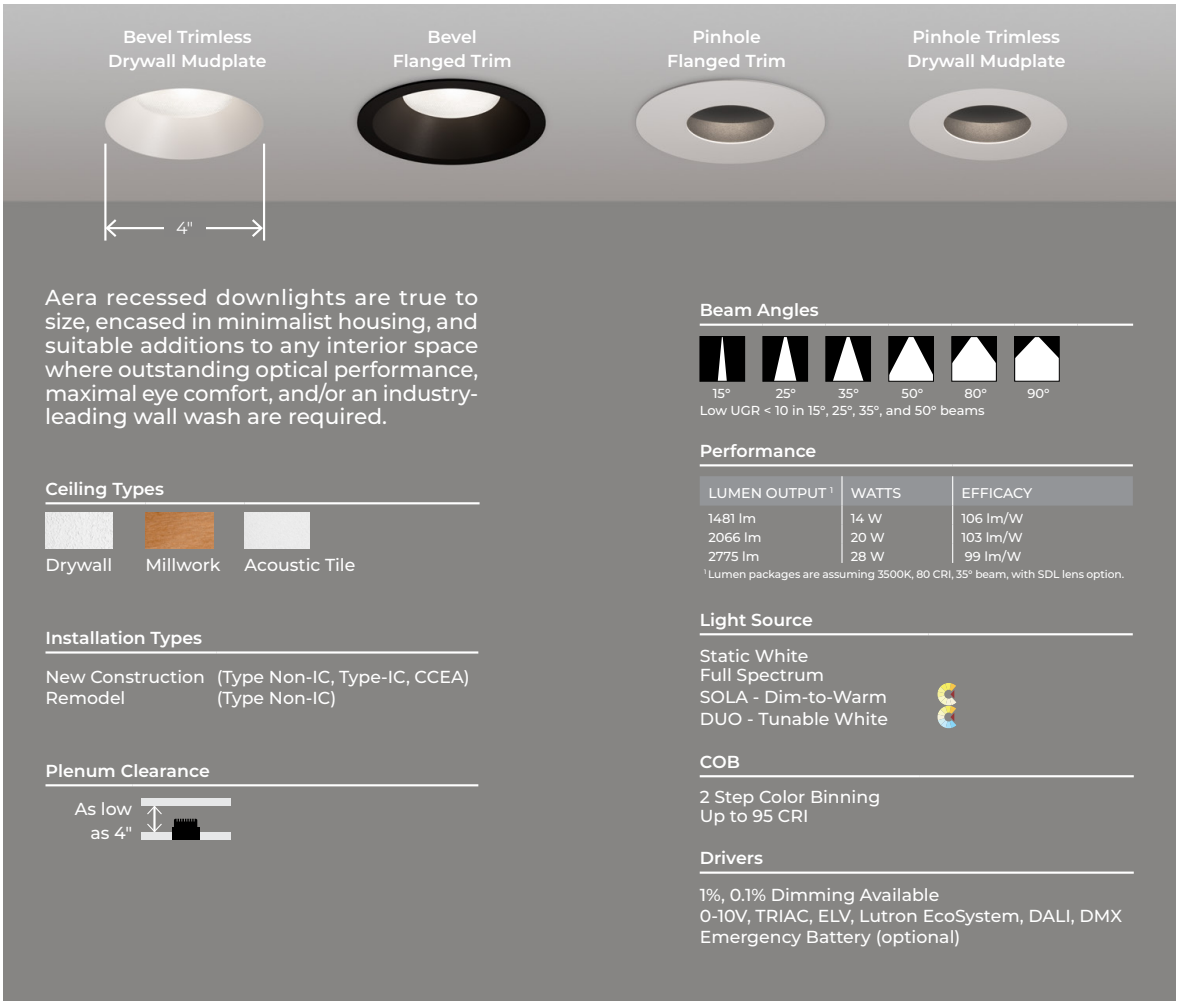
AERA 4" DOWNLIGHT

ROUND RECESSED

Lumenwerx

5 YEAR WARRANTY

IP44 JA8 TITLE 24 ENERGY STAR Declare



Aera recessed downlights are true to size, encased in minimalist housing, and suitable additions to any interior space where outstanding optical performance, maximal eye comfort, and/or an industry-leading wall wash are required.

Ceiling Types

Drywall Millwork Acoustic Tile

Installation Types

New Construction (Type Non-IC, Type-IC, CCEA)
Remodel (Type Non-IC)

Plenum Clearance

As low as 4"

Beam Angles

15° 25° 35° 50° 80° 90°

Low UGR < 10 in 15°, 25°, 35°, and 50° beams

Performance

LUMEN OUTPUT [1]	WATTS	EFFICACY
1481 lm	14 W	106 lm/W
2066 lm	20 W	103 lm/W
2775 lm	28 W	99 lm/W

[1] Lumen packages are assuming 3500K, 80 CRI, 35° beam, with SDL lens option.

Light Source

Static White
Full Spectrum
SOLA - Dim-to-Warm
DUO - Tunable White

COB

2 Step Color Binning
Up to 95 CRI

Drivers

1%, 0.1% Dimming Available
0-10V, TRIAC, ELV, Lutron EcoSystem, DALI, DMX
Emergency Battery (optional)

Aera Family (Refer to other spec sheets)

Downlight

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Multi-aperture

2" / 3" / 4" Round / Square Recessed Adjustable
2" / 3" / 4" Round / Square Recessed
2" / 3" / 4" Round / Square Recessed Wall Wash

Cylinder

2" / 3" / 4" / 5" 4" Seal Pendant Pendant Asymmetric Pendant Wall Wash
2" / 3" / 4" / 5" 4" Seal Wall Wall Asymmetric
2" / 3" / 4" / 5" 4" Seal Surface Surface Asymmetric Surface Wall Wash

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Intertek

Lumenwerx reserves the right to modify product specifications without notification.
AERA4-DOWNLIGHT-ROUND-RECESSED-SPEC-REV6 April 22, 2024

PoE

Type: E9

EXTERIOR SOFFIT

AERA 4" DOWNLIGHT

ROUND RECESSED

Lumenwerx

Project: _____

Type: _____

ENERGY STAR | JA8 TITLE 24

For an ENERGY STAR® certified fixture, see page 3.
For a Title 24 JA8 compliant fixture, see page 4.

Order Guide

1 - Housing (Example: AE4RR-TRM-SW-OF-ASB-120V-14W-D1-NA)

LUMINAIRE ID [1]	TRIM STYLE	LIGHT SOURCE	INSTALLATION TYPE	MOUNTING OPTION [4]
AE4RR				
AE4RR - Aera 4" Round Recessed [1] Recessed Adjustable and Recessed Wall Wash also available. Consult other spec sheets.	**TRM** - Flanged trim **TLMP** - Trimless drywall mudplate **TLMW** [2] - Trimless millwork [2] For remodel (RM) installation type, TLMW adapter must be installed from above the ceiling or before ceiling is installed.	**SW** - Static white **FS** - Full spectrum **SOLA** - Dim-to-warm single channel control **DUO** - Tunable white 2-channel control	**OF** - Open Frame Type Non-IC **IC** [3] - Type-IC **RM** - Remodel Type Non-IC **CP** [3] - Chicago Plenum Type-IC (CCEA) **AT** [3] - Airtight Type-IC [3] Not available with 28 W output and higher.	**ASB** [5] - Adjustable standard bar hangers **FMB** [5] - Flush mount bars **ACB** [5] - Adjustable commercial bar hangers **AHC** [5] - Adjustable hat channel bars **NA** - None [4] See page 6 for more details. [5] Not available with RM installation type.

VOLTAGE	WATTAGE [7]	DIMMING [10]		OPTION [21]
				NA
120V - 120V **277V** - 277V **UNV** - 120V-277V **347V** [6] - 347V [6] Available with RD1 driver only. Please consult factory.	**14W** - 14 W output, up to 1538 lm **20W** - 20 W output, up to 2146 lm **28W** [8,9] - 28 W output, up to 2882 lm [7] Lumen outputs are reduced with full spectrum, consult factory. [8] Not available with IC/CP/AT. [9] Not available with full spectrum. SOLA [8] **28W** - 28 W output, up to 1945 lm DUO [8] **28W** - 28 W output, up to 2055 lm	**INTEGRAL** **D1** - 1% 0-10V **ELV** [11] - ELV 120V **TRI** [11] - TRIAC 120V **LDE1** [12,13] - Lutron Hi-lume 1% Eco **DA** [12,13] - DALI **ELD1** [12] - eldoLED 1% ECOdrive 0-10V **ELD0** [12] - eldoLED 0.1% SOLOdrive 0-10V **PEQ0** [13,14,15] - Lutron Hi-lume Premier 0.1% EcoSystem **DEB** [15] - 0-10V with onboard emergency battery backup [10] PoE (Power-over-Ethernet) compatible. Consult factory for details. [11] Available with 120V only. [12] Not available with RM installation type. [13] On-site commissioning is required. [14] Not available with 28 W output. [15] Available with OF housing only. SOLA **SD1** - Single 0-10V input **SELV** [11] - ELV 120V **STRI** [11] - TRIAC 120V DUO [12] **DMX** [13] - DMX **DDA** [13] - DALI DT6 **DDA8** [13] - DALI DT8 **DD1** - Dual 0-10V input for CCT/intensity **LD2** [13] - Lutron DALI-2 digital	**REMOTE** [16] **RD1** - 1% 0-10V **RELV** [17] - ELV 120V **RTRI** [17] - TRIAC 120V **RLDE1** [18] - Lutron Hi-lume 1% Eco **RDA** [18] - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V **RPEQ0** [18,19] - Lutron Hi-lume Premier 0.1% EcoSystem **+EB** [20] - Emergency battery [16] A remote driver box is provided, see page 5 for details. [17] Available with 120V only. [18] On-site commissioning is required. [19] Not available with 28 W output. [20] For emergency battery, code will be like the following example: RD1+EB SOLA **RSD1** - Single 0-10V input **RSELV** [17] - ELV 120V **RSTRI** [17] - TRIAC 120V DUO **RDMX** [18] - DMX **RDDA** [18] - DALI DT6 **RDDA8** [18] - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** [18] - Lutron DALI-2 digital	**NA** - None [21] To specify an ENERGY STAR certified fixture, see page 3. To specify a JA8 compliant fixture, see page 4.

2 - Light & Baffle (Example: AE4RRB-SW-14W-15DEG-2STP-90CRI-27K-LSDL+LS-TRM-CL-FTMW-FTMW-NA)

LUMINAIRE ID	LIGHT SOURCE Specify same as Housing	WATTAGE [22] Specify same as Housing	BEAM	COLOR QUALITY	CRI	COLOR TEMP.
AE4RRB - Aera 4" Round Recessed Bevel **AE4RRP** - Aera 4" Round Recessed Pinhole	**SW** - Static white **FS** - Full spectrum	**14W** - 14 W output, up to 1538 lm **20W** - 20 W output, up to 2146 lm **28W** [23,24] - 28 W output, up to 2882 lm [22] Lumen outputs are reduced with full spectrum, consult factory. [23] Not available with IC/CP/AT. [24] Not available with full spectrum.	**15DEG** - 15° Narrow spot **25DEG** - 25° Spot **35DEG** - 35° Narrow flood **50DEG** - 50° Wide flood **80DEG** - 80° Very wide flood **90DEG** - 90° Open flood	**2STP** [25] - 2 Step MacAdam Ellipse **3STP** - 3 Step MacAdam Ellipse [25] Not available with full spectrum.	**90CRI** [26] - 90 CRI **95CRI** - 95 CRI **80CRI** [26] - 80 CRI [26] Not available with full spectrum.	**27K** - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K SOLA **30K18K** - 3000K to 1800K **27K18K** - 2700K to 1800K DUO **65K27K** - 6500K to 2700K **50K27K** - 5000K to 2700K
	SOLA - Dim-to-warm single channel control **DUO** - Tunable white 2-channel control	SOLA [23] **28W** - 28 W output, up to 1945 lm DUO [23] **28W** - 28 W output, up to 2055 lm	**25DEG** - 25° Spot **35DEG** - 35° Narrow flood **60DEG** - 60° Wide flood **80DEG** - 80° Very wide flood **90DEG** - 90° Open flood	**3STP** - 3 Step MacAdam Ellipse	**90CRI** - 90 CRI	

ACCESSORIES * See page 7 for details	TRIM STYLE Specify same as Housing	LENS * See page 7 for details	BAFFLE FINISH Specify NA for Pinhole	TRIM FLANGE FINISH [31] Specify NA for Bevel Trimless	OPTION [32]
At light element [27,28] (choose up to 2 options for SW/FS and 1 option for SOLA/DUO) **LSDL** - Soft diffused lens, Solite **LFDL** - Frosted diffused lens **LS** - Linear spread **HEX** [29] - Hex louver **NA** - None [27] Separate codes with a "+" if more than one is specified, e.g. LSDL+LS. [28] LSDL and LFDL cannot be combined. LS and HEX cannot be combined. [29] Not available with 80°/90° beam options.	**TRM** - Flanged trim **TLMP** - Trimless drywall mudplate **TLMW** [30] - Trimless millwork [30] For remodel (RM) installation type, TLMW adapter must be installed from above the ceiling or before ceiling is installed.	**At baffle** (choose 1 option) Specify NOL for Pinhole **SDL** - Soft diffused lens, Solite **FDL** - Frosted diffused lens **CL** - Clear lens **NOL** - No lens	**FTMW** - Textured matte white **FTMB** - Textured matte black **FSPC** - Specular **FSSPC** - Semi-specular **FCHP** - Champagne **CF#** - Custom finish, specify RAL# **NA** - Not applicable	**FTMW** - Textured matte white **FTMB** - Textured matte black **FSPC** - Specular **FSSPC** - Semi-specular **FCHP** - Champagne **CF#** - Custom finish, specify RAL# **NA** - Not applicable [31] A trim flange finish option must be specified for pinhole. See page 7 for details.	**WET** [33] - Wet location **NA** - None [32] To specify an ENERGY STAR certified fixture, see page 3. To specify a JA8 compliant fixture, see page 4. [33] Must be specified with the bevel (AE4RRB), flanged trim (TRM), and either SDL, FDL, or CL lens options.

*** LSDL or LFDL at light element cannot be combined with SDL or FDL at baffle.**

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AERA4-DOWNLIGHT-ROUND-RECESSED-SPEC-REV6 April 22, 2024

PoE

Type: E9

EXTERIOR SOFFIT

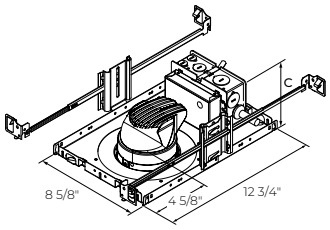
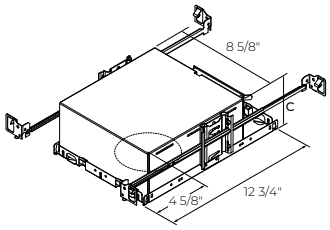
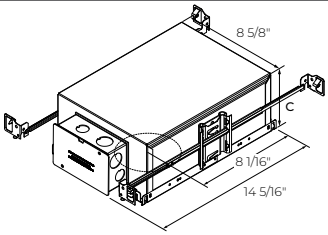
AERA 4" DOWNLIGHT

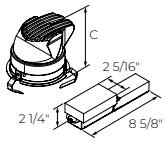
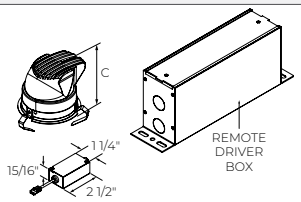
ROUND RECESSED

Lumenwerx

Housing

INSTALLATION TYPES

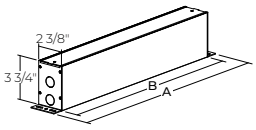
OF - Open Frame Type Non-IC	**IC** - Type-IC	**CP** - Chicago Plenum Type-IC (CCEA) **AT** - Airtight Type-IC
		

RM - Remodel Type Non-IC	
Integral	Remote
	

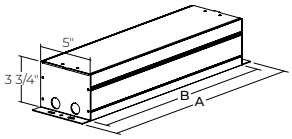
- For height dimension C, see the PLENUM CLEARANCE & CUT-OUT DIMENSIONS table below.
- For OF, IC, CP, and AT installation types with remote dimming, a remote driver box is provided.

REMOTE DRIVER BOX

RDB8 / RDB18 / RDB24

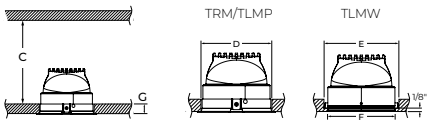


RDB24W



	RDB8	RDB18	RDB24	RDB24W
A	10"	20"	26"	26"
B	8"	18"	24"	24"
DRIVER	**RD1** - 1% 0-10V **RELV** - ELV 120V **RTRI** - TRIAC 120V **RPEQ0** - Lutron Hi-lume Premier 0.1% EcoSystem SOLA **RSD1** - Single 0-10V input **RSELV** - ELV 120V **RSTRI** - TRIAC 120V	**RLDE1** - Lutron Hi-lume 1% Eco **RDA** - DALI **RELD1** - eldoLED 1% ECOdrive 0-10V **RELD0** - eldoLED 0.1% SOLOdrive 0-10V	Emergency battery (+EB) with the following driver options. **RD1+EB** - 1% 0-10V **RELV+EB** - ELV 120V **RTRI+EB** - TRIAC 120V DUO **RDMX** - DMX **RDDA** - DALI DT6 **RDDA8** - DALI DT8 **RDD1** - Dual 0-10V input for CCT/intensity **RLD2** - Lutron DALI-2 digital	Emergency battery (+EB) with the following driver options. **RLDE1+EB** - Lutron Hi-lume 1% Eco **RDA+EB** - DALI **RELD1+EB** - eldoLED 1% ECOdrive 0-10V **RELD0+EB** - eldoLED 0.1% SOLOdrive 0-10V

PLENUM CLEARANCE & CUT-OUT DIMENSIONS



		PLENUM CLEARANCE HEIGHT	
		REMOTE & INTEGRAL	
		D1/ELV/TRI	LDE1/DA/ELD1/ELD0/PEQ0
C	OF	4 1/8"	6"
	IC	4" (14 W) 6 3/8" (20 W)	6 3/8"
	CP/AT	4 7/8" (14 W) 6 7/8" (20 W)	6 7/8"
	RM	4 1/8"	NA

		CUT-OUT DIMENSIONS
D	TRM/TLMP	Ø 4 1/2"
E	TLMW	Ø 4 1/2"
F		Ø 4 1/16" with 1/8" lip

		MAXIMUM CEILING THICKNESS
G	TRM/ TLMP	1 3/8"
	TLMW	5/8"

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PoE

Type: E9

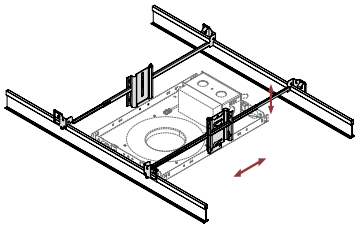
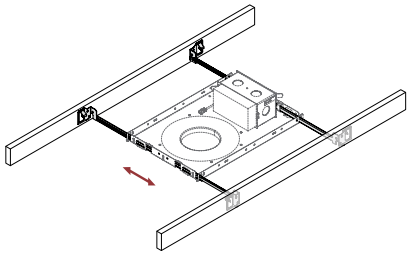
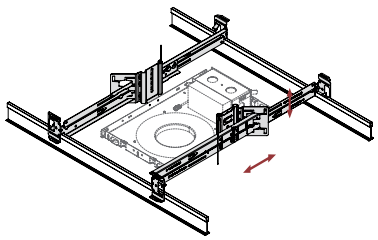
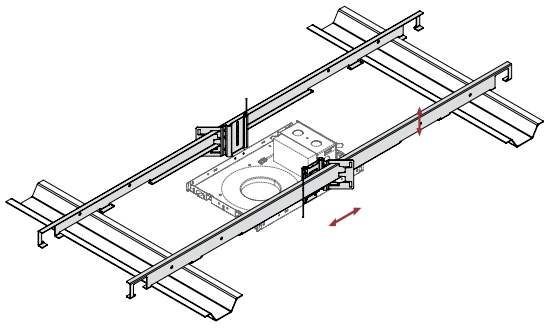
EXTERIOR SOFFIT

AERA 4" DOWNLIGHT

ROUND RECESSED

Lumenwerx

Housing

MOUNTING OPTIONS	
ASB - Adjustable Standard Bar Hangers	
	Adjustable Standard Bar hangers can be used in both commercial and residential applications and are adjustable to various heights in both Grid Ceiling and Drywall mounting. ASB hangers are less rigid and versatile than ACB hangers.
FMB - Flush Mount Bars	
	Flush Mount Bars are best used in residential applications, fitting snug to the surface and suitable for Wood, Metal, and Drywall mounting. The flush mounted bars are static and can't be adjusted.
ACB - Adjustable Commercial Bar Hangers	
	Adjustable Commercial Bar hangers can be used in both commercial and residential applications and are by far the most versatile mounting bar we offer with its adjustability to various heights. ACB hangers are suitable for Grid Ceiling, Drywall, Metal, Wood and Frame mounting. · Extremely rigid · Fits into C-Channel notches in a Butterfly Bracket
AHC - Adjustable Hat Channel Bars	
	Adjustable Hat Channel bars can be used in both commercial and residential applications and come with a butterfly clip to adjust to various heights. AHC bars can be hung downward by 90 degrees in vertical position, and once wired, can be shifted onto the horizontal mounting plane. AHC bars are suitable for both Drywall and wood ceiling applications.

