AGENDA

CITY COUNCIL WORK SESSION

March 14, 2022

4:00 PM, City Council Chambers
427 Rio Grande Place, Aspen

CITY OF ASPEN

WEBEX MEETING INSTRUCTIONS

WEBEX MEETING INSTRUCTIONS
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I. WORK SESSION

I.A. Elected Officials Transportation Committee Meeting Preparation

I.B. Moratorium Update - Residential and Growth Management Policy

Elected Officials Transportation Committee (EOTC)

Thursday, March 24, 2022 - 4:00pm

Location – Pitkin County Board of County Commissioners Meeting Room

Host and Chair – Pitkin County

EOTC Background, Documents, and Packet Materials may be found here:
https://pitkincounty.com/1322/Elected-Officials-Transportation-Committ

EOTC Vision: We envision the Roaring Fork Valley as the embodiment of a sustainable transportation system emphasizing mass transit and mobility that contributes to the happiness and wellbeing of residents and visitors.

EOTC Mission: Work collectively to reduce and manage the volume of vehicles on the road and parking system and continue to develop and support a comprehensive multimodal, long-range strategy that will insure a convenient, equitable and efficient transportation system for the Roaring Fork Valley.

Summary of State Statute and Ballot Requirements: The 0.5% County Transit Sales and Use Tax shall be used for the purpose of financing, constructing, operating and managing a public, fixed route mass transportation system within the Roaring Fork Valley.

Public Comment Instructions:

This hybrid virtual / in person EOTC meeting will be broadcast on grassroots TV and available for viewing at www.pitkincounty.com. Note that seating is limited in person. Please use the login information below to participate virtually or you may participate in person at 530 E. Main Street, Aspen.

TO JOIN ONLINE:

Please click the link below to join the webinar:
https://us02web.zoom.us/j/89854655661?pwd=cCthRXA2NkhnalZNcWY3SlBOaTNNZz09
Passcode: 224097

Or Telephone:
US: +1 253 215 8782
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Note: Zoom does require the participant to have or create an account. Please 'raise your hand' prior to Public Comment. If you would like to provide comments on one of the agenda items during the meeting please 'raise your hand' and the host or chair will unmute you when the chair acknowledges public comment for each item.

I.	**4:00 – 4:05**	**CALL TO ORDER AND ROLL CALL** *(Conducted by Meeting Host Chair, Roll Call by Jurisdiction)*	
II.	**4:05 – 4:10**	**APPROVAL OF OCTOBER 28, 2021 ACTION MINUTES** *(Motion, Second, and Roll Call Vote by Jurisdiction)*	**Page 4**
III.	**4:10 - 4:20**	**PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA** *(Comments limited to three minutes per person)*	
IV.	**4:20 - 4:30**	**EOTC COMMITTEE MEMBER UPDATES**	
V.	**4:30 – 5:30**	**PUBLIC HEARING: BRUSH CREEK PARK & RIDE TO AABC / ASPEN TRAIL CONNECTION REVIEW** David Pesnichak, Transportation Administrator Project Partners: Pitkin County Open Space and Trails, and City of Aspen Parks and Open Space Project Consultant: SGM ***Decision Needed: Administrative Direction to move project to Public Process*** *(Motion, Second, and Roll Call Vote by Jurisdiction)*	**Page 13**
VI.	**5:30 – 6:00**	**PUBLIC HEARING: REVIEW REQUESTED ACCESS THROUGH BRUSH CREEK PARK & RIDE** David Pesnichak, Transportation Administrator Development: Aspen Jewish Congregation (AJC) ***Decision Needed: Administrative Direction to review access request utilizing Staff recommended standards*** *(Motion, Second, and Roll Call Vote by Jurisdiction)*	**Page 16**
VII.	**6:00 – 6:15**	**PUBLIC MEETING: EOTC RETREAT UPDATE** David Pesnichak, Transportation Administrator ***Decision Needed: None*** *(Retreat Participation Feedback Requested)*	**Page 26**
VIII.	**6:15 – 6:30**	**INFORMATION ONLY: UPDATES (Q&A)** A. Near Term Transit Improvement Program – Progress Update B. Town of Snowmass Village Transit Center – Progress Update (Provided by David Peckler, Transportation Director, Town of Snowmass Village)	**Page 31**

IX. ADJOURN MEETING

(Motion, Second, and Roll Call Vote by Jurisdiction)

*** EOTC Retreat is April 28, 2022 – City of Aspen, New City Hall**

*** Next Regular EOTC meeting is May 26, 2022 – Town of Snowmass Village to Host & Chair**

ELECTED OFFICIALS TRANSPORTATION COMMITTEE (EOTC)