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Type: E9

EXTERIOR SOFFIT

AERA 4" DOWNLIGHT

ROUND RECESSED

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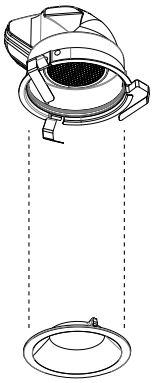
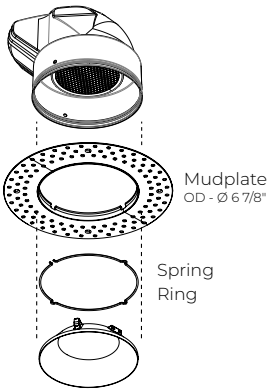
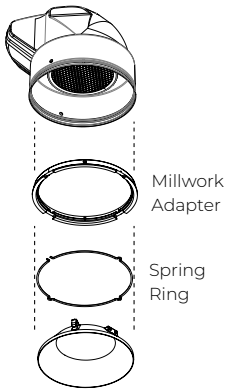
Light & Baffle



Flanged Trim

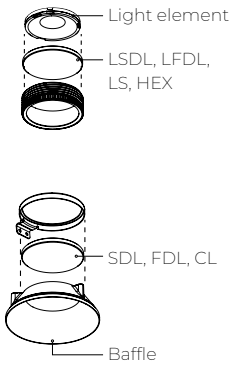


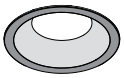
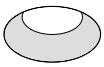
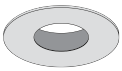
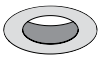
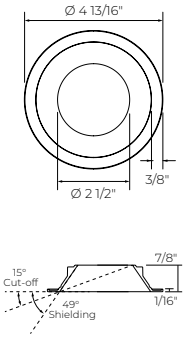
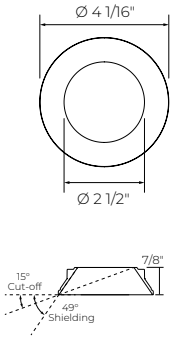
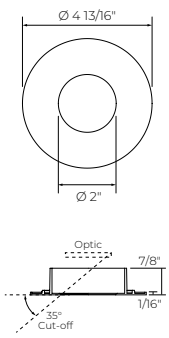
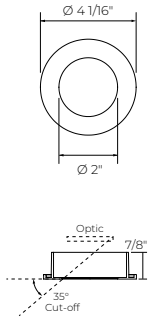
Trimless Drywall Mudplate



Trimless Millwork

LENS AND ACCESSORIES



Bevel		Pinhole	
TRM Flanged Trim	**TLMP/TLMW** Trimless Drywall Mudplate /Trimless Millwork	**TRM** Flanged Trim	**TLMP/TLMW** Trimless Drywall Mudplate /Trimless Millwork
			
Baffle finish Trim flange finish		Trim flange finish Textured matte black	
			

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EXTERIOR SOFFIT

AERA 4" DOWNLIGHT

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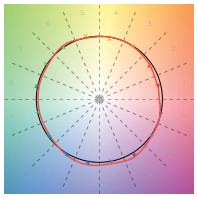
Color Quality

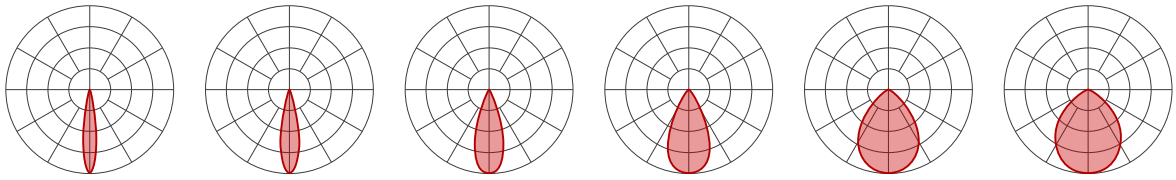
COLOR QUALITY - 3500K	
TM-30 R_f	90
TM-30 R_g	100
CRI	90
R9	> 50



Photometrics

STATIC WHITE

Values calculated based on 3500K, bevel baffle, and SDL lens option.



15° 25° 35° 50° 80° 90°

Delivered lumens

CRI	90 CRI						95 CRI						80 CRI					
BEAM	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°
14 W	1399	1437	1384	1356	1220	1220	1077	1106	1066	1044	940	940	1497	1538	1481	1451	1306	1306
20 W	1952	2006	1931	1893	1704	1704	1503	1545	1487	1458	1312	1312	2089	2146	2066	2026	1823	1823
28 W	2621	2693	2593	2541	2287	2287	2018	2074	1997	1957	1761	1761	2804	2882	2775	2719	2447	2447

Efficacy

CRI	90 CRI						95 CRI						80 CRI					
BEAM	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°	15°	25°	35°	50°	80°	90°
14 W	100	103	99	97	87	87	77	79	76	75	67	67	107	110	106	104	93	93
20 W	98	100	97	95	85	85	75	77	74	73	66	66	104	107	103	101	91	91
28 W	94	96	93	91	82	82	72	74	71	70	63	63	100	103	99	97	87	87

MULTIPLIERS

Please follow the multiplier tables to ensure correct lumen value. Beams, CCT, baffle styles, baffle colors, lensing and accessories will change the lumen value.

CCT	
2700K	0.9
3000K	0.95
3500K	1
4000K	1.05

BAFFLE STYLE AND COLOR	
Flanged trim	1
Trimless	1
Bevel	1
Wet bevel	1
Pinhole	0.92
White	1
Black	1

LENS * (At baffle)	
SDL - Soft diffused lens, Solite	1
FDL - Frosted lens	0.8
CL - Clear lens	1.1
NOL - No lens	1.1

ACCESSORIES * (At light element)	
LSDL - Soft diffused lens, Solite	1
LFDL - Frosted lens	0.8
LS - Linear spread	0.84
HEX - Hex louver	0.86

* When more than one lens or accessory is specified, multiply together the value of each lens and/or accessory.
e.g. NOL + LSDL + LS = 1.1 x 1 x 0.84 = 0.924

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AERA 4" DOWNLIGHT

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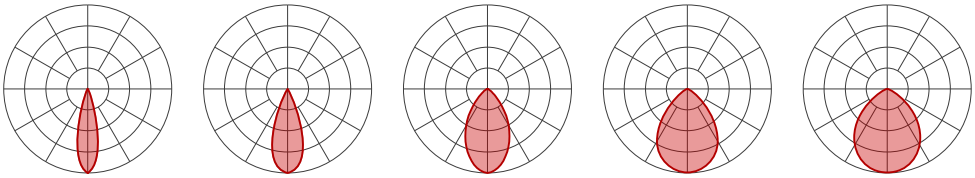
Photometrics

SOLA/DUO

Values calculated based on bevel baffle and SDL lens option.



25° 35° 60° 80° 90°

SOLA

BEAM		25°		35°		60°		80°		90°	
		lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W
28 W	3000K	1920	69	1945	69	1850	66	1590	57	1460	52
	2700K	1920	69	1945	69	1850	66	1590	57	1460	52

DUO

BEAM		25°		35°		60°		80°		90°	
		lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W
28 W	6500K	2005	72	2055	73	1980	71	1700	61	1565	56
	5000K	2005	72	2055	73	1980	71	1700	61	1565	56
	2700K	1780	64	1820	65	1740	62	1495	53	1375	49

MULTIPLIERS

Please follow the multiplier tables to ensure correct lumen value. Beams, CCT, baffle styles, baffle colors, lensing and accessories will change the lumen value.

BAFFLE STYLE AND COLOR	
Flanged trim	1
Trimless	1
Bevel	1
Wet bevel	1
Pinhole	0.92
White	1
Black	1

LENS * (At baffle)	
SDL - Soft diffused lens, Solite	1
FDL - Frosted lens	0.8
CL - Clear lens	1.1
NOL - No lens	1.1

ACCESSORIES * (At light element)	
LSDL - Soft diffused lens, Solite	1
LFDL - Frosted lens	0.8
LS - Linear spread	0.84
HEX - Hex louver	0.86

* When more than one lens or accessory is specified, multiply together the value of each lens and/or accessory.
e.g. NOL + LSDL = 1.1 x 1 = 1.1

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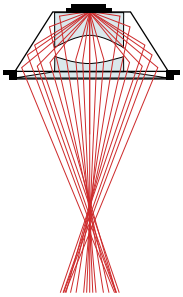
Technical Specifications

OPTIC

XPoint™ Refraction Technology optics provide precise optical control in a remarkably compact form. Micro optical paths from the chip on board converge and then disperse in precise beam angles, resulting in a crisp and exacting light quality.



LIGHT SOURCE

Static white

Compact COB (Chip-On-Board) LED module, available in 2700K, 3000K, 3500K and 4000K with a choice of 80 CRI, 90 CRI, or 95 CRI, with elevated R9 value for 90 CRI and above. Color consistency is maintained to within 2 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

Full spectrum

The full spectrum LED option offers improved color particularly in the cyan region which helps increase Cyanosis Observation Index (COI) and assist in regulating circadian rhythms. The cyan region in full spectrum LED is richer at the 480 nm range.

Chromawerx SOLA

Chromawerx SOLA is single-channel control that dims output while warming the color temperature in a pre-determined relationship. Two color temperature range options are offered: 3000K to 1800K, and 2700K to 1800K. A simple analog control adjusts a specially populated LED array to emulate the effect of dimming a filament source.

Chromawerx DUO

Chromawerx DUO offers a two-channel control system which uses analog or digital protocols for synchronous control of both cool to warm LED arrays - maintaining a CRI above 90. Two color temperature range options are offered: 6500K to 2700K, and 5000K to 2700K. The range of color DUO offers is useful for entraining circadian rhythms, stimulating alertness, and compensating for jet lag among other applications. The Chromawerx drivers are programmed to limit maximum light output and power usage across all color temperatures. When paired with DALI drivers (DDA/DDA8), color tuning follows a linear dimming curve.

ELECTRICAL

Unless otherwise specified, dimming down to 1%. At maximum driver load: efficiency>84%, PF>0.9, THD<20%.
Integral: 0-10V, ELV, TRIAC, Lutron Hi-Lume 1% EcoSystem, DALI, eldoLED 0.1% SOLOdrive 0-10V, eldoLED 1% ECOdrive 0-10V, DMX, Lutron DALI-2 digital
Remote: 0-10V, ELV, TRIAC, Lutron Hi-Lume 1% EcoSystem, DALI, eldoLED 0.1% SOLOdrive 0-10V, eldoLED 1% ECOdrive 0-10V, DMX, Lutron DALI-2 digital
Emergency battery options - Integral: Factory installed, long-life, high-temperature, LED driver with integrated emergency backup using a recyclable LiFePO4 battery pack. Features a remote test switch with charge indicator, minimum of 90 minutes operation and 10 W per downlight emergency lighting output. Recharge time of 12 hours.
Emergency battery options - Remote: Remotely-installed, long-life, high-temperature, maintenance-free, Bodine Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. IOTA and Fulham options available upon request. Minimum of 90 minutes operation, and recharge time of 24 hours. For fixtures less than 10 W, the battery provides 6 W of emergency light output. For fixtures 10 W and over, the battery provides 10 W.

PoE

Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, DUO (tunable white), QUADRO (RGBW), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

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PoE

Type: E9

EXTERIOR SOFFIT

AERA 4" DOWNLIGHT

ROUND RECESSED

Lumenwerx

CONSTRUCTION

Housing
For new construction, 20 gauge powder coated steel. Open frame, type-IC, or Chicago Plenum (CCEA) rated. 18 gauge galvanized steel junction box with ½" trade size knockouts. Adjustable hanger bars and butterfly brackets are included. Adjustable commercial hat channel and flush mounted brackets are also available.

Light element
LED module: Integral COB module. 90 CRI and 2 SDCM, Standard with options of 80 CRI, or 95 CRI. L80 > 60,000 hours.
XPoint™ Refraction Technology optic: Micro optical paths from the chip on board converge and then disperse in precise beam angles, resulting in a crisp and exacting light quality.
Thermal management: Die-cast aluminum heat sink to maximize thermal dissipation.
Baffle: Die-cast aluminum mounted with retaining spring clips
Trim style: Trimmed and trimless with mudplate or millwork adapter

WEIGHT

Open frame: 4.5 lbs - 2 kg
Type-IC/Chicago Plenum: 8 lbs - 3.6 kg
Remodel: 3.5 lbs - 1.6 kg

LENS AND ACCESSORIES

Soft diffused lens, Solite | Frosted diffused lens | Clear lens | Linear spread | Hex louver

ENVIRONMENT

Ambient temperature at fixture location shall be within 0°C/32°F - 25°C/77°F, indoor dry or damp as well as outdoor damp use (canopies or marquees).

CERTIFICATIONS

ETL: Rated for indoor dry/damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
IP44: IP44 rated for bathrooms, showers, outdoor canopies, and marquees when specified with the wet location (WET) option.
Chicago Plenum: City of Chicago approved (CCEA) when specified with CP installation type option.
IC rated: Suitable for direct contact with insulation when specified with IC, CP or AT installation type options.
ENERGY STAR: ENERGY STAR certified
Title 24 JA8: California Building Standards Code
Declare: LBC Red List Approved

WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

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Type: E10, E10.1

CTE COURTYARD, EXTERIOR COMMONS ENTRIES

VIA 2 SEAL

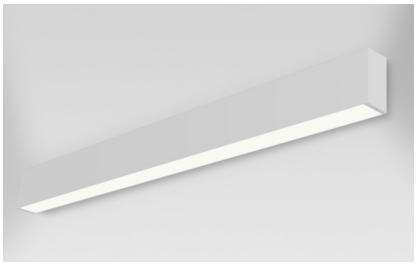
WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

Lumenwerx

5 YEAR WARRANTY

Project: _____

Type: _____



DESCRIPTION

Sealed with silicone gaskets, Via Seal fixtures are intended for wet locations and can be pendant, surface, wall, or recessed mounted. They can act alone as discrete luminaires, or be arranged in continuous lines or patterns. Via 2 Seal is suitable for wet locations where temperatures are moderate and in which spaces are regularly wiped down and frequently in contact with debris and/or moisture. These luminaires can be used to create continuous, unbroken lines of light. See separate spec sheets for patterns and other available mountings.

SENSORS
For latest information on sensors, click here.

IMPORTANT: Fixture must be installed with direct lens facing down.

IK05 LEVEL 1

Up to 108 lm/W performance

Order Guide

LUMINAIRE ID	DISTRIBUTION	ENVIRONMENT [1]	DIRECT OPTIC	INDIRECT OPTIC Specify NA for Direct fixture	LIGHT SOURCE [5]
V2SEALW		**WET**			
V2SEALW - Via 2" Seal Wall	**D** - Direct **DI** - Direct/ Indirect	**WET** [2] - Wet Suitable (IP44) [1] See page 3 for more information. [2] Suitable for outdoor environments only when installed under canopy. Not suitable for extreme weather environments. Consult factory for low temperature applications.	**EPDO** - Environmentally Protected Direct Optic **ASDO** - Asymmetric Soft Direct Optic	**EPIO** - Environmentally Protected Indirect Optic **ASIO** [3] - Asymmetric Soft Indirect Optic **WIO2** [4] - Widespread Indirect Optic **NA** - Not applicable [3] Not available with BIOS. [4] Not available with BIOSTU.	**SW** - Static white **BIOSST** [6] - BIOS Biological Static **BIOSDY** [6] - BIOS Biological Dynamic **BIOSTU** [6] - BIOS Biological Tunable [5] Chromawerx SOLA and DUO also available. Consult other spec sheet. [6] See page 6 for details.

CRI	DIR. LUM. PACK.	INDIR. LUM. PACK. Specify NA for Direct fixture	COLOR TEMP.	LUMINAIRE LENGTH	VOLTAGE	DRIVER [13]
80CRI - 80 CRI **90CRI** [7] - 90 CRI [7] Not available with BIOS.	**350LMF** - Low output 350 lm/ft **500LMF** - Medium output 500 lm/ft **750LMF** [8] - High output 750 lm/ft [8] Not available with BIOS.	**350LMF** - Low output 350 lm/ft **500LMF** - Medium output 500 lm/ft **750LMF** [9] - High output 750 lm/ft **NA** - Not applicable [9] Not available with BIOS.	**27K** [10] - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K **50K** [10] - 5000K [10] Not available with BIOS.	**#FT#IN** [11] - Specify nominal length (#) in 1' and/or 1" increments **Standard nominal lengths:** Single units: 2' to 12' Continuous runs: lengths over 12' [11] Minimum 3' for Direct/Indirect.	**120V** - 120V **277V** - 277V **UNV** - 120V-277V **347V** [12] - 347V [12] Available with D1 driver only.	**D1** - 1% 0-10V **DA** [14] - DALI **LDE1** [14] - Lutron Hi-lume 1% Eco **ELD1** - eldoLED 1% ECOdrive 0-10V **ELD0** - eldoLED 0.1% SOLOdrive 0-10V **RLTD10** [15] - Low-temperature 10% 0-10V [13] PoE (Power-over-Ethernet) compatible. Consult factory for details. [14] On-site commissioning is required. [15] Remote driver box required. Suitable for temperatures down to -40°C/F.

ELECTRICAL	ELECTRICAL SECTIONS (optional) [21, 22]	POWER FEED	MOUNTING	FINISH	OPTION
1C - 1 circuit **2C** [16] - 2 circuits **#MC** [17] - Multi circuit **EC** - Emergency-powered fixture **NL** - Night light fixture **DL** - Daylight fixture **GTD** [18, 19, 20] - Generator transfer device fixture [16] Available for Direct/Indirect only. Separate direct and indirect circuits. [17] Specify total number of circuits (#), including any circuits required for electrical section options. Provide drawing or layout specifications. Minimum 4' section per circuit. [18] Minimum 4' fixture. [19] Not available with 347V. [20] Not available for environments where the ambient temperature falls below 0°C (32°F).	**#EC##** [23] - Emergency-powered section **#NL##** [23] - Night light section **#DL##** [23] - Daylight section **#GTD##** [23, 24, 25, 26] - Generator transfer device section **#EMB** [25, 26, 27] - Emergency battery **NA** - None [21] Specify with multi circuit (#MC) electrical option only. [22] Provide drawing or layout specifications. Consult factory for other configurations. Default section length is 4'. [23] Specify quantity (#), and section length in inches (##). [24] Minimum 4' section. [25] Not available with 347V. [26] Not available for environments where the ambient temperature falls below 0°C (32°F). [27] Specify quantity (#). All batteries will be on the same circuit. Each battery powers a 4' section. For Direct/Indirect, minimum 8' fixture.	**BF** - Back feed **EF** - End feed	**HMB** - Horizontal mounting bracket **MMB** - Mullion mounting bracket	**W** - Matte white **AL** - Aluminum **B** - Matte black **WA** - White antimicrobial Silverwerx **CF#** - Custom finish, specify RAL#	**CRF** - Corrosion-resistant finish **NA** - None

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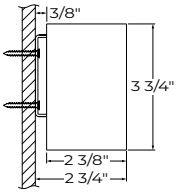
bios PoE WELL WELL

VIA 2 SEAL

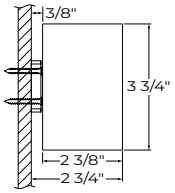
WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

Dimensions

DIRECT

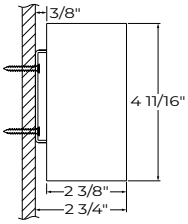


HMB - Horizontal mounting bracket

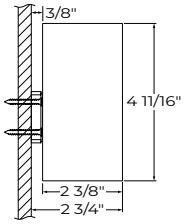


MMB - Mullion mounting bracket

DIRECT/INDIRECT



HMB - Horizontal mounting bracket



MMB - Mullion mounting bracket

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Type: E10, E10.1

CTE COURTYARD, EXTERIOR COMMONS ENTRIES

VIA 2 SEAL

WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

Lumenwerx

Environment Options

The Via Weather Series offers four levels of protective sealing: Level 1, Level 2, Level 3, and Level 4.
Via 2 Seal is available with one environment option: Wet Suitable (WET) at Level 1.
For other levels of protective sealing, please see Via 3 Seal or Via 4 Seal spec sheets for Level 1 and Level 2, Via Wet spec sheets for Level 3, and Via Splash spec sheets for Level 4.

FEATURES	Wet Suitable (IP44) (WET)
Direct distribution	•
Direct/Indirect distribution	•
Indoor application that requires wipe down	•
Healthcare application	•
Outdoor application with restrictions: under canopy only	•
Continuous line of light over 12'	•
Water and dust resistant	•
Water and dust protected	x
Not suitable for extreme weather applications	•
Damp listed	•
Wet listed	x

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STATIC WHITE, BIOS
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Photometrics

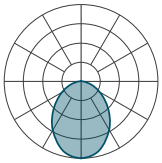
MULTIPLIER TABLE

Please follow the multiplier table to ensure correct lumen value. CCT and CRI, will change the lumen output.

Multiplier - CCT/CRI

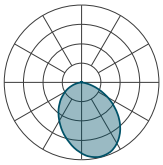
CCT	WATTS		LPW	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	1.06	1.27	0.94	0.79
3000K	1.02	1.23	0.98	0.81
3500K	1.00	1.19	1.00	0.84
4000K	1.00	1.18	1.00	0.85
5000K	0.95	1.12	1.05	0.89

DIRECT



EPDO - Delivered Lumens at 4000K at 80 CRI

LUMENS PER FOOT	TOTAL LUMENS PER 4FT	INPUT WATTS	LPW
350	1400	14.1	99
500	2000	20.7	97
750	3000	32.6	92



ASDO - Delivered Lumens at 4000K at 80 CRI

LUMENS PER FOOT	TOTAL LUMENS PER 4FT	INPUT WATTS	LPW
350	1400	17.0	82
500	2000	25.2	79
750	3000	40.1	75

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CTE COURTYARD, EXTERIOR COMMONS ENTRIES

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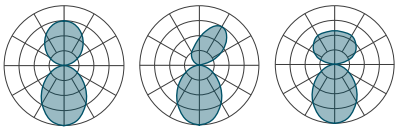
Photometrics

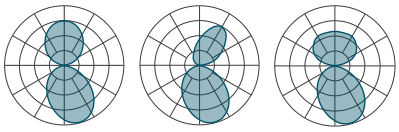
DIRECT/INDIRECT - WITH EPDO
Delivered lumens at 4000K at 80 CRI for all optics.



EPDO - EPIO EPDO - ASIO EPDO - WIO2

LM/FT D	LM/FT I	NOMINAL LM/4FT D	NOMINAL LM/4FT I	TOTAL LM/4FT	INPUT WATTS	LPW
EPDO	EPIO					
	350		1400	2800	28	100
350	500	1400	2000	3400	34.7	98
	750		3000	4400	46.7	94
	350		1400	3400	34.7	98
500	500	2000	2000	4000	41.3	97
	750		3000	5000	53.3	94
	350		1400	4400	46.7	94
750	500	3000	2000	5000	53.2	94
	750		3000	6000	65.3	92
EPDO	ASIO					
	350		1400	2800	27.5	102
350	500	1400	2000	3400	34	100
	750		3000	4400	45.6	97
	350		1400	3400	34.2	100
500	500	2000	2000	4000	40.6	99
	750		3000	5000	52.2	96
	350		1400	4400	46.1	95
750	500	3000	2000	5000	52.6	95
	750		3000	6000	64.2	94
EPDO	WIO2					
	350		1400	2800	25.9	108
350	500	1400	2000	3400	31.4	108
	750		3000	4400	41.3	107
	350		1400	3400	32.5	105
500	500	2000	2000	4000	38	105
	750		3000	5000	47.9	105
	350		1400	4400	44.4	99
750	500	3000	2000	5000	50	100
	750		3000	6000	59.8	100

DIRECT/INDIRECT - WITH ASDO
Delivered lumens at 4000K at 80 CRI for all optics.



ASDO - EPIO ASDO - ASIO ASDO - WIO2

LM/FT D	LM/FT I	NOMINAL LM/4FT D	NOMINAL LM/4FT I	TOTAL LM/4FT	INPUT WATTS	LPW
ASDO	EPIO					
	350		1400	2800	31	90
350	500	1400	2000	3400	37.7	90
	750		3000	4400	49.7	89
	350		1400	3400	39.2	87
500	500	2000	2000	4000	45.8	87
	750		3000	5000	57.9	86
	350		1400	4400	54.1	81
750	500	3000	2000	5000	60.7	82
	750		3000	6000	72.8	83
ASDO	ASIO					
	350		1400	2800	30.5	92
350	500	1400	2000	3400	37	92
	750		3000	4400	48.6	91
	350		1400	3400	38.7	88
500	500	2000	2000	4000	45.2	89
	750		3000	5000	56.7	88
	350		1400	4400	53.6	82
750	500	3000	2000	5000	60	83
	750		3000	6000	71.6	84
ASDO	WIO2					
	350		1400	2800	28.8	97
350	500	1400	2000	3400	34.4	99
	750		3000	4400	44.2	100
	350		1400	3400	37	92
500	500	2000	2000	4000	42.5	94
	750		3000	5000	52.4	95
	350		1400	4400	51.9	85
750	500	3000	2000	5000	57.4	87
	750		3000	6000	67.3	89

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VIA2SEAL-WALL-SPEC-REV4 January 22, 2025

Type: E10, E10.1

CTE COURTYARD, EXTERIOR COMMONS ENTRIES

VIA 2 SEAL

WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

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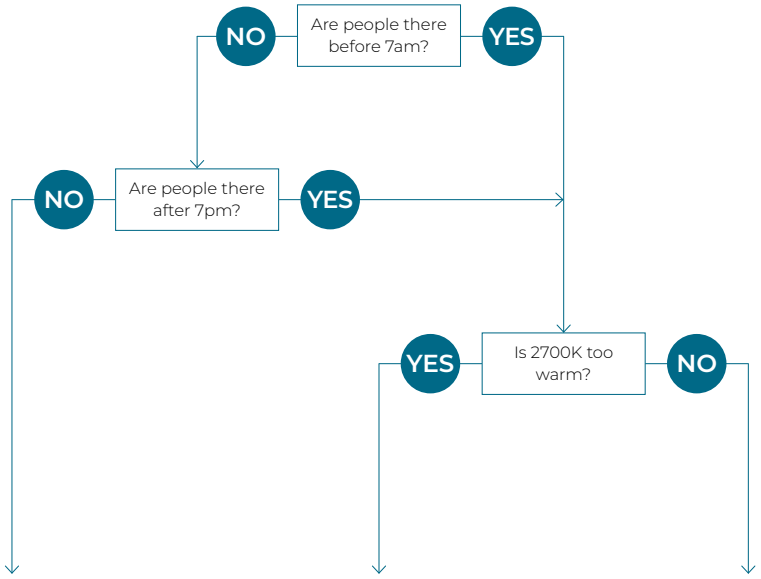
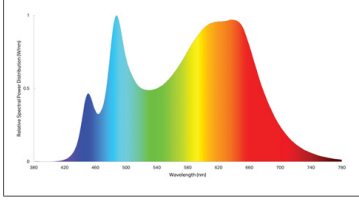
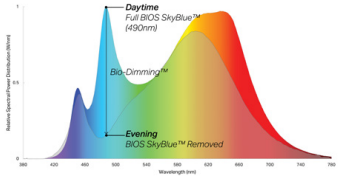
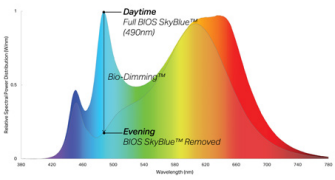
BIOS

Three BIOS Circadian LED solutions are offered – Biological Static, Biological Dynamic, and Biological Tunable.
Use the decision tree below to identify when and where to use BIOS Wellness LED Lighting Solutions.



Biological Static BIOSST	Biological Dynamic BIOSDY	Biological Tunable BIOSTU
No CCT change when dimmed	500K shift when dimmed	Dims to 2700K
Daytime solution	Daytime + evening solution	Daytime + evening solution
Spaces in operation during daytime hours, between 7am and 7pm	Spaces in operation overnight, after 7pm and before 7am, and when CCT color shift in the evening is not preferred	Suitable for spaces in operation overnight, after 7pm and before 7am, and where people do not sleep (CCT color shift in the evening is preferred)
E.g. offices, medical/dental offices	E.g. hospitals	E.g. offices, shiftwork
		

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bios PoE WELL WELL

Type: E10, E10.1

CTE COURTYARD, EXTERIOR COMMONS ENTRIES

VIA 2 SEAL

WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

Technical Specifications

DIRECT OPTICS

Environmentally Protected Direct Optic (EPDO)
The Environmentally Protected Direct Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. This extruded snap-in lens has a gasket to ensure proper sealing. The lens is 1/16" thick and made of frosted polycarbonate. Internally, white, side kicking reflectors guide the light through the lens. The EPDO suits moderate climate environments.

Asymmetric Soft Direct Optic (ASDO)
The Asymmetric Soft Direct Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. This extruded snap-in lens has a gasket to ensure proper sealing. The lens is 1/16" thick and made of frosted polycarbonate. Internally, white, side kicking reflectors specifically angled to guide the light through the lens to create a nice asymmetric distribution. The ASDO suits moderate climate environments.

INDIRECT OPTICS

Environmentally Protected Indirect Optic (EPIO)
The Environmentally Protected Indirect Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. The lens is 1/16" thick and made of frosted polycarbonate. This extruded snap-in lens has a gasket to ensure proper sealing. The EPIO suits moderate climate environments.

Asymmetric Soft Indirect Optic (ASIO)
The Asymmetric Soft Indirect Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. The lens is 1/16" thick and made of clear polycarbonate. This extruded snap-in lens has a gasket to ensure proper sealing. The total internal reflection and surface scattering optic is specifically angled to guide the light through the lens to create a nice asymmetric distribution. The ASIO suits moderate climate environments.

Widespread Indirect Optic (WIO2)
The Widespread Indirect Optic creates a seal that blocks debris and moisture, and withstands UV distortion and moderate impact. The lens is 1/16" thick and made of clear polycarbonate. This extruded snap-in lens has a gasket to ensure proper sealing. The total internal reflection and surface scattering optic offers an impressive 160° spread. WIO2 creates an even illumination for smooth brightness on the ceiling that can achieve uniformity ratios of up to 2:1. The WIO2 suits moderate climate environments.

Uniformity [max/min]

Based on 18' continuous runs, in a 20' x 40' room, 10' wall height

Mounting height from ceiling	Spacing (Center to center)		
	8'	10'	12'
24"	3.0	5.5	8.0
36"	2.0	3.0	4.5
48"	2.0	2.0	3.5

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VIA2SEAL-WALL-SPEC-REV4 January 22, 2025

Type: E10, E10.1

CTE COURTYARD, EXTERIOR COMMONS ENTRIES

VIA 2 SEAL

WALL
DIRECT, DIRECT/INDIRECT
STATIC WHITE, BIOS
VIA WEATHER SERIES

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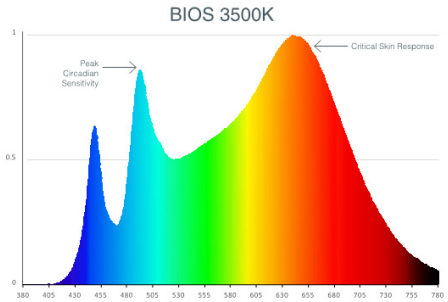
LIGHT SOURCE

Static white
Custom linear array of mid-flux LEDs are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 2700K, 3000K, 3500K, 4000K, and 5000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

BIOS
BIOS SkyBlue™ Technology is designed to provide the specific circadian stimulus to improve overall sleep quality, recovery during the night, and overall feelings of well-being.
The non-visual light signals that stimulate our circadian system have peak intensity in the "sky blue" region. As the diagram below illustrates, BIOS SkyBlue technology shifts the peak LED spectral intensity (490 nm) to align better with the peak response of circadian stimulus. Also note the enhanced deep-red (near 660 nm) spectrum.



Three BIOS solutions are offered: BIOS Biological Static (BIOSST), BIOS Biological Dynamic (BIOSDY), and BIOS Biological Tunable (BIOSTU). See page 6 for details.

WELL BUILDING STANDARD

WELL for Light: The WELL building standard focuses on light quality in several features. There are three categories that are fully attributed to the construction and features of a luminaire. In WELL V1, it's Feature 54 Circadian Lighting, Feature 55 Glare Control, and Feature 58 Color Quality. In WELL V2, it's Feature L03 Circadian Lighting, Feature L04 Glare Control, and Feature L07 Electric Light Quality.

This fixture meets Features:
- Feature 54 or L03 when BIOS LED is selected
- Feature 58 or L07 when 90 CRI is selected

All LED drivers used at Lumenwerx are deemed to have a low risk level of flicker, of 5 % or less below 90Hz operational as defined by IEEE standard 1789-2015 LED.

WELL for Mind: This luminaire meets WELL for mind as it is a human centric luminaire offering quality light, excellent color, and smooth optics. If any of these features are incorporated in a luminaire, it can improve the ability to focus, concentrate, and persist longer on a given task. This fixture harmoniously operates in a space to assist the mind.

For more information, please contact well@lumenwerx.com

LUMINAIRE LENGTH

Via 2 Seal is available in standard lengths of 2' to 12'. Continuous runs are available for run lengths over 12'. Exact run length must be noted in the product code. The minimum length is 2' for Direct fixtures, and 3' for Direct/Indirect fixtures. Lengths can be ordered in 1' and/or 1" increments. All individual sections are joined together onsite using the joiner kits provided. Lumenwerx joiner kits are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.

WEEP HOLES

The Direct/Indirect fixtures with the Wet Suitable (WET) option feature a weep hole situated in the end cap. Water and moisture that enters the fixture will be expelled through this hole.

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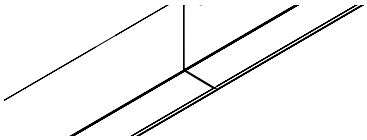
JOINING SYSTEM
All individual sections are joined together onsite using the ¼"-20 screws and nuts provided. The junction between two adjacent sections creates a continuous line of light without shadows.

Wet Suitable - WET



Continuous line of light

ELECTRICAL
Factory-set, adjustable output current LED driver with universal (120-277 VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% Ecosystem, eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant. An optional low-temperature 10% 0-10V driver, suitable for temperatures down to -40°C/F is also available.

PoE
Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, DUO (tunable white), QUADRO (RGBW), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

ELECTRICAL SECTION OPTIONS
Electrical section options are available for fixtures specified as multi circuit (#MC). With MC, specify the total number of circuits (#), including any circuits required for optional electrical sections. A drawing is required to specify the layout. Please consult factory for custom configurations.

Electrical sections
Options include emergency-powered light (#EC##), night light (#NL##), daylight (#DL##), and generator transfer device (#GTD##) sections. Specify the quantity (#), as well as the section length in inches (##).

Example 1: A 32' Direct fixture with two 8' emergency light sections on a second circuit.
Code: 2MC-2EC96

Example 2: A 16' Direct/Indirect fixture with separate circuits for direct and indirect, and with one 4' night light section on the direct side on a third circuit.
Code: 3MC-1NL48

Example 3: A 24' Direct fixture with one 4' generator transfer device section.
Code: 1MC-1GTD48

Battery
Each emergency battery (#EMB) powers a 4' section. All batteries will be on the same circuit. Specify the number of batteries (#) required.
Factory installed long life, high temperature, maintenance-free Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. Minimum of 90 minutes operation, up to 1000 lumens per 4' (25°C) emergency lighting output and recharge time of 24 hours. Suited for ambient temperatures of 0°C (32°F) to 55°C (131°F).