AGREEMENTS & DECISIONS REACHED
REGULAR MEETING
October 28, 2021

Location (In Person and Virtual) – City of Aspen
City of Aspen - Host & Chair

- The agenda items contained in these minutes are written in an action only format.
- For a video production of this meeting, go to: https://youtu.be/Y5s39BD6lx0
- To access the Elected Officials Transportation Committee meeting packet material, go to: https://drive.google.com/drive/folders/1kPdv-lUJ4z8o9qM7BNVZzknWhqS73Abh (or https://www.pitkincounty.com/1322/Elected-Officials-Transportation-Committ, then 'EOTC Archived Packets')

Elected Officials in Attendance:

Aspen – 5	**Pitkin County - 5**	**Snowmass - 5**
Torre	Kelly McNicholas Kury	Bill Madsen
Ward Hauenstein	Steve Child	Tom Goode
Skippy Mesirow	Francie Jacober	Tom Fridstein
John Doyle	Greg Poschman	Alyssa Shenk
Rachael Richards	Patti Clapper	Bob Sirkus

Absent: None

Agreements & Decisions Reached

CALL TO ORDER AND ROLL CALL

Mayor Torre called the meeting of the Elected Officials Transportation Committee (EOTC) to order at 4.14 p.m. followed by a roll-call for attendance.

APPROVAL OF THE JULY 29, 2021 ACTION MINUTES

Mayor Torre called for discussion on the July 29, 2021 EOTC Agreements and Decisions Reached. Commissioners Clapper made a motion to approve the Agreements and Decisions reached from July 29, 2021. The motion was seconded by Councilor Richards.

Pitkin County: The votes were: Kelly McNicholas Kury, yes; Steve Child, yes; Francie Jacober, yes; Greg Poschman, yes; Patti Clapper, yes; motion carried.

Town of Snowmass Village: The votes were: Bill Madsen, yes; Tom Goode, yes; Tom Fridstein, yes; Alyssa Shenk, yes; Bob Sirkus, yes; motion carried.

City of Aspen: The votes were: Torre, yes; Ward Hauenstein, yes; Skippy Mesirow, yes; John Doyle, yes; Rachael Richards, yes; motion carried.

PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA

Mayor Torre requested any public comment for items not on the agenda. No public comments were received.

EOTC COMMITTEE MEMBER UPDATES

Patti Clapper noted and commended Garfield County for contributing $500,000 toward the ongoing operation of RFTA's Hogback service.

Ward Hauenstein noted that he participated in a meeting on trackless tram technology. Mr. Hauenstein said he would provide the rest of the Committee with information on trackless tram technology for their information as it may be applicable to the Entrance to Aspen.

Rachael Richards noted that for the sake of entities that rely on property tax revenue for their operations, it is important to defeat Colorado Proposition 120 this November.

Steve Child noted that Stata Cruz, California has a streetcar that is run on hydrogen fuel cells, which is an up and coming technology that may be applicable to the Roaring Fork Valley.

Francie Jacober noted that there is a large pooling of water on Highway 82 near the Conoco, which is a safety issue. Commissioner Jacober requested that CDOT be contacted to fix this safety problem. Mr. Pesnichak indicated he would contact the local CDOT office to make them aware of the water pooling and the related safety concerns.

PUBLIC HEARINGS

2022 EOTC BUDGET

David Pesnichak - Transportation Administrator

Mr. Pesnichak explained that 2019 through 2021 have been financially turbulent years. In 2019, the EOTC began to see the impacts of changes in state law from HB 19-1240 that affected how sales and use tax are collected. Then in 2020, COVID-19 caused a near economic shutdown in the spring followed by a national recession. Late 2020 and 2021 have seen an unexpected spike in tourist and building activity that has resulted in higher than anticipated revenues across the nation and the region.

As a result of HB 19-1240, Mr. Pesnichak explained that there has been less collection of use taxes and increased collections in sales taxes. While this new law has resulted in an overall increase in sales tax revenues at the jurisdictional level, it has implications to the EOTC budget and use tax appropriations. Notably, EOTC revenues have declined while RFTA revenues have increased from the Pitkin County Transit Sales and Use tax as a result of HB 19-1240.