Generator Transfer Device (GTD)
A UL924 listed shunt relay that can bypass both line voltage (120-277V) and 0-10V dimming signal. Suited for ambient temperatures of 0°C (32°F) to 60°C (140°F).

MOUNTING
Fixtures may be horizontally mounted to either a wall or a mullion using a bracket. For long runs, a minimum of 6" from adjacent wall is required.

FINISH
Interior: 95%, reflective matte powder coated white paint
Exterior: Powder-coat paint in matte white, matte black, or aluminum. Custom finishes are also available. Optional antimicrobial finish.

CONSTRUCTION
Housing: Extruded aluminum, up to 90% recycled content
Interior brackets: Die-formed cold rolled sheet steel
Reflectors: Die-formed cold rolled sheet steel, 95% reflective matte white painted
End cap: Die-cast aluminum
End cap gasket: 1/16" closed-cell silicone foam
Horizontal mounting bracket: Steel bracket with stainless steel PEM studs and sealing washers
Mullion mounting bracket: Die-cast aluminum

WEIGHT

Direct	Direct/Indirect
4ft: 9.0 lbs - 4.1 kg	**4ft**: 12.1 lbs - 5.5 kg
8ft: 18.3 lbs - 8.3 kg	**8ft**: 23.3 lbs - 10.6 kg
12ft: 28 lbs - 12.7 kg	**12ft**: 34.6 lbs - 15.7 kg

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CERTIFICATIONS

ETL: WET environment option is rated for dry/damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
IK05: Impact resistance rated to IK05

WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

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Molalla River Middle School Replacement
Molalla, Clackamas County, Oregon
Wetland and Water Delineation Report

Date: May 2025

Prepared for: Molalla River School District
318 Leroy Avenue
Molalla, Oregon 97038

Prepared by: AKS Engineering & Forestry, LLC
Allison Law, Natural Resource Specialist
Sonya Davis, PWS, Wetland Scientist

Study Area: Clackamas County Assessor's Map 5 2 E 08B
Tax Lot 3000 and portion of right-of-way
Molalla, Oregon

AKS Job Number: 11540

AKS ENGINEERING & FORESTRY
12965 SW Herman Road, Suite 100
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1157

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Introduction

This report was prepared by AKS Engineering & Forestry, LLC (AKS) in accordance with Oregon Administrative Rules (OAR) 141-090-0030 and 141-090-0035 and describes the results of a wetland and water delineation conducted on Tax Lot 3000 and a portion of public right-of-way of Clackamas County Assessor's Map 5 2 E 08B, which is consists of the Molalla River Middle School located at 318 Leroy Avenue in Molalla, Oregon (Figures 1 and 2 in Appendix A). The study area for the wetland and water delineation is ±22 acres and is shown in Figures 1 through 5 in Appendix A.

AKS conducted site visits on February 11 and April 9, 2025, and delineated the boundaries of one potentially jurisdictional Palustrine emergent (PEM) wetland (referred to as Wetland A) and one Palustrine scrub-shrub (PSS) wetland (referred to as Wetland B), and a partially ephemeral and partially intermittent drainage within the study area, as described in further detail below and summarized in Table 1 of this report. Additionally, two roadside ditches were observed within the study area.

A wetland delineation was conducted on the adjacent site to the south (Tax Lot 4300) by Schott & Associates in 2002 and received concurrence from the Oregon Department of State Lands (DSL) under File No. WD2002-0316. Per WD2002-0316, wetland conditions did not extend within the 2025 AKS study area boundary of the West Lane right-of-way. In 2003, a removal-fill permit was issued by DSL for permanent impacts to the off-site wetland for the construction of the Molalla Medical Offices (DSL Permit 31430-FP). Wetland impacts were mitigated through the on-site creation of 0.269 acres of Palustrine forested (PFO) wetland and the enhancement of 0.54 acres of PSS wetland. Wetland creation mitigation did not extend within the West Lane right-of-way. Therefore, Wetland B delineated under this study is not considered a wetland mitigation site per 31430-FP.

A. Landscape Setting and Land Use

The study area consists of the Molalla River Middle School located in the southeastern portion of the site with associated parking lots and athletic fields (three baseball fields and multiple soccer fields). The study area is dominant in mowed bentgass (*Agrostis* spp., FAC) and bluegrass (*Poa* spp., FAC). A channelized drainage boarders the northern study area boundary. The surrounding land use consists primarily of residential development with Molalla Elementary School and athletic track to the west and some commercial to the south. Topography is generally flat (less than 3 percent slopes) throughout the study area.

The hydric Dayton silt loam (Unit 29) soil unit is mapped within the study area, according to the Natural Resources Conservation Service (NRCS) Clackamas County Area Soil Survey Map (Figure 3 in Appendix A).

B. Site Alterations

Historical aerial imagery dating from 2000 to 2023 was reviewed via Google Earth to determine if any site alterations may have affected the presence, location, or geographic boundaries of any wetlands or non-wetland waters within the study area. According to aerial imagery, the current Molalla River Middle School and associated buildings, parking lots, and athletic fields have existed since prior to 2000. Potential saturation signatures were observed in the northern portion of the study area within the athletic fields beginning May 2010 and persisting through the spring of subsequent years. It is likely these areas are irrigated during the summer months.

Since July 2000, the study area has remained relatively unchanged with no apparent site alterations that would impact the extent of wetlands and non-wetlands water delineated under this study.

C. Precipitation Data and Analysis

Fieldwork was conducted on February 11 and April 9, 2025. The Applied Climate Information System (ACIS) Climate Analysis for Wetlands Tables (WETS) station closest to the study area is the Estacada 2SE station. The Estacada 2SE station WETS growing season is between March 31 and November 15. The February 11, 2025, site visit was conducted outside of the WETS growing season while the April 9, 2025, site visit was conducted within the WETS growing season.

According to the USACE Antecedent Precipitation Tool (APT), Version 1.0.20 (USACE 2022), both the February 11 and April 9, 2025, site visits were conducted during normal precipitation conditions. However, incipient wetness was noted for the April 2025 site visit per the drought index. Observed precipitation data was obtained from multiple weather stations to calculate antecedent rainfall more accurately. Results of the APT are included in Appendix D.

Per the Estacada 2SE station, no rain was recorded on the day of February 11, 2025, and 2.01 inches were recorded in the two weeks prior. The observed water year to date for the February 11 , 2025, site visit (starting October 1, 2024) was 27.44 inches, which is 86 percent of normal. Climatic conditions for the three-month periods leading up to the February 11, 2025, site visit was determined to be within normal.

According to the Estacada 2SE station, 0.43 inches of rain was recorded on the day of April 9, 2025, and 2.76 inches were recorded in the two weeks prior. The observed water year to date for the April 9, 2025, site visit (starting October 1, 2024) was 44.27 inches, which is 100% percent of normal. Climatic conditions for the three-month periods leading up to the April 9, 2025, site visit was determined to be wetter than normal. Due to the heavy rainfall received two weeks prior to the site visit, a high groundwater table was observed at upland Plots 11 and 12; however, this did not affect the results of the wetland delineation as Plots 11 and 12 did not meet hydric soil indicators.

D. Site-Specific Methods

The methodology used to determine the presence of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010). The *National Wetland Plant List* (USACE 2022) was used to assign wetland indicator status for the appropriate region. The US Fish & Wildlife Service (USFWS) Cowardin classification system (Cowardin, et al. 1979) was used to describe wetland vegetation communities. The DSL *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles* (Adamus 2001) was used to assign HGM class.

The ordinary high water (OHW) of the intermittent drainage was delineated based on physical field indicators in accordance with Oregon Administrative Rule (OAR) 141-085-0515(3), which consisted of a distinct break in topography and change in sediment characteristics. Flow duration data using the Environmental Protection Agency (EPA) *Streamflow Duration Assessment Method for Oregon* (SDAM) was collected to determine flow regimes for the drainage within the study area (Appendix E).

Fieldwork was conducted on February 11, 2025, by AKS Wetland Scientist Sonya Davis, PWS, and Natural Resource Specialist Allison Law and a follow-up site visit was conducted on April 9, 2025. Soils, vegetation, and indicators of hydrology were recorded at 15 sample plot locations on standardized wetland determination data forms (Appendix B) to document site conditions.

During the delineation, plots were established in NRCS mapped hydric soil, within LWI mapped wetlands, and in areas of potential saturation signatures observed on aerial images. Seven standalone sample plots (Plots 5 through 9, 12, and 13) were established to confirm upland conditions within the study area. Additionally, eight paired sample plots (Plots 1 through 4, 10, 11, 14, and 15) were established along the wetland boundary to confirm that a subtle change in topography was consistent with the wetland/upland interface. Sample plots were left open for approximately twenty minutes to allow for sufficient time for any potential groundwater table to seep in.

The vegetation within the athletic field had been planted and mowed and the *Regional Supplement's* Chapter 5, Problematic Hydrophytic Vegetation was reviewed; however, upland plots lacked hydric soils and indicators of wetland hydrology, therefore vegetation was not problematic in determining wetland presence. Additionally, a high groundwater table was observed at Plots 11 and 12 likely due to almost 3 inches of rain received within the two weeks prior to the April 2025 site visit. Plots 11 and 12 did not have hydric soil and therefore were determined to be upland.

Representative ground-level site photographs are included in Appendix C. References cited and literature used are included in Appendix F.

E. Description of Wetlands and Non-Wetland Waters

Wetlands

Wetland A

The PEM wetland is located in the northwestern portion of the study area and does not continue off-site. The wetland was dominant in bentgrass (FAC), and bluegrass (FAC) as documented at Plots 1 and 3. Wetland A is fed mainly by a seasonally high groundwater table and direct precipitation and secondarily by surface runoff. Therefore, the wetland belongs to the Slope Valley (SV) Hydrogeomorphic (HGM) subclass. The wetland boundary was delineated based on a change in landform, from a subtle concave depression in the wetland to a slightly higher elevation in the upland. The paired upland plots lacked hydric soils and indicators of wetland hydrology.

Wetland B

Wetland B is a PSS wetland located in the southern portion of the study area within the West Lane right-of-way and continues off-site to the south. The wetland was dominant in reed canary grass (*Phalaris arundinacea*, FACW), Himalayan blackberry (*Rubus armeniacus*, FAC), and Douglas' meadowsweet (*Spirea douglasii,* FACW) as documented at Plots 10 and 15. Wetland B is fed mainly by a seasonally high groundwater table and upland surface runoff. Therefore, the wetland belongs to the Slope Valley (SV) Hydrogeomorphic (HGM) subclass. The wetland boundary was delineated based on a change in landform, from a subtle concave depression in the wetland to a slightly higher elevation in the upland. The paired upland plots lacked hydric soils. A high groundwater table was observed at paired upland Plot 11 likely due to heavy rainfall prior to the site visit.

Non-Wetland Waters

The OHW of one drainage was delineated along the northern study area boundary. The on-site flow regime of the drainage is documented by two SDAM field assessment forms. Based on the presence of reed canary grass (FACW), and lamp rush (*Juncus effusus*, FACW) along the channel banks, the lower segment of the drainage was determined to have an intermittent flow regime, while the upper segment was determined to have an ephemeral flow regime. The centerline of the ephemeral portion of the drainage was mapped as it lacked a well-defined OHW.

The drainage flows east to west, originating from a 16-inch concrete culvert in the northeast portion of the study area under Leroy Avenue and extends off-site to the west. No channel was observed off-site to the east. The intermittent segment contained ±4 to 6 inches of surface water and had an average channel width of 2 to 3 feet with 5-foot-tall banks. The channel substrate consisted of a silty clay loam. The ephemeral segment of the drainage was approximately ±3 feet wide with ±3-foot-tall banks and consisted of a silty clay loam substrate with some cobbles and gravels. No surface water was present in the ephemeral segment of the drainage and the channel bed was mostly unvegetated with geranium (*Geranium* spp., assumed FAC), Himalayan blackberry (FAC), red dead-nettle (*Lamium purpureum*, FAC), bentgass, Fuller's teasel (*Dipsacus fullonum*, FAC), Queen Anne's-lace (*Daucus carota*, FAC), hairy cat's-ear (*Hypochaeris radicata*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FAC), and stinking willie (*Jacobaea vulgaris*, FACU) growing along its banks.

According to the Oregon Department of Fish and Wildlife (ODFW) Oregon Fish Habitat and Distribution Barriers Map, the drainage is not mapped as a fish bearing stream. Additionally, the drainage is not currently mapped by ODFW and DSL as Essential Salmonid Habitat (ESH).

Roadside Ditch 1 & 2

Two ephemeral roadside ditches were present within the study area. Ditch 1 was present along a portion of Leroy Avenue in the eastern portion of the study area. Ditch 2 was present along a portion of West Lane in the southern portion of the study area. The ditches were excavated to convey upland runoff from the adjacent roadways and lacked a defined OHW. Both ditches were approximately 2 feet wide with 1-foot-tall banks. Ditch 1 consisted of a silt loam substrate and was sparsely vegetated with FAC grasses such as bentgrass and bluegrass. Ditch 2 consisted of a silt loam substrate with angular cobbles and gravels and was vegetated with tall false rye grass (FAC) bentgrass (FAC) and Himalayan blackberry (FAC). Plot 13 documents upland conditions within Ditch 2. No flow or surface water was observed within the ditches during the February 11, 2025, site visit.

Upland

Plots 5 through 8 were recorded within the athletic field in potential saturation signature per Google Earth aerial imagery. Vegetation at the plots was dominated by FAC grasses, including bentgrass and bluegrass and weedy herbaceous species. All plots lacked hydric soils and indicators of wetland hydrology. Therefore, these areas were determined to be upland.

Plots 9 and 12 were recorded within West Lane right-of-way. Vegetation at the plots was dominated by FAC grasses, including bentgrass, bluegrass, and tall false rye grass (*Schedonorus arundinaceus,* FAC), and other weedy species. All plots lacked hydric soils however a high groundwater table was observed at Plot 12, likely due to heavy rainfall prior to the site visit; therefore, these areas were determined to be upland.

F. Deviation from LWI and SWI

According to the DSL-approved City of Molalla 2004 Local Wetland Inventory (LWI) map (Figure 4), a wetland is mapped in the northwestern portion of the study area and in the southern portion in the vicinity of Wetland A and Wetland B delineated by AKS under this study. Additionally, according to the LIW map, a drainage is mapped along the northern study area boundary in the vicinity of the Drainage Ditch observed by AKS under this study. No wetlands or waters are mapped on-site according to the Statewide Wetlands Inventory (SWI).

G. Mapping Method

Wetland and water boundaries and centerlines of the roadside ditches and ephemeral potion of the drainage were mapped with submeter accuracy using a Trimble R10 GPS Receiver and ArcGIS Field Maps during the February 11 and April 9, 2025, site visits. The wetland boundaries were flagged with orange wire whips and the sample plots with pink wire whips. The delineation map is included as Figure 5 in Appendix A.

H. Additional Information

DSL Preliminary Jurisdictional Determination

According to OAR 141-085-0515(5), Wetland A and B are naturally occurring wetland and, therefore, likely to be determined jurisdictional to DSL. Per DSL removal-fill permit 31430-FP, wetland mitigation did not extend off-site; therefore, Wetland B delineated under this study may not be considered a wetland mitigation site as it is located outside of the off-site wetland creation and enhancement footprint.

The ephemeral portion of the drainage may not be determined jurisdictional to DSL under OAR 141-085-0515 (3). However, the downstream intermittent portion of the drainage may be determined jurisdictional to DSL, as it appears to have a continuous surface connection to off-site Bear Creek based on potential saturation signatures on Google Earth Aerial images, which is mapped as containing coastal cutthroat trout, thus providing food for food and game fish.

According to OAR 141-085-0515(10), Roadside Ditch 1 and 2 within the study area may be considered non-jurisdictional to DSL because they are less than 10 feet wide, not created within or adjacent/contiguous to wetlands, and do not contain food or game fish.

USACE Preliminary Jurisdictional Determination

Under the U.S. Environmental Protection Agency's (EPA) September 8, 2023, amended Water of the United States (WOTUS), wetlands and tributaries with a continuous (and distinguishable) surface connection to Traditional Navigable Waters (TNW) are regulated. A joint memorandum prepared by the USACE and the EPA on March 12, 2025, provided new interpretation guidance for the 2023 Sackett revised definition for continuous surface connection. The March 2025 memorandum rescinds the interpretation that a discrete feature (i.e., a ditch/swale/pipe/culvert) establishes a continuous surface connection for jurisdictional status.

Wetland A drains northerly into the intermittent drainage, which continues off-site to the west. Wetland A and the drainage appear to have a continuous surface connection to Bear Creek located approximately one-half mile off-site to the southwest through distinguishable saturation signatures visible on aerial imagery. Bear Creek is a perennial tributary to the Pudding River and ultimately the Willamette River, a

Traditional Navigable Water (TNW). The PEM wetland and intermittent portion of the drainage may be jurisdictional to the USACE. The ephemeral portion of the drainage may be considered non-jurisdictional to the USACE because it does not carry a relatively permanent flow of water.

Wetland B continues off-site to the south and appears to be isolated with no distinguishable surface connection to a TNW; therefore, Wetland B may be considered non-jurisdictional to the USACE.

Roadside Ditch 1 and 2 within the study area may be considered non-jurisdictional to the USACE because they were excavated wholly in and draining only upland and do not carry a relatively permanent flow of water.

I. Summary of Results and Conclusions

Table 1 below provides a summary of the on-site sizes of the features, hydrologic connections to other nearby waters, the Cowardin and HGM classifications for the wetlands, and our prediction of whether each feature would likely be determined jurisdictional to DSL and USACE.