Mr. Pesnichak noted that EOTC and RFTA staff have been working toward a mitigation solution to the impacts from HB 19-1240 for the past couple years. As more data has become available since the implementation of HB 19-1240, staff agreed to a mitigating measure of transferring the cost of the No-Fare Aspen-Snowmass-Woody Creek-Brush Creek Park and Ride transit service from the EOTC to RFTA. It was determined that the cost of the No-Fare service is roughly equivalent to the decreased revenues seen by the EOTC and that RFTA could absorb this cost solely through the increased revenue expected from HB 19-1240. The RFTA Board approved this mitigation measure on October 14, 2021. As a result, staff recommended adopting an EOTC budget that does not include the cost of the No-Fare service starting in 2022.

As a review of overall 2022 EOTC revenues, Mr. Pesnichak noted that total overall EOTC revenues are expected to decrease from $2,725,220 in 2018, and $3,257,373 in 2019, to $2,559,694 in 2020 to $2,034,646 in 2021. In the years 2022 and beyond, sales tax revenues are projected to decrease by -4.2% in 2022 before rebounding, mostly due to inflation, at 4% annually from 2023 to 2026. Use taxes are expected to increase at an annual rate of about 2.1% annually from 2022 to 2026 to account for inflation in motor vehicle collections.

Looking at future projects, Mr. Pesnichak identified that continuing to make progress on the improvements at the Brush Creek Park and Ride, development of the Snowmass Mall Transit Station, and ensuring No-Fare Aspen-Snowmass-Woody Creek bus service continues, which is expected to transfer to RFTA in 2022, are at the top of the priority list for both staff time and funding.

Meanwhile, work on the Brush Creek Park and Ride to the AABC trail is recommended to continue in 2022 along with work efforts identified in the 2021 EOTC Near Term Transit Improvement Program approved in July 2021, including.

- Truscott to Owl Creek Trail - Feasibility, Planning, and Initial Design;
- Buttermilk Underpass and Transit Signal Bypasses - Feasibility and Initial Design;
- Snowmass Direct Transit Service Improvement Analysis;
- HOV Lane Enforcement Analysis (No Budget, Work Plan Only);
- Permanent Automated Vehicle Counters - Planning, Design, Permitting, and Construction.

In addition, based on feedback received from the EOTC at the April 2020 meeting, Staff proposed to bring forth a recommendation to manage long-term parking at the Brush Creek Park and Ride at the May 2022 EOTC meeting.

Mr. Pesnichak also provided an overview of the current ongoing and operational expenses identified for 2022 as well as an overview of 2022 budget renewals, carry forwards, and new requests including:

Renewals:
- We-Cycle Operational Support
- X-Games Bus Subsidy

2021 Funding Forward to 2022:
- BC P&R FLAP Grant Match (balance)

New Requests:
- Bike / Ped Connection to BC P&R Feasibility (Phase 2)
- Truscott to Owl Creek Trail –Feasibility, Planning, and Design (Tier 1 Priority)
- Buttermilk Underpass and Transit Signal Bypasses – Feasibility, Initial Design (Tier 1 Priority)
- Snowmass Direct Transit Service Improvement Analysis (Tier 1 Priority)
- Permanent Automated Vehicle Counters – Planning, Design, Permitting, and Install (Tier 1 Priority)

Staff recommended that the EOTC adopt the 2022 EOTC budget as proposed with the amendment that the cost of the No-Fare Aspen-Snowmass-Woody Creek-Brush Creek Park and Ride service be removed from the proposed budget starting in 2022 as this cost is to be assumed by RFTA.

Patti Clapper noted that the Truscott to Owl Creek trail connection is very important to move forward as quickly as possible. Commissioner Clapper also noted that the cost of the Buttermilk underpass is very high.

Rachael Richards encouraged further discussion around the Entrance to Aspen, noting that the cost of a Buttermilk underpass is high and that even if transit is sped up through this section of Highway 82, they will still end up in the bottleneck at the S-curves. Councilor Richards also noted that she would like to see SkiCo participation in an underpass project.

Francie Jacober said that she felt the cost of the vehicle counters seemed high. Mr. Pesnichak explained that a review was done through the County Engineer based on expected costs not only for the counters but also for utility work, which can be the majority of the expense. In addition, Mr. Pesnichak said that the cost estimate does not assume a specific type of technology or installation as that is to be determined at the time a contractor is on board. As a result, a higher

cost estimate per counter was assumed to try to ensure that enough money is available to install an optimum number of counters in 2022. Mr. Krueger, City of Aspen Transportation Director also noted that maintaining equipment and software of these counters is also factored in and can be a significant expense.