Table 1: Summary of Study Wetland and Waters Results and Conclusions

Potentially Jurisdictional Feature	Latitude/ Longitude	Size	Cowardin Class	HGM Class/Flow Regime	Connection to Other Waters	DSL/USACE Predicted Jurisdiction
Wetland A	45.153342, -122.591377	±0.11 acres	PEM	Slope Valley	Intermittent Drainage	DSL/USACE
Wetland B	45.150346, -122.590804	±0.03 acres	PSS	Slope Valley	Isolated	DSL
Ephemeral Drainage	45.153183, -122.588934	±348 LF	NA	Ephemeral	Bear Creek, Pudding River	None
Intermittent Drainage	45.153387, -122.590698	±0.03 acres/±486 LF	NA	Intermittent	Bear Creek, Pudding River	DSL/USACE
Roadside Ditch 1	45.152510, -122.588577	±457 LF	NA	Ephemeral	None	None
Roadside Ditch 2	45.150514, -122.591360	±324 LF	NA	Ephemeral	None	None

J. Required Disclaimer

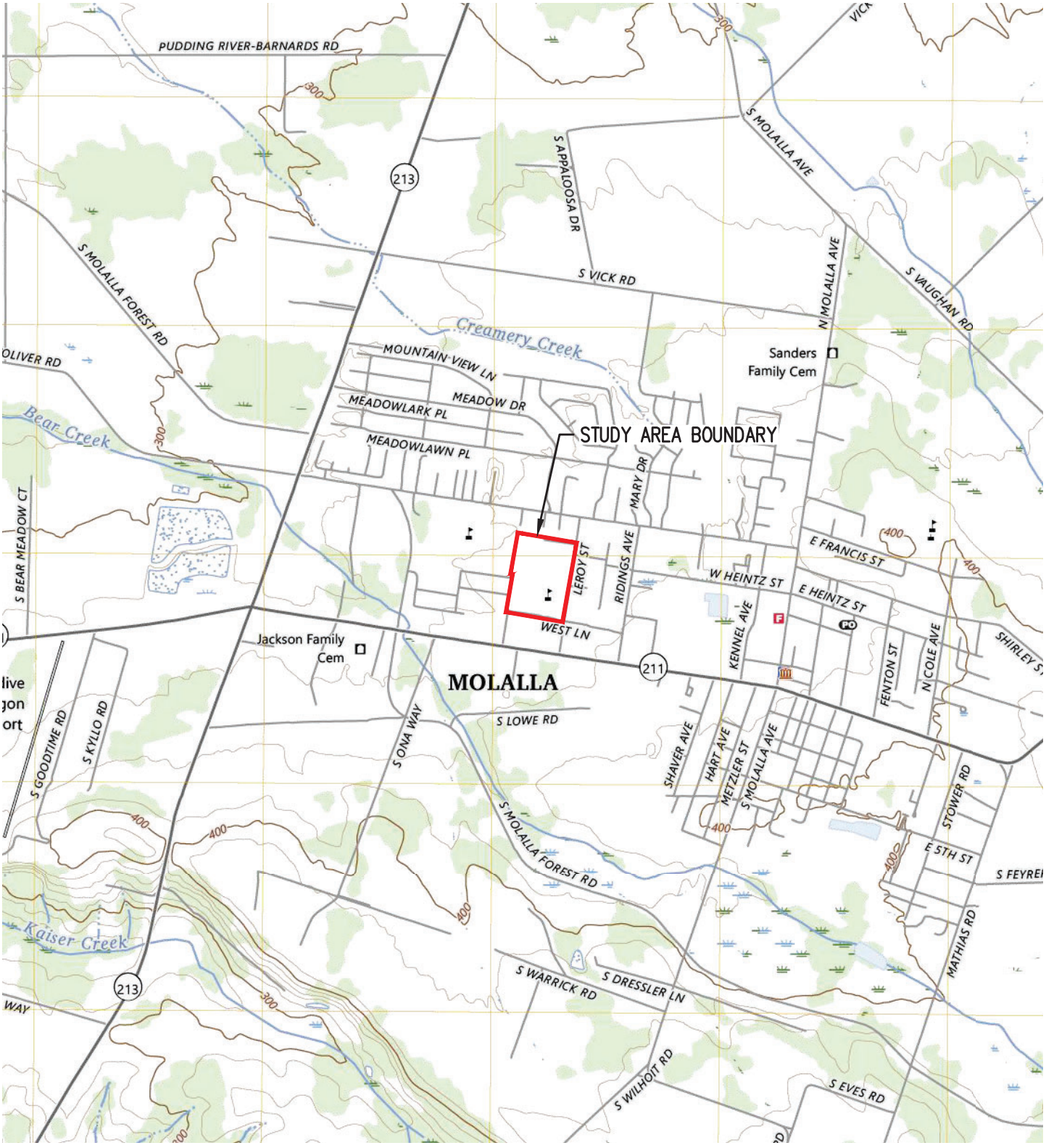
This report documents the investigation, BPJ, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk, unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with Oregon Administrative Rules (OAR) 141-090-0005 through 141-090-0055.

K. List of Preparers

Allison Law
Natural Resource Specialist
Fieldwork and Report Preparation

Sonya Davis, PWS
Wetland Scientist
Fieldwork and Report and Data Review

Appendix A: Maps



USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: MOLALLA, OR (2023)

N

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

USGS VICINITY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 1

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1167

CLACKAMAS COUNTY
TAX LOT 3000 AND PORTIONS
OF RIGHT OF WAY
TAX MAP 5 2 E 08B

N

SCALE: 1"= 300 FEET

300 0 60 150 300

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

TAX MAP (MAP 5 2 E 08B) MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT	FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: GPM CHKD: SKD AKS JOB: 11 1168

DWG: 11540 WDR BACKGROUND FIGURES | FIGURE 2

MAP UNIT SYMBOL	MAP UNIT NAME
29	DAYTON SILT LOAM; HYDRIC

N

SCALE: 1"= 200 FEET

200 0 40 100 200

ORIGINAL PAGE SIZE: 8.5" x 11"

NRCS WEB SOIL SURVEY FOR
CLACKAMAS COUNTY

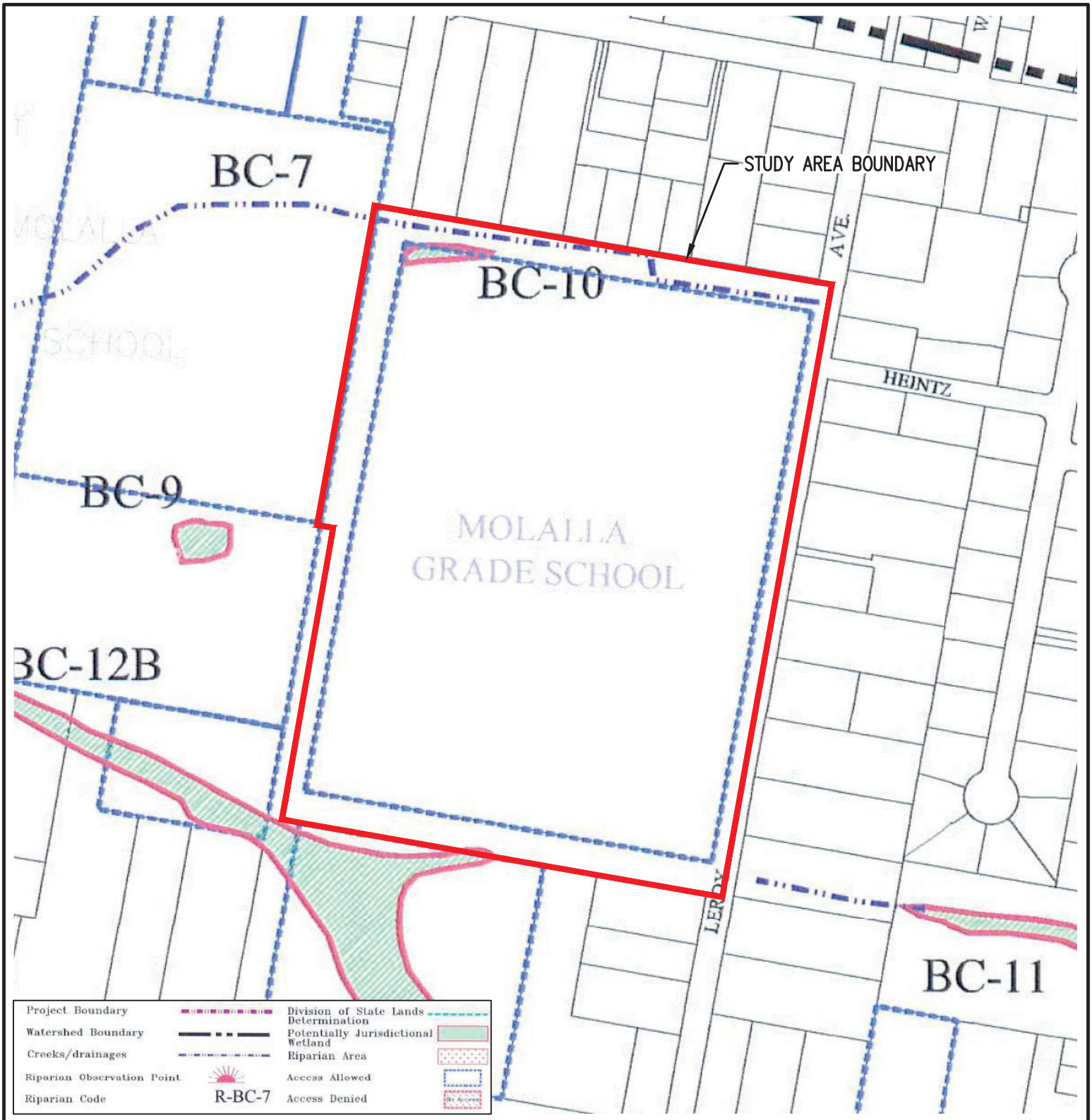
DATE: 04/11/2025

NRCS SOIL SURVEY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 3

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1169



CITY OF MOLALLA
LOCAL WETLANDS INVENTORY (2004)

N

SCALE: 1"= 250 FEET

250 0 50 125 250

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

LOCAL WETLAND INVENTORY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 4

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1170

DWG: 11540 WDR BACKGROUND FIGURES | FIGURE 4

AERIAL DERIVED FROM NAIP (JUNE 2023)

N

SCALE: 1"= 200 FEET

200 0 40 100 200

ORIGINAL PAGE SIZE: 8.5" x 11"

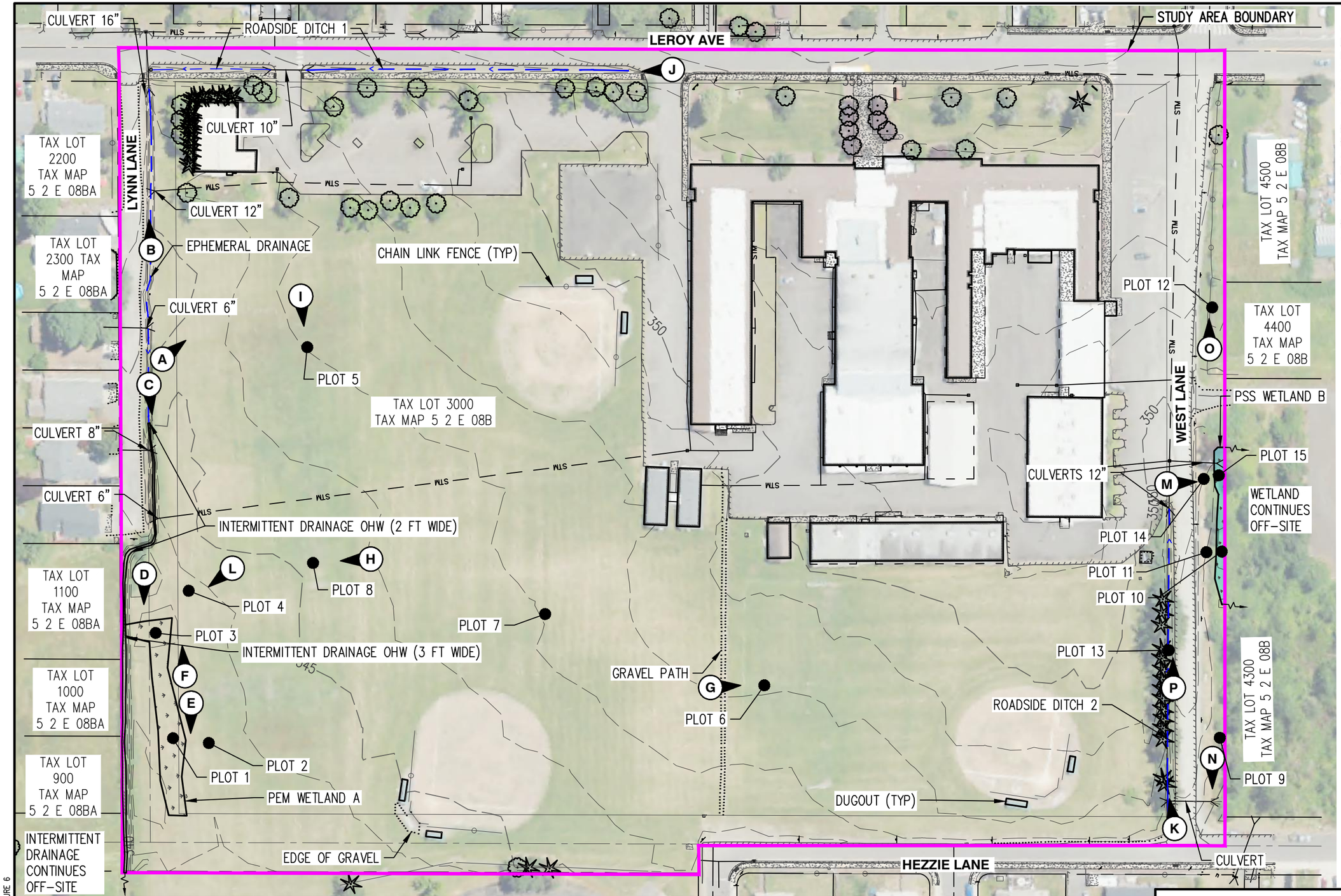
DATE: 04/11/2025

RECENT AERIAL IMAGE
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 5

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1171



WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON FEBRUARY 11, AND APRIL 09, 2025. WETLAND BOUNDARIES, CENTERLINES, AND PLOTS SHOWN WERE RECORDED WITH SUB-METER ACCURACY USING A TRIMBLE R10 GPS RECEIVER AND ARCGIS FIELD MAPS.

EXISTING CONDITIONS, TAX LOTS, STUDY AREA BOUNDARY, 1-FOOT INTERVAL GROUND CONTOURS, AND TREE SURVEY OF TREES >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY FROM OCTOBER 10 TO OCTOBER 23, 2024.

RECENT AERIAL IMAGE DERIVED FROM AKS AERIAL SURVEY ON OCTOBER 10, 2024.

N

SCALE: 1"=100 FEET

100 0 20 50 100

ORIGINAL PAGE SIZE: 11" x 17"

DATE: 04/26/2025

LEGEND (COLOR COPY):

TOTAL ON-SITE WETLAND AREA: 6,394 SF± (0.15 ACRES±
ON-SITE PEM/SV WETLAND A AREA: 4,971 SF± (0.11 ACRES±)

ON-SITE PSS/SV WETLAND B AREA: 1,423 SF± (0.03 ACRES±)

ON-SITE INTERMITTENT DRAINAGE:
1,226 SF± (0.03 ACRES±) / 486 LF± (2-3 FT WIDE±)

ON-SITE EPHEMERAL DRAINAGE: 348 LF± (3 FT WIDE±)
ON-SITE ROADSIDE DITCH 1: 457 LF± (2 FT WIDE±)
ON-SITE ROADSIDE DITCH 2: 324 LF± (2 FT WIDE±)

STM EXISTING STORMWATER LINE

SAN EXISTING SANITARY SEWER LINE

A PHOTO POINT LOCATION & ORIENTATION

WETLAND AND WATERS DELINEATION MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT

FIGURE 6

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1172

DWG: 11540 WDR EXCOND V2 | FIGURE 6

Appendix B: Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: 1

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15334030 Long: -122.59103940 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes X** **No** ____
Hydric Soil Present?	Yes **X**	No ____		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot located in LWI mapped wetland.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Size: 30' r or ____)			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 1

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-12	10YR 2/2	99	7.5YR 3/4	1	C	M	SiL	
12-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 9

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **2**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15324150 Long: -122.59108030 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Poa species*	50%	Yes	FAC*
2. *Agrostis species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 2

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-13	10YR 2/2	100					SiL	
13-16	10YR 4/2	90	7.5YR 4/4	5	C	M	SiL	
			7.5YR 4/6	5	C	M		

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **3**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15334480 | Long: -122.59061050 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	80%	Yes	FAC*
2. *Poa species*	15%	No	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes **X** No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 3

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-6	10YR 3/2	100					SiL	
6-10	10YR 3/2	90	7.5YR 4/6	10	C	M	SiL	
10-16	10YR 4/2	80	7.5YR 4/6	20	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 9

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: 4

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15323380 | Long: -122.59046220 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 4

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-15	10YR 2/2	100					SiL	
15-16	10YR 4/2	90	7.5YR 4/4	10	C	M	SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **5**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15279900 | Long: -122.58956300 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	
Hydric Soil Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	40%	Yes	FAC*
2. *Poa species*	40%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 5

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-2	10YR 3/1	98	5YR 3/4	2	C	M/PL	SiL	many fine roots
2-14	10YR 3/1	100					SiL	
14-16	10YR 4/2	95	7.5YR 4/4	5	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): 14

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **6**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15165400 | Long: -122.59118100 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 6

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-14	10YR 2/2	100					SiL	
14-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: 7

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15223900 | Long: -122.59076700 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 7

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-13	10YR 2/2	100					SiL	
13-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 2/11/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **8**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15287100 | Long: -122.59042400 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.00 inches of rainfall were received on the day of the site visit and 2.01 inches within the two weeks prior. Since October 1, 2024, 27.44 inches of rainfall were received, which is 86% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Poa species*	50%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed. Vegetation mowed.

SOIL

Sampling Point: 8

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-14	10YR 3/2	100					SiL	
14-18	10YR 4/2	90	7.5YR 4/6	10	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **9**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15039395 Long: -122.59166117 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus ponderosa*	10%	Yes	FACU
2.			
3.			
4.			
	10% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rosa species*	10%	Yes	FAC*
2. *Rubus armeniacus*	5%	Yes	FAC
3. *Crataegus monogyna*	5%	Yes	FAC
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	50%	Yes	FAC
2. *Poa species*	20%	Yes	FAC*
3. *Poterium sanguisorba*	10%	No	UPL
4. *Alopecurus pratensis*	5%	No	FAC
5. *Daucus carota*	5%	No	FACU
6. *Dipsacus fullonum*	3%	No	FAC
7. *Geranium dissectum*	2%	No	FAC*
8.			
9.			
10.			
11.			
	95% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
* Assumed.

SOIL

Sampling Point: 9

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-18	10YR 3/2	100						SiL

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soils dry throughout.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **10**

Investigator(s): Sonya Davis, PWS | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15031838 | Long: -122.59091768 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	60%	Yes	FAC
2. *Rosa species*	20%	Yes	FAC*
3.			
4.			
5.			
	80% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	5%	Yes	FACW
2. *Alopecurus pratensis*	5%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 90%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes **X** No ____

Remarks:
* Assumed.

SOIL

Sampling Point: 10

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-8	10YR 3/1	100					SiL	
8-16	10YR 3/1	98	7.5YR 3/4	2	C	M	SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): Surface

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **11**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15035357 Long: -122.59091727 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Alopecurus pratensis*	95%	Yes	FAC
2. *Taraxacum officinale*	5%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 11

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-20	10YR 3/1	100					SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes X No ___ Depth (inches): 12
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology likely due to heavy rainfall prior to the site visit (2.76 inches within the two weeks prior).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **12**

Investigator(s): Sonya Davis, PWS Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15023395 Long: -122.58994491 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes **X**	No ____		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot taken within ditch.

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	30%	Yes	FAC
2. *Agrostis species*	20%	Yes	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 45%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 12

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-8	10YR 3/2	100					SiL	
8-16	10YR 3/3	100					SiL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 11

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology likely due to heavy rainfall prior to the site visit (2.76 inches within the two weeks prior).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **13**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15050647 Long: -122.59128386 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:
Plot located in roadside ditch.

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	30%	Yes	FAC
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Schedonorus arundinaceus*	60%	Yes	FAC
2. *Agrostis species*	20%	Yes	FAC*
3. *Hypochaeris radicata*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 15%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
*Assumed

SOIL

Sampling Point: 13

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-16	10YR 3/2	100					SiL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement City/County: Molalla/Clackamas Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District State: Oregon Sampling Point: **14**

Investigator(s): Sonya Davis, PWS, and Allison Law Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast Lat: 45.15033450 Long: -122.59062172 Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No **X**		
Wetland Hydrology Present?	Yes ____	No **X**		

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	50%	Yes	FAC
2. *Spiraea douglasii*	15%	Yes	FACW
3.			
4.			
5.			
	35% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	95%	Yes	FACW
2. *Agrostis species*	5%	Yes	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
*Assumed

SOIL

Sampling Point: 14

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[0]	Remarks
0-16	10YR 2/2	100					SiCL	

[0]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Molalla River Middle School Replacement | City/County: Molalla/Clackamas | Sampling Date: 4/9/2025

Applicant/Owner: Molalla River School District | State: Oregon | Sampling Point: **15**

Investigator(s): Sonya Davis, PWS, and Allison Law | Section, Township, Range: Sec.8 T.5S R.2E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): <3

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.15029353 | Long: -122.59661800 | Datum: NAD 1983

Soil Map Unit Name: Dayton silt loam (Unit 29), 0% to 2% slopes; Hydric | NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes **X** No ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the ACIS Estacada 2 SE weather station, 0.43 inches of rainfall were received on the day of the site visit and 2.76 inches within the two weeks prior. Since October 1, 2024, 44.25 inches of rainfall were received, which is 100% of normal. Climatic conditions were normal for the three months prior to the site visit.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or ____)			
1. *Rubus armeniacus*	20%	Yes	FAC
2. *Spiraea douglasii*	15%	Yes	FACW
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot Size: 5' r or ____)			
1. *Phalaris arundinacea*	90%	Yes	FACW
2. *Juncus effusus*	10%	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or ____)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes **X** No ____

Remarks:

SOIL

Sampling Point: 15

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[o]	Remarks
0-7	10YR 2/1	100					SiCL	
7-14	10YR 4/2	80	7.5YR 4/4	20	C	M	SiCL	

[o]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): 7
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): Surface

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C: Representative Site Photographs

Photo A. View of general study area site conditions and overall topography looking southeast.

Photo B. View east of the channelized ephemeral portion of the on-site water containing no surface flow.

Photo C. View west of intermittent portion of the channelized water containing approximately 2 inches of surface water flow.

Photo D. View west of channelized intermittent water with approximately 6 inches of surface water present and *Phalaris arundinacea* and *Juncus effusus* along the banks.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo E. View west of the wetland boundary and Plots 1 and 2 showing wetland situated in a subtle low topographic area in field.

Photo F. View east of the wetland boundary and Plots 3 and 4 showing wetland situated in a subtle low topographic area in

Photo G. View south from Plot 6 showing general site conditions in southern portion of study area.

Photo H. View north at Plot 8 showing general site conditions within the study area.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo I. View west of Plot 5 and general site conditions within study area.

Photo J. View north of Roadside Ditch 1.

Photo K. View east of Roadside Ditch 2.

Photo L. View northwest of the wetland boundary within subtle topographic low area from Plot 4 towards Plot 3.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Photo M. View south of Wetland B and Plot 15.

Photo N. View west from Plot 9 of general upland conditions within right of way.

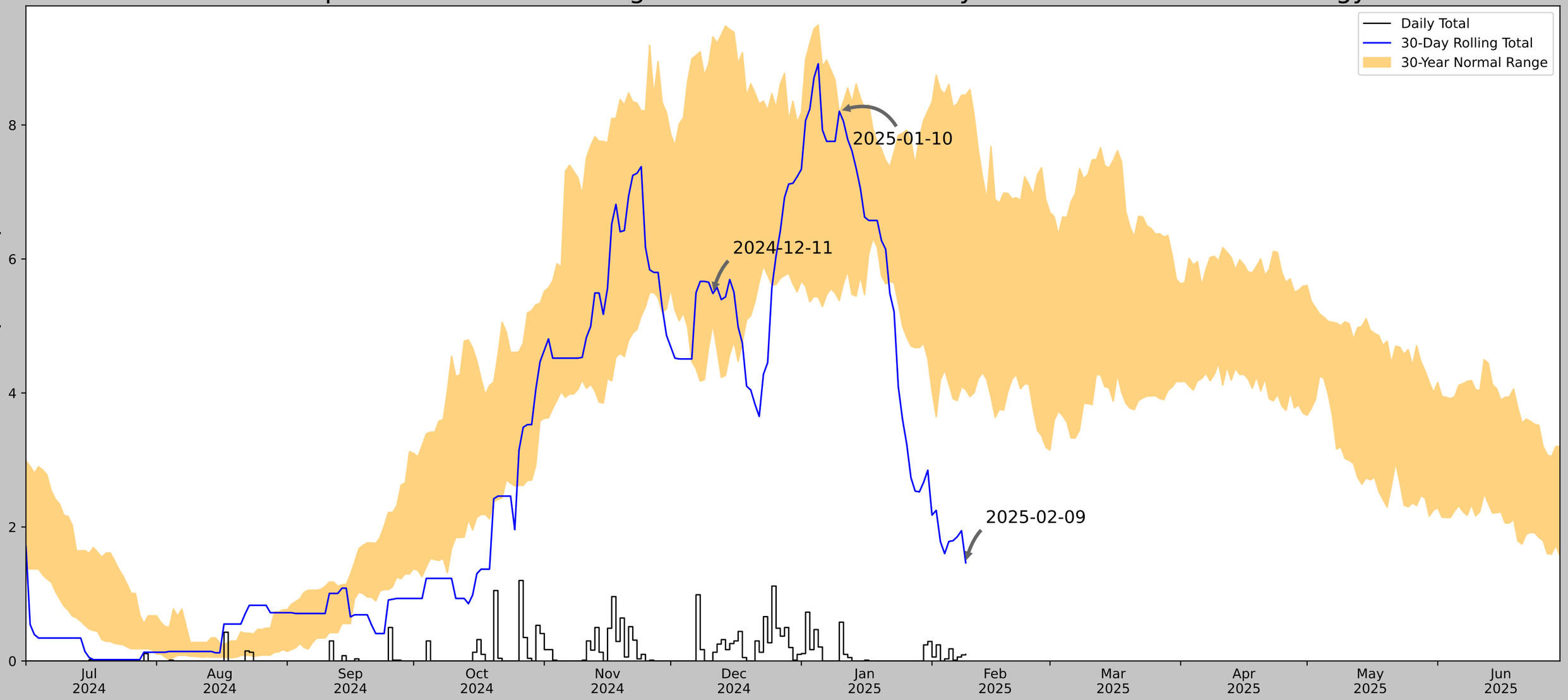
Photo O. View east from Plot 12 of general upland conditions within right of way.

Photo P. View east of upland Plot 13 within roadside ditch.

Photos taken by Sonya Davis, PWS, and Allison Law on February 11 and April 9, 2025.

Appendix D: APT Reports

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.152549, -122.590420
Observation Date	2025-02-09
Elevation (ft)	346.754
Drought Index (PDSI)	Mild drought (2025-01)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-02-09	4.050788	8.449607	1.464567	Dry	1	3	3
2025-01-10	5.378347	8.176772	8.204725	Wet	3	2	6
2024-12-11	5.022835	9.316536	5.484252	Normal	2	1	2
Result							Normal Conditions - 11

US Army Corps of Engineers

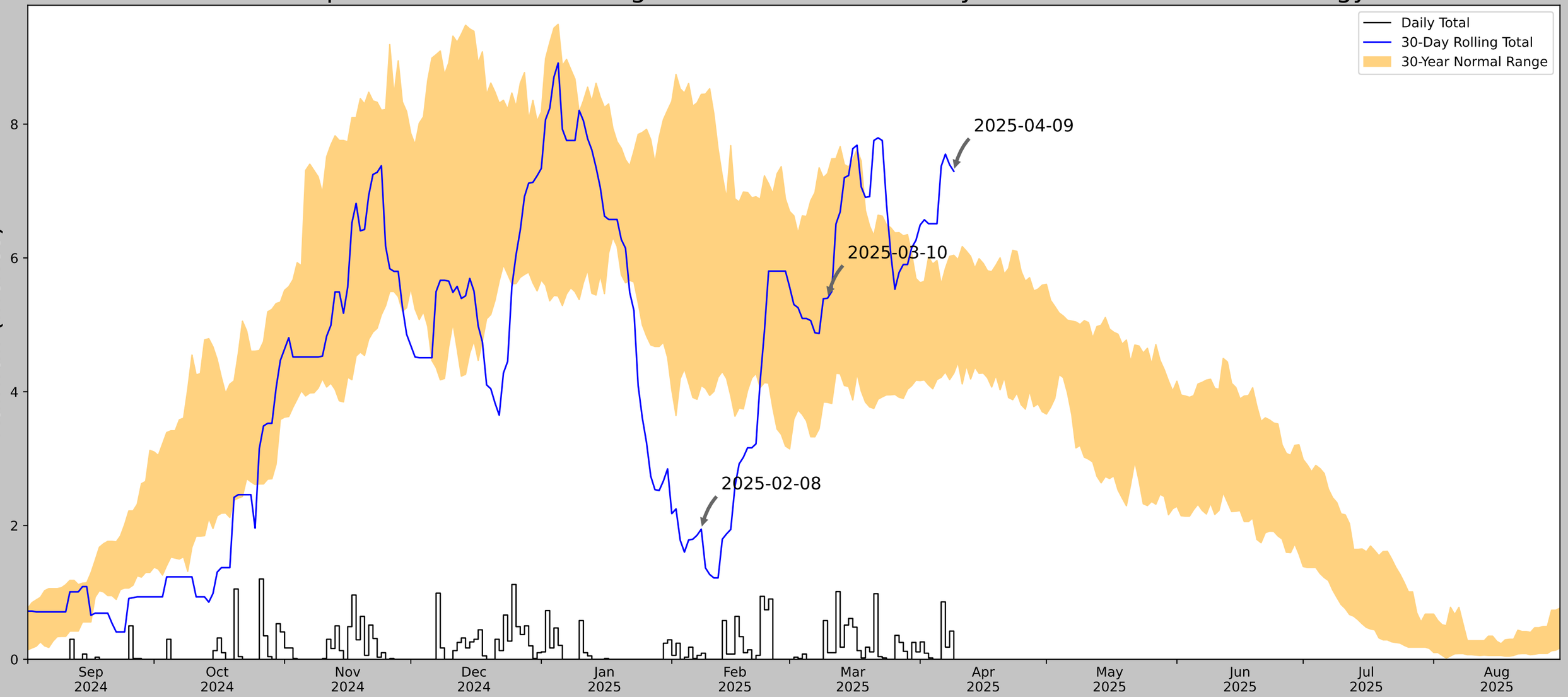
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MOLALLA 7NE	45.1783, -122.5064	646.982	4.463	300.228	3.348	6675	89
COLTON 1 E	45.1725, -122.4375	702.1	3.38	55.118	1.707	11	1
MULINO 1.8 SE	45.2041, -122.5536	359.908	2.909	287.074	2.144	1	0
ESTACADA 2 SE	45.2694, -122.3167	514.108	11.173	132.874	6.512	4610	0
EAGLE CREEK 9 SE	45.2761, -122.2019	925.853	16.286	278.871	11.87	54	0
SILVERTON	45.0058, -122.7739	408.136	17.672	238.846	12.173	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.151656, -122.590645
Observation Date	2025-04-09
Elevation (ft)	349.565
Drought Index (PDSI)	Incipient wetness (2025-03)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-04-09	4.276378	6.040158	7.295276	Wet	3	3	9
2025-03-10	3.840945	7.261811	5.397638	Normal	2	2	4
2025-02-08	4.093307	8.444882	1.944882	Dry	1	1	1
Result							Normal Conditions - 14

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MOLALLA 7NE	45.1783, -122.5064	646.982	4.498	297.417	3.362	6675	88
COLTON 1 E	45.1725, -122.4375	702.1	3.38	55.118	1.707	11	2
MULINO 1.8 SE	45.2041, -122.5536	359.908	2.909	287.074	2.144	1	0
ESTACADA 2 SE	45.2694, -122.3167	514.108	11.173	132.874	6.512	4610	0
EAGLE CREEK 9 SE	45.2761, -122.2019	925.853	16.286	278.871	11.87	54	0
SILVERTON	45.0058, -122.7739	408.136	17.672	238.846	12.173	2	0

Appendix E: SDAM Form

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name	Job 11540 - Molalla River Middle School Replacement	Assessor	Sonya Davis, PWS, and Allison Law
Address	318 Leroy Avenue, Molalla, OR 97038	Date	2/11/2025
Waterway Name	Ephemeral Drainage	Coordinates at downstream end (ddd.mm.ss)	Lat. 45.153232 N
Reach Boundaries	From a 16" culvert in the northeast boundary to the north central portion of the study area.		Long. -122.589331 W
Precipitation w/in 48 hours (cm)	0.00	Channel Width (m)	0.91
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status):

None observed

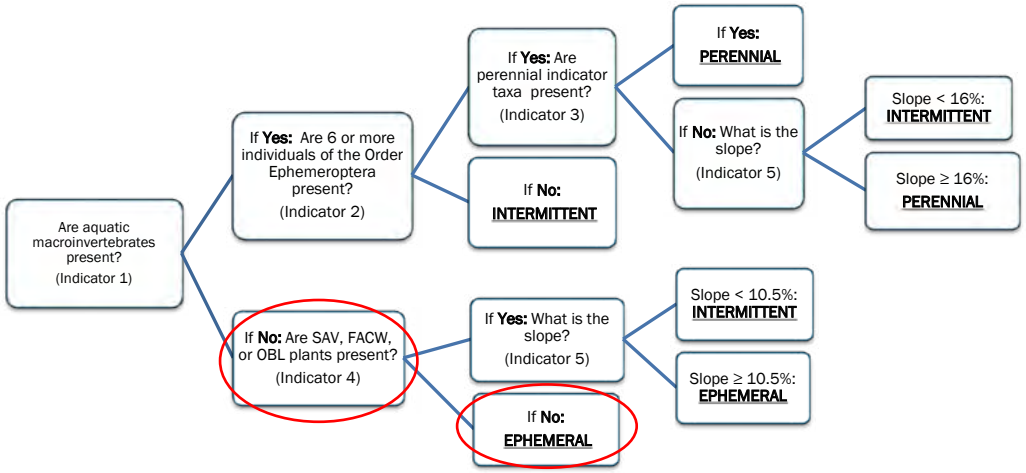
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None observed			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	< 5 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☒ Ephemeral

☐ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

The stream enters the study area from a 16-inch concrete convert on the northeast end of the study area. The channel width is approximately 3-feet with 3-foot-tall banks and a substrate consisting of silt, rocks, and cobbles. The channel bed was dry and consisted primarily of leaf litter and cobbles. No defined ordinary high water mark was present throughout the drainage. The banks were vegetated primarily by Geranium species (*Geranium* spp., assumed FAC), Himalayan blackberry (*Rubus armeniacus*, FAC), red dead-nettle (*Lamium purpureum*, FAC), bentgass species (*Agrostis* spp., FAC), Fuller's teasel (*Dipsacus fullonum*, FAC), Queen Anne's-lace (*Daucus carota*, FAC), hairy cat's-ear (*Hypochaeris radicata*, FACU), tall false rye grass (*Schedonorus arundinaceus*, FAC), and stinking willie (*Jacobaea vulgaris*, FACU).

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name	Job 11540 - Molalla River Middle School Replacement	Assessor	Sonya Davis, PWS, and Allison Law
Address	318 Leroy Avenue, Molalla, OR 97038	Date	2/11/2025
Waterway Name	Intermittent Drainage	Coordinates at downstream end (ddd.mm.ss)	Lat. 45.153427 N
Reach Boundaries	From a 8" culvert in the north central boundary to the northwestern boundary of the study area.		Long. -122.591531 W
Precipitation w/in 48 hours (cm)	0.00	Channel Width (m)	1.21
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow 100%

% of reach w/any flow (surface or hyporheic) 100%

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status):

Phalaris arundinacea, FACW

Juncas patens, FACW

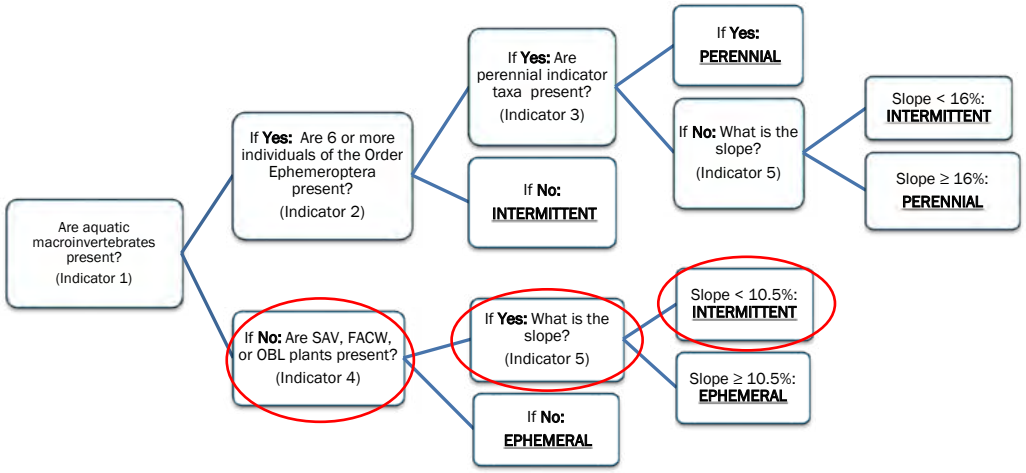
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
None observed			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☒ Yes	☐ No
5. What is the slope? (In percent, measured for the valley, not the stream)	< 5 %	

Conclusions



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☐ Ephemeral

☒ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

The stream enters the study area from a 16-inch concrete convert on the northeast end of the study area. The channel width is approximately 3-feet with 3-foot-tall banks and a substrate consisting of silt, rocks, and cobbles. No defined ordinary high water mark was present throughout the channel. Approximately 3-5 inches of surface flow was observed throughout the channel. The banks were vegetated primarily by Himalayan blackberry (*Rubus armeniacus*, FAC), bentgass species (*Agrostis* spp., FAC), reed canary grass (*Phalaris arundinacea*, FACW), and spreading rush (*Juncus patens*, FACW).

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None observed			

Appendix F: Literature Cited and Referenced

Literature Cited and Referenced

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Exhibit D:

Molalla Public Works Comments

Community Development Department
315 Kennel Ave/PO Box 248
Molalla, OR 97038
Phone 503.759.0205
www.cityofmolalla.com

September 9, 2025

TO: Mac Corthell, Community Development Director
Dan Zinder, Planning Director

FROM: Sam Miller, Engineering Section Manager

RE: SDR02-2025 Molalla River Middle School 318 Leroy Ave

Based on a review of the materials submitted, Staff has prepared the following comments. These comments are applicable to the subject application; any subsequent modifications may require amendments and/or additions. These conditions do not necessarily include requirements already set forth in the municipal code, but does not alleviate the applicant from following them.

1. CONDITIONS REQUIRING RESOLUTION PRIOR TO BUILDING PERMIT SUBMITTAL

a. No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provisions of the Molalla Municipal Code (MMC) and the City of Molalla Standard Specifications for Public Works (MSSPW).

b. Applicant shall submit a performance bond, irrevocable stand-by letter of credit, or a cash deposit that meets the requirements in MSSPW section 1.15.9 for public improvements, in a form and substance satisfactory to the City.

c. Applicant shall conform to all emergency access, building, and fire code standards, as applicable at the time of building permit submittal.

2. CONDITIONS REQUIRING RESOLUTION PRIOR TO FINAL OCCUPANCY

a. All public facility improvements shall be completed and accepted by the City of Molalla prior to issuance of final occupancy.

b. **Streets:**

i. The proposed development will require a Traffic Impact Analysis (TIA). The proposed development is projected at 223 peak-hour trips, and the threshold for a TIA is 25 trips. The scope of the TIA shall include:

1. Full 9 warrant signal analysis at OR-211 and Leroy Ave during normal school hours as approved by the City of Molalla. If the analysis does not meet the threshold for signal construction, the applicant shall pay a proportionate share of costs based on the following equation, or an alternative equation agreed to by the City and the applicant's traffic consultant:

   Trip Generation of the Development at drop-off + pickup times / Total Trips through intersection at drop-off + pickup times * cost estimate for signal.

2. Other than the signal warrant and proportionate share analyses referenced above and in-part still outstanding, the applicant has completed and the city has accepted a TIA of sufficient scope and depth to satisfy this requirement.

ii. **Leroy Ave** from Toliver Road to OR-211 is a major collector street under City of Molalla jurisdiction. Current right of way (ROW) width is shown at 60 feet which meets the city's TSP standard for a major collector street. The street is currently developed as a ¾ street lacking sidewalk, curb, and gutter along the eastern portion, and without a turn lane/parking lanes, and bike lanes. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to meet the cross section for major collectors that includes a turn lane, but no parking lanes, which includes construction of a 12-foot center/turn lane, two 11-foot travel lanes, two 6-foot bike lanes, 0.5-foot curbs, gutters and 6-foot sidewalks on both sides of the street, and an additional 0.5-foot buffer behind each sidewalk. In relation to street improvements, the applicant shall fill in the sidewalk gaps along the east side of the street per the TSP project P14. Signage and striping will be required, meeting City of Molalla TSP and Public Works Standards. See additional signage and striping comments under condition vi.

   1. Leroy Ave and Toliver Intersection improvements: Applicant will be required to construct the turn lane improvements at Leroy Ave/Toliver Road intersection and enhance crossing per the TSP project P36.

iii. **Hezzie Lane from West Lane to the terminus at North Valley Dr** is a neighborhood street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which meets the city's TSP standard for a neighborhood street. The street is currently developed as a ¾ street lacking sufficient travel lanes, sidewalk, curb, and gutter along the applicant's frontage. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct half street improvements along their frontage, including 11-foot travel lane, 7-foot parking lane, 0.5-foot curb, gutter, a 6-foot sidewalk, and a 0.5-foot buffer behind the sidewalk. Signage and striping will be required, meeting City of Molalla TSP and Public Works Standards. See additional signage and striping comments under condition vi.

The extension of Hezzie Lane from North Valley Drive to Lynn Lane is shown in the City's TSP as a Neighborhood Street. The applicant is currently engaged in a land swap with the City with terms to abandon this section of ROW to the applicant. If this land swap does not close, the applicant will be required to construct a full street improvement as a Neighborhood Street in accordance with the City's TSP. The city will work with the applicant to adjust the course of the street to avoid conflict with the existing football field if construction is required.

iv. **West Lane** is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which is sufficient to meet the City of Molalla TSP standard for local streets. The street is currently developed with travel lanes only. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curbs and gutters on both side of the street, and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk. Signage and striping will be required, meeting City of Molalla TSP and Public Works Standards. See additional signage and striping comments under condition vi.

v. **Lynn Lane from Leroy Ave to the west side of the proposed Lynn Lane access** is classified as a Local Street under the jurisdiction of the City of Molalla. Current ROW width is shown as 60 feet, which exceeds the City of Molalla TSP standard for local streets. The street is currently developed as a gravel street that provides local access to the residents along Lynn Lane. To bring the street into compliance with the City of Molalla TSP, the applicant will be required to construct ¾ street improvements along their frontage, including two 11-foot travel lanes, two 7-foot parking lanes, curb and gutter on both sides of the street, and one 6-foot sidewalk. Due to the ROW width of 60 feet, this places a 5.5-foot buffer behind the sidewalk. Signage and striping will be required, meeting City of Molalla TSP and Public Works Standards. See additional signage and striping comments under condition vi.

vi. **Signage and Striping:** The applicant shall provide a signage and traffic control devices plan analysis, including all appropriate signage, traffic control devices, traffic calming features, textured driveway surfaces, and other features as appropriate, for city review and approval. All installation and materials shall comply with the Molalla Municipal Code, Molalla Public Works Standards, current Manual on Uniform Traffic Control Devices (MUTCD) standards, and state law, as applicable.

vii. **Right of Way:** Right of way dedications are outlined in the individual street conditions. However, ROW widths provided are based on county records and may not be accurate. In cases where less ROW has been dedicated than indicated herein, the applicant shall dedicate ½ of the ROW from centerline required for the TSP cross section plus any additional ROW lawfully required by the City of Molalla for hazard and traffic impact mitigation.

viii. **Easements:** Applicant shall be required to dedicate a 10-foot-wide public utility easement fronting the public right-of-way if one does not exist. Applicant shall provide proof of existing dedication.

ix. **Roadway lighting:** Roadway lighting is required on all new developments. Applicant shall be required to install streetlight on all streets outlined above in accordance with City requirements and meet AASHTO illumination standards. Lighting shall be sufficient to provide adequate illumination but not physically or visually interfere with vehicle or pedestrian traffic.

x. **Transportation SDC's** – In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from transportation SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

c. **Sanitary Sewer:**

i. The property is currently served by an existing 8-inch sewer service lateral connection off City sanitary main line located in Leroy Ave. Applicant is proposing to utilize the existing lateral as their main connection to City sanitary system. There is an existing 15" Main on Lynn Ln that shall serve the site from the extension of sewer service by gravity system. All sewer system improvements shall be designed and constructed in conformance with Molalla Public Standards and in accordance with Oregon state plumbing laws, the rules of the Oregon DEQ, and City Standards. This requirement will be met on the condition that all existing utilities remain operational to serve the current school and will be abandoned according to Oregon State plumbing laws and City Public Works Standards at the time of demolition of the existing buildings.

ii. There is an existing 4-inch sewer service lateral located at the northeast portion of the property that served the existing storage building that was demolished during the grading phase of the project, and will need to be abandoned to the main line at the time of street improvements.

iii. Sewer SDC's - In accordance with MMC 13.14 this design review does increase the impact to the public improvement facility and is therefore not exempt from Sewer SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

d. **Water:**

i. The existing school building is being served by a 3-inch water service off Leroy Ave. This existing service can be utilized for irrigation purposes or must be decommissioned in accordance with the Molalla Public Work Standard. Applicant

proposes installing a new 4-inch services connection from the 12-inch water main located within Leroy Ave., north of the existing service lateral, and will serve the new development. This standard shall be met subject to a condition of approval that all existing utilities remain operational to support the current school. Additionally, they must be properly abandoned according to Oregon State Plumbing laws and City Public Works standards at the time of the demolition of the existing buildings.

ii. Should Fire Department regulations require additional fire flow that results in looping the water line through the site, then the applicant's engineer shall coordinate with Public Works for the extension of the public waterline. Public waterline shall be sized appropriately to meet fire flows, and meet City of Molalla Public Works Standards, and all public water lines and hydrants shall be within a public utility easement approved by the Public Works Department. Looping of the water line may impact the existing 6-inch water main within Lynn Lane at which time the development shall upsize the waterline to meet fire flow or as advised by the City.

iii. There is an existing 1-inch service located at the northeast portion of the property that served the existing storage building that was demolished during the grading phase of the project, and will need to be abandoned to the main line at the time of street improvements.

iv. Water SDC's - In accordance with MMC 13.14 this design review does increase the impact to the public improvement facility and is therefore not exempt from Water SDC charges. SDC's shall be calculated in accordance with the SDC methodology.

e. **Storm:**

i. **General Public ROW Stormwater Condition:** The applicant shall design and construct stormwater facilities, in conjunction with required and voluntary improvements, that complies with the City's stormwater master plan and public works design standards as well as any other applicable state or federal law or rule. The stormwater facilities will not be connected to upstream storm infrastructure, so no upstream analysis is required. The stormwater facilities shall be sized and/or controlled in accordance with a downstream capacity analysis, accepted by the City, and performed and stamped by an engineer certified in the State of Oregon to conduct stormwater design and analysis. The analysis shall extend from the point of intake downstream to a point in the drainage system where the additional flow from the proposed development site constitutes 10% or less of the total tributary drainage flow.

1. Lynn Lane is an undeveloped street that currently has an inadequate stormwater system. The existing system consists of an open ditch on the south side of the street. As part of the requirements for this development's

frontage improvements, the applicant will be required to extend the public stormwater system along Lynn Lane from Leroy Avenue to Hezzie Lane.

2. West Lane, Hezzie Lane, and Leroy Ave are all served by existing stormwater infrastructure. The applicant shall ensure appropriate capacity of the existing system, where capacity is insufficient applicant shall propose upsizing the existing system and/or provide for sufficient flow control to ensure appropriate handling of runoff, all subject to City approval. Applicant will also be required to tie in all catch basins to the existing or upsized system as applicable.

ii. The applicant has submitted a wetland delineation report prepared by AKS Engineering & Forestry, LLC to the Department of State Lands. The applicant shall comply with the regulatory requirements outlined by the Oregon Department of State Lands as stated in the approval letter referenced as WD#2025-0090. Additionally, the applicant must adhere to the requirements set by the Oregon Department of Fish and Wildlife (ODFW), the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the National Marine Fisheries Service, and any other relevant state and federal agencies if any watercourses, drainages, or channels are identified within the development area.

iii. **Onsite Stormwater Condition:** Applicant will be required to submit design and construction requirements for stormwater and surface water management at the time of Public Works Permit for the onsite private storm system for detention and water quality prior to discharge into a public facility. Design shall be in accordance with Section 3 of the Molalla Standard Specifications for Public Works Construction and Stormwater Master Plan. On-site private storm system shall comply with state plumbing code requirements. The detention and flow control facilities shall be reviewed, permitted, and inspected by Public Works. The onsite storm conveyance system shall be reviewed and inspected by Clackamas County Building under a plumbing permit. in Accordance with MMC 13.13 Surface Water Management.

iv. Stormwater SDC's - *In accordance with MMC 13.14 this design review does increase the impacts to the public improvement facility and is therefore not exempt from stormwater SDC charges. SDC's shall be calculated in accordance with the SDC methodology.*

f. **Utilities:**

i. Underground utilities: All utilities for the project shall be served by underground services. No overhead crossings of public right of way shall be approved by the City.
ii. Connection to Water, Sewer, Storm: Prior to connection to the listed utilities, the applicant must gain approval from the City of Molalla Engineering Section.

GENERAL DESIGN REQUIREMENTS & POLICIES

A. ***Conformance Required.*** *Improvements installed by the developer, either as a requirement of these regulations or at the developer's option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the City.*

B. ***Adopted Installation Standards.*** *The City of Molalla has adopted Public Works Design Standards for public improvements and private utility installation within the public right-of-way.*

C. ***Commencement.*** *Work in a public right-of-way shall not begin until all applicable agency permits have been approved and issued.*

D. ***Resumption.*** *If work is discontinued for more than six months, it shall not be resumed until the Public Works Director is notified in writing and grants approval of an extension.*

E. ***City Inspection.*** *Improvements shall be constructed under the inspection of the City Engineer. The City Engineer may approve minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest, except that substantive changes to the approved design shall be subject to review under Chapter 17-4.5 Modifications to Approved Plans and Conditions of Approval. Any survey monuments that are disturbed before all improvements are completed by the developer or subdivider shall be replaced at the developer or subdivider's expense prior to final acceptance of the improvements.*

F. ***Engineer's Certification and As-Built Plans.*** *In accordance with the current version of the Public Works Design Standards, a registered civil engineer shall provide written certification in a form required by the City that all improvements, workmanship, and materials meet current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to City's acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide two sets of "as-built" plans, one paper set and one electronic set for permanent filing with the City. If required by the City, the developer or subdivider shall provide a warranty bond pursuant to Section 17-3.6.100. (Ord. 2017-08 §1*

G. ***Residential Development Projects****, No building permit may be issued until all required public facility improvements are in place and approved by the City Engineer, or otherwise bonded, in conformance with the provision of the Code and the Public Works Design Standards in accordance with MMC 17-3.6 Public Facilities. All public facilities shall be completed and accepted by the Public Works Department prior to issuance of final occupancy.*

H. ***Materials Submitted,*** *The storm drain, domestic water, and sanitary sewer facilities will be obtained from main line connections and/or extensions. Separate engineering drawings reflecting the installation of these public utilities will be required.*

I. ***Construction and/or Connection,*** *No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, bonding, right-of-way, and easements have been obtained and approved by staff, and Staff is notified a minimum of 24 hours in advance.*

J. ***Revisions/Modifications,*** *Staff reserves the right to require revisions/modifications to the public improvement construction plans and completed street improvements, if additional modifications or expansion of the sight distance onto adjacent streets is required.*

K. ***Civil Review,*** *All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Molalla Public Works Standards* as described in Section 1 of the Molalla Standard Specifications for Public Works Construction.

L. ***Monuments,*** *All survey monuments on the subject site or that may be subject to disturbance within the construction area, or the construction of any off-site improvements, shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.*

M. ***Existing Wells,*** *The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards and supply the City with a copy of the final document.*

N. ***Sanitary Sewer,*** *designs require review by Oregon Department of Environmental Quality. Applicant shall be responsible for submission of plans to state agency and all associated fees. Applicant's Engineer will be required to submit final report to DEQ and provide a copy of the report to the City.*

O. ***Utilities****, All utilities will be stubbed out to the far end of each street for future extension. The project shall utilize existing water, sewer, and storm water 'stub-outs' wherever possible. Water for domestic and fire protection shall be looped through the proposed site. Any 'stub-outs' determined to be not needed for the proposed development or any future development of the subject property shall be abandoned in accordance with the Molalla Standard Specifications for Public Works Construction.*

P. ***Public Improvements,*** *All public improvement designs shall meet the requirements of the Molalla Standard Specifications for Public Works Construction as amended by the Public Works Director.*

Q. ***General Easements*** *– A 10-foot-wide public utility easement shall be dedicated to the City adjacent to all public right-of-way and no structures are allowed to encroach into the easement. Applicant shall be required to submit a legal description and exhibit map for review and sign City easements. Once completed, applicant will be required to record easements with the County Recorder's Office and return the original document to the City prior to final occupancy.*

R. ***General Wetland Requirements*** *– The applicant will be required to provide Public Works with a letter of concurrence from the Department of State Lands regarding any wetlands on the subject property.*

S. ***General Erosion Control*** *– The applicant shall install, operate, and maintain adequate erosion control measures in conformance with the standards adopted by the City of Molalla and DEQ during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed. Applicant or Applicant's Contractor shall be responsible for all erosion control requirements under the 1200-C permit and shall coordinate directly with DEQ for questions related to 1200-C permit compliance.*

Exhibit E:

Molalla Fire Department Comments

Molalla Rural Fire Protection District #73

P.O. Box 655 • Molalla, OR 97038 Telephone: 503-829-2200
320 N Molalla Ave. Molalla, OR 97038 Fax: 503-829-5794

In addition to the comments dated 7-25-2025 that have yet to see final plans for, additional comments are listed below. These comments are based off of the GMP/Permit set dated 8/22/2025

On page PW2.40 The detail shows a 36-foot road width with parking allowed on both sides with a 20-foot driving surface down the middle. Lynn Ln is a dead-end access road in excess of 500 feet. If Lynn Ln is not being punched through before the end of the project, then a turn-a-round that meets the intent of Oregon Fire Code D103. will be required. Also see D103.4 This turn-a-round shall be posted as no parking.

Due to the travel lanes being less than 12 feet, the turning radius for fire apparatus will be 44/56. Please make note of this on your plans and adjust accordingly.

On page PW2.40 The TYPICAL SECTION for Leroy has the travel lanes offset. Can we please center the travel lanes so that travel lanes are spaced equally.

Please provide a hydrant layout detail for the property. Please note that areas along an access road directly in front of hydrants shall not be less than 26 feet in width for a length of not less than 40 feet. See Oregon Fire Code D103.1 No parking will be allowed in these areas.

Hydrants should be installed down Lynn Lane as there are no hydrants in this area currently. See table C102.1 Please add hydrants and resubmit along with the hydrant layout for the property.

Page G0.23 Please add labeling on riser room door to contrast with the door color. Mechanical and electrical rooms to be labeled in the same manor.

No Parking signs shall be installed as per Oregon Fire Code D103.6

Traffic calming devices shall not be installed unless approved by the fire chief or their designee. See Oregon Fire Code 503.4.1

The above comments are based solely on the site plan provided. Molalla Fire reserves the right to review and comment on the plans that are to be submitted for full review or revisions to plans that have already been reviewed.

Review of submitted plans is not an approval of omissions, oversights or authorization of non-compliance with any regulations of this agency or of the regulations of any other agency. Comments on these plans should not be considered a precedent setting, as we will review each project on a case-by-case basis.

Exhibit F:

Oregon Department of Transportation Comments

Oregon
Tina Kotek, Governor

Department of Transportation
Transportation Region 1
123 NW Flanders St.
Portland, OR 97209-4012
(503) 731-8200
Fax: (503) 731-8259

August 29, 2025 ODOT # 13502

ODOT Formal Response

Project Name: Molalla River Middle School	**Applicant:** Heather Austin, 3J Consulting
Jurisdiction: City of Molalla	**Jurisdiction Case #:** SDR02-2025
Site Address: 318 Leroy Avenue	**State Highway:** Main St (OR 211)

The site of this proposed land use action is in the vicinity of Main Street (OR 211). ODOT has permitting authority for this facility and an interest in ensuring that this proposed land use is compatible with its safe and efficient operation.

All ODOT permits and approvals must reach 100% plans before the District Contact signs off on a local jurisdiction building permit or other necessary requirement before construction. **The applicant should contact the District Contact indicated below to determine permit requirements and to obtain application information**.

These comments, standards, and requirements are current as of the date of this letter. If the project scope and/or timeline is modified, the applicant should contact the ODOT Region 1 Development Review program (ODOT_R1_DevRev@odot.oregon.gov) for an updated letter as updated comments may be necessary.

LAND USE PROPOSAL

ODOT was notified of a land use application submitted to City of Molalla for the proposed replacement of an existing school. The development includes a new bus drop-off lane, parking, and associate site improvements.

COMMENTS/FINDINGS

Traffic Impacts

ODOT has received a copy of the Traffic Impact Analysis (TIA), reviewed the study and supports its conclusion of no-action related to the signal warrant at the Leroy Avenue/Main Street (OR 211) intersection. ODOT supports the City's request for updated traffic counts taken during the school year to confirm the findings of this report and submit an addendum to the TIA with reanalysis of the updated counts.

ODOT Technical Review Requirements

All alterations within the State highway right of way are subject to ODOT standards. Alterations along the State highway but outside of the ODOT right of way may also be subject to ODOT review pending its potential impact on the safe operation of the State highway.

The following ODOT manuals may apply:

- ODOT Traffic Manual
- ODOT Highway Design Manual
- ODOT Hydraulics Design Manual

The ODOT Traffic Manual (TM) identifies items that require ODOT Region Traffic Engineer (RTE) approval. Items requiring RTE approval must be prepared by an Oregon-registered Professional Engineer (P.E.) and will be reviewed by the ODOT Region 1 Technical Center. See the TM for information on authorities and required approvals. Some approvals require a unique request form (Traffic Approval).

Deviations from ODOT Standards

Proposed alterations that deviate from ODOT standards will require a Design Exception/Deviation prepared by an Oregon-registered Professional Engineer (P.E.) for review by the ODOT Region 1 Technical Center. ODOT can only determine if design elements will require a Design Exception/Deviation or RTE approval once detailed plans have been reviewed.

Note: A Design Exception/Deviation or RTE approval items may take **6 months or longer to process**. The preparation of a Design Exception or RTE approval does not guarantee its ultimate approval.

ADVISORY INFORMATION

Permits and Agreements to Work in State Highway Right of Way

☒ An ODOT Miscellaneous Permit must be obtained for all work in the State highway right of way. When the total value of improvements within the State highway is estimated to be $100,000 or more, a Cooperative Improvement Agreement (CIA) with ODOT is required. A CIA will address the transfer of the improvements to ODOT and any associated technical and administrative costs for projects that meet this improvement threshold. Agreements shall address the work standards that must be followed, maintenance responsibilities, and compliance with ORS 276.071, which includes State of Oregon prevailing wage requirements.

Note: If a CIA is required, it may take **6 months or longer** to process.

Contact the ODOT Development Review Planner identified below for further coordination or questions regarding ODOT comments and requirements during the land use process.

Please send a copy of the Notice of Decision/Staff Report with conditions of approval to:
ODOT_R1_DevRev@odot.oregon.gov

Development Review Planner: Melissa Gonzalez	Melissa.GONZALEZ-GABRIEL2@odot.oregon.gov
Traffic Contact: Avi Tayar, P.E.	Abraham.TAYAR@odot.oregon.gov
District Contact: District 2C	D2CAP@odot.oregon.gov

Exhibit G:

DSL Wetland Delineation and Concurrence

Oregon
Tina Kotek, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

State Land Board

Tina Kotek
Governor

Tobias Read
Secretary of State

Elizabeth Steiner
State Treasurer

August 7, 2025

Molalla River School District
Attn: Ron Stewart
412 S. Swiegle Avenue
Molalla, OR 97038

Re: WD # 2025-0090 **Approved**
Wetland Delineation Report for Molalla River Middle School Replacement
Clackamas County; 5S 2E S8B TL 3000, ROW
Molalla Local Wetlands Inventory, Wetland BC-7 and BC-10

Dear Ron Stewart:

The Department of State Lands has reviewed the wetland delineation report prepared by AKS Engineering & Forestry, LLC for the site referenced above. Based upon the information presented in the report, we concur with the wetland and waterway boundaries as mapped in Figure 6 of the report. Please replace all copies of the preliminary wetland map with this final Department-approved map.

Within the study area, two wetlands (Wetland A and B), two unnamed waterways (Ephemeral Drainage and Intermittent Drainage), and two ditches (Roadside Ditch 1 and 2) were identified. Wetlands A and B (totaling approximately 0.147 acres) and the intermittent drainage are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined).

The ephemeral drainage and the two roadside ditches are exempt per OAR 141-085-0515(3) and -0515(10); therefore, are not subject to current state Removal-Fill requirements.

This concurrence is for purposes of the state Removal-Fill Law only. We recommend that you attach a copy of this concurrence letter to any subsequent state permit application to speed application review. Federal, other state agencies or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

Please be advised that state law establishes a preference for avoidance of impacts to waters of this state. Because measures to avoid and minimize impacts to waters of this state may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact the Wetland Ecologist for Clackamas County, Trevor Griffiths, at (971) 375-8886.

Sincerely,

Daniel Evans Digitally signed by Daniel Evans
Date: 2025.08.07 14:55:25 -07'00'

Daniel Evans, PWS
Wetland Ecology Specialist

Enclosures

ec: Sonya Davis, AKS Engineering & Forestry, LLC
City of Molalla Planning Department (Maps enclosed for refining LWI)
Corps of Engineers, Clackamas County
Mike DeBlasi, DSL

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

A complete report and signed report cover form, along with applicable review fee, are required before a report review timeline can be initiated by the Department of State Lands. All applicants will receive an emailed confirmation that includes the report's unique file number and other information.

Ways to submit report:

- **Under 50MB** - A single unlocked PDF can be emailed to: wetland.delineation@dsl.oregon.gov.
- **50MB or larger** - A single unlocked PDF can be uploaded to the Jurisdiction Box.com folder. Email wetland.delineation@dsl.oregon.gov of the new upload.
- Unbound paper report and signed cover form can be mailed to: Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.

Ways to pay review fee:

- By credit card on DSL's epayment portal after receiving the unique file number from DSL's emailed confirmation.
- By check payable to the Oregon Department of State Lands attached to the unbound paper report OR attached to the complete signed cover form if report submitted electronically.

Contact and Authorization Information

☒ Applicant ☒ Owner Name, Firm and Address:
Molalla River School District
Attn: Ron Stewart
412 S. Swiegle Avenue
Molalla, OR 97038

Business phone #
Mobile phone # (optional)
E-mail: ron.stewart@molallariv.k12.or.us

☐ Authorized Legal Agent, Name and Address (if different):

Business phone #
Mobile phone # (optional)
E-mail:

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Tony Mann **Signature:** [signature]
Date: 2/20/25 Special instructions regarding site access: N/A

Project and Site Information

Project Name: Molalla River Middle School Replacement

Latitude: 45.152328 Longitude: -122.590345
decimal degree - centroid of site or start & end points of linear project

Proposed Use:
New middle school

Tax Map # 5 2 E 08B
Tax Lot(s) 3000 and portion of right-of-way

Tax Map #
Tax Lot(s)

Project Street Address (or other descriptive location):
318 Leroy Avenue

Township 5S Range 2E Section 8 QQ
Use separate sheet for additional tax and location information

City: Molalla County: Clackamas

Waterway: NA River Mile: NA

Wetland Delineation Information

Wetland Consultant Name, Firm and Address:
Sonya Davis, PWS
AKS Engineering & Forestry, LLC
12965 SW Herman Road, Suite 100
Tualatin, OR 97062

Phone # (503) 867-2613
Mobile phone # (if applicable)
E-mail: daviss@aks-eng.com

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.
Consultant Signature: Sonya Davis Date: 2/21/2025

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No Study Area size: 21.56 Total Wetland Acreage: 0.1100

Check Applicable Boxes Below

☐ R-F permit application submitted
☐ Mitigation bank site
☐ EFSC/ODOE Proj. Mgr:
☐ Wetland restoration/enhancement project (not mitigation)
☐ Previous delineation/application on parcel
If known, previous DSL # _____

☒ Fee payment submitted $ 575
☐ Resubmittal of rejected report ($100)
☐ Request for Reissuance. See eligibility criteria. (no fee)
DSL # _____ Expiration date_____
☒ LWI shows wetlands or waters on parcel
Wetland ID code BC-7 and BC-10

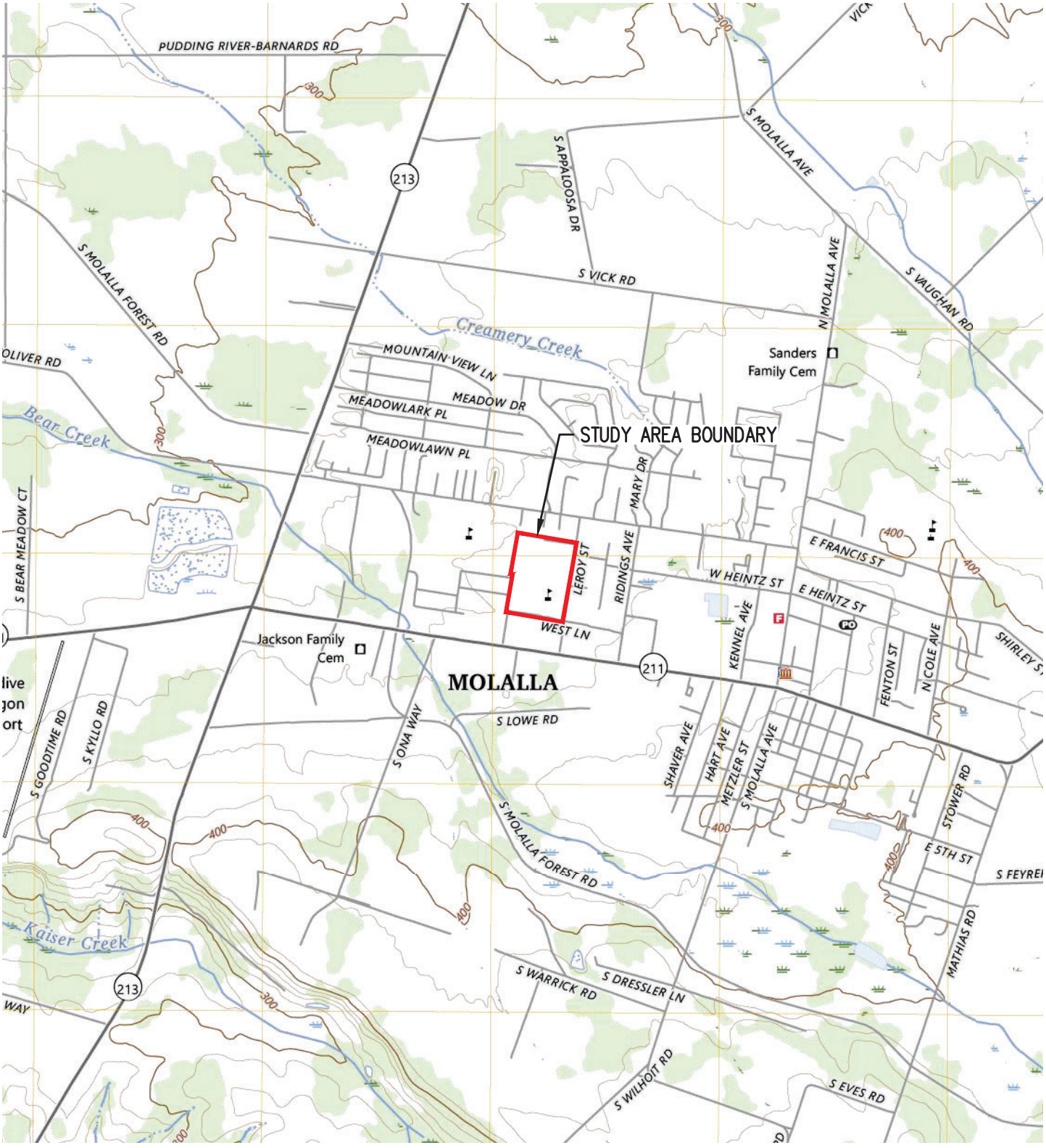
For Office Use Only

DSL Reviewer: TG Fee Paid Date: ___/___/___ DSL WD # 2025-0090

Date Delineation Received: 02/21/2025 Updated version rec'd 5/28/2025 DSL App.# _____

Table 1: Summary of Study Wetland and Waters Results and Conclusions

Potentially Jurisdictional Feature	Latitude/ Longitude	Size	Cowardin Class	HGM Class/Flow Regime	Connection to Other Waters	DSL/USACE Predicted Jurisdiction
Wetland A	45.153342, -122.591377	±0.11 acres	PEM	Slope Valley	Intermittent Drainage	DSL/USACE
Wetland B	45.150346, -122.590804	±0.03 acres	PSS	Slope Valley	Isolated	DSL
Ephemeral Drainage	45.153183, -122.588934	±348 LF	NA	Ephemeral	Bear Creek, Pudding River	None
Intermittent Drainage	45.153387, -122.590698	±0.03 acres/±486 LF	NA	Intermittent	Bear Creek, Pudding River	DSL/USACE
Roadside Ditch 1	45.152510, -122.588577	±457 LF	NA	Ephemeral	None	None
Roadside Ditch 2	45.150514, -122.591360	±324 LF	NA	Ephemeral	None	None



USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: MOLALLA, OR (2023)

N

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

USGS VICINITY MAP
MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT
WETLAND AND WATERS DELINEATION REPORT

FIGURE 1

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1239

CLACKAMAS COUNTY
TAX LOT 3000 AND PORTIONS
OF RIGHT OF WAY
TAX MAP 5 2 E 08B

N

SCALE: 1"= 300 FEET

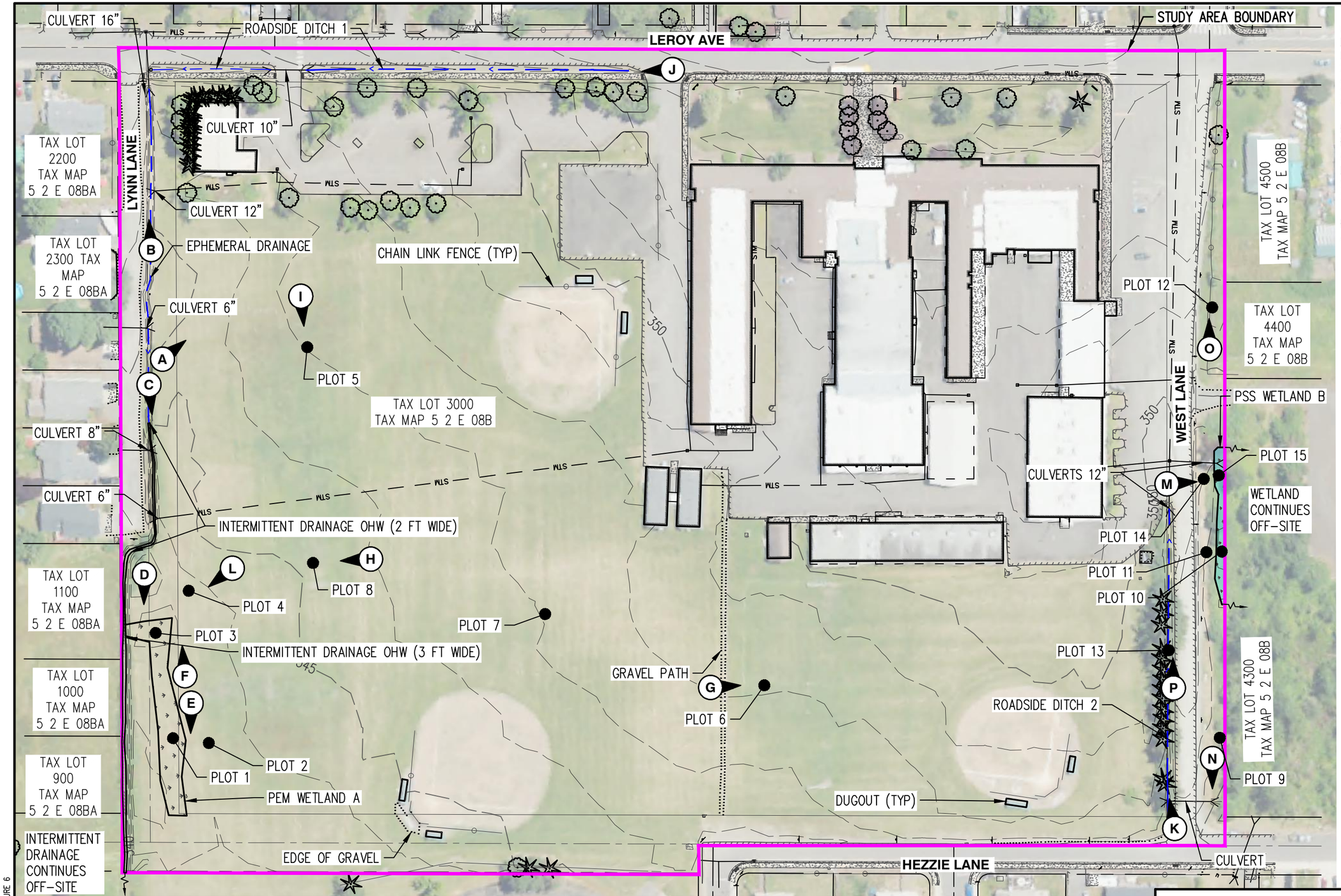
300 0 60 150 300

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/11/2025

TAX MAP (MAP 5 2 E 08B) MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT	FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: GPM CHKD: SKD AKS JOB: 11 1240

DWG: 11540 WDR BACKGROUND FIGURES | FIGURE 2



WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON FEBRUARY 11, AND APRIL 09, 2025. WETLAND BOUNDARIES, CENTERLINES, AND PLOTS SHOWN WERE RECORDED WITH SUB-METER ACCURACY USING A TRIMBLE R10 GPS RECEIVER AND ARCGIS FIELD MAPS.

EXISTING CONDITIONS, TAX LOTS, STUDY AREA BOUNDARY, 1-FOOT INTERVAL GROUND CONTOURS, AND TREE SURVEY OF TREES >6" DBH DERIVED FROM AKS PROFESSIONAL LAND SURVEY FROM OCTOBER 10 TO OCTOBER 23, 2024.

RECENT AERIAL IMAGE DERIVED FROM AKS AERIAL SURVEY ON OCTOBER 10, 2024.

N

SCALE: 1"=100 FEET

100 0 20 50 100

ORIGINAL PAGE SIZE: 11" x 17"

DATE: 04/26/2025

LEGEND (COLOR COPY):

TOTAL ON-SITE WETLAND AREA: 6,394 SF± (0.15 ACRES±
ON-SITE PEM/SV WETLAND A AREA: 4,971 SF± (0.11 ACRES±)

ON-SITE PSS/SV WETLAND B AREA: 1,423 SF± (0.03 ACRES±)

ON-SITE INTERMITTENT DRAINAGE:
1,226 SF± (0.03 ACRES±) / 486 LF± (2-3 FT WIDE±)

ON-SITE EPHEMERAL DRAINAGE: 348 LF± (3 FT WIDE±)
ON-SITE ROADSIDE DITCH 1: 457 LF± (2 FT WIDE±)
ON-SITE ROADSIDE DITCH 2: 324 LF± (2 FT WIDE±)

STM EXISTING STORMWATER LINE

SAN EXISTING SANITARY SEWER LINE

A PHOTO POINT LOCATION & ORIENTATION

DSL WD # 2025-0090
Approval Issued: 8/7/2025
Approval Expires:8/7/2030

WETLAND AND WATERS DELINEATION MAP

MOLALLA RIVER MIDDLE SCHOOL REPLACEMENT WETLAND AND WATERS DELINEATION REPORT

FIGURE 6

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: GPM
CHKD: SKD
AKS JOB: 11 1241

DWG: 11540 WDR EXCOND V2 | FIGURE 6