Bill Madsen said that he would like the EOTC to send a thank you letter to the RFTA board for assuming the cost of the No-Fare service. The EOTC requested that Mr. Pesnichak draft a letter for signature by each jurisdiction. Mr. Pesnichak indicated that he would draft the letter for signature by each mayor or chairperson.

Bob Sirkus questioned how the transit time savings were calculated for the Buttermilk underpass since CDOT does not collect pedestrian count data at the intersection. Mr. Pesnichak said that as a part of the Upper Valley Transit Enhancement study conducted by Mead and Hunt in 2021, Mead and Hunt utilized big data versus modelled travel times to determine an estimated cost savings to transit by eliminating the pedestrian phase of the traffic signal at Owl Creek.

Steve Child also noted concerns regarding the cost of the Buttermilk underpass and expressed interest in an updated concept and cost estimate for an overpass. Commissioner Child also noted that the Entrance to Aspen issue does need to be addressed.

Francie Jacober noted that she would like to see SkiCo participate in the Buttermilk underpass project.

Following some discussion, it was generally agreed that the next phase of the Buttermilk underpass should consider an overpass option as well. Mr. Pesnichak explained that a preliminary cost and concept were developed in 2018 for the EOTC and as a result, wrapping an overview of an overpass versus an underpass into the next phase should be doable. As a result, Mr. Pesnichak said that he would make sure an updated cost and concept for an overpass are included in the next scope of work. David Johnson, Planning Director for RFTA noted that based on their experience the cost of an overpass vs an underpass is not much different.

The vote for the 2022 EOTC budget with the amendment that the cost of the No-Fare Aspen-Snowmass-Woody Creek bus service be removed from years 2022 through 2026 was conducted by jurisdiction. The motion, second and roll call vote was as follows:

Pitkin County: Patti Clapper made the motion. Francie Jacober seconded the motion. The votes were: Kelly McNicholas Kury, yes; Steve Child, yes; Francie Jacober, yes; Greg Poschman, yes; Patti Clapper, yes; motion carried.

Town of Snowmass Village: Bill Madsen made the motion. Alyssa Shenk seconded the motion. The votes were: Bill Madsen, yes; Tom Goode, yes; Tom Fridstein, yes; Alyssa Shenk,yes; Bob Sirkus, yes; motion carried.

City of Aspen: Rachael Richards made the motion. John Doyle seconded the motion. The votes were: Torre, yes; Ward Hauenstein, yes; Skippy Mesirow, yes; John Doyle, yes; Rachael Richards, yes; motion carried.

2022 EOTC WORK PLAN
David Pesnichak - Transportation Administrator

Mr. Pesnichak explained that the Work Plan is to provide transparency in the work efforts proposed to advance the 2020 EOTC Strategic Plan and 2020 EOTC Comprehensive Valley Transportation Plan (CVTP). In addition to the work items, the Plan also recommends regular meeting and retreat / long-term planning dates for 2022 along with topical focus areas for each of the EOTC meetings. Mr. Pesnichak noted that while the Work Plan includes all proposed projects to be undertaken by the EOTC in the coming year, some projects also require a budget expenditure to proceed.

Mr. Pesnichak reviewed the following Work Plan items:

2022:

- Pursue EOTC Budget Mitigation (Work Plan only)
- EOTC Retreat / Long-Term Planning Discussion (Work Plan and Budget)
- Brush Creek Park and Ride
    - FLAP Improvements - Construction (Work Plan and Budget)
    - Develop Partnership with Holy Cross Energy for EV Charger Install (Work Plan only)
    - Bike / Ped Connection to Rio Grande / AABC Feasibility Study – Phase 2 (Work Plan and Budget)
    - Recommendation on Long-Term Parking Plan (Parking over 24 hours) (Work Plan only)
- 2021 EOTC Near Term Transit Improvement Program
    - Truscott to Owl Creek Trail – Planning, Design, Public Input, Identification of Funding Sources (Work Plan and Budget)
    - Buttermilk Bike/Pedestrian Underpass and Transit Signal Bypasses - Initial Design, Public Input, Identification of Funding Sources (Work Plan and Budget)
    - HOV Lane Enforcement Analysis (Work Plan only)

- Analysis of Up Valley and Down Valley BRT Direct Service to Snowmass (Work Plan and Budget)
- Additional Permanent Automated Vehicle Counters (Work Plan and Budget)

- Participate in Snowmass Transit Center, Airport, and Regional Transportation Planning / Visioning, as appropriate

2023:

- Continue Progress on Implementation of 2021 EOTC Transit Improvement Program, as appropriate
- Brush Creek Park and Ride - Food Truck /Farm Stand Experiment
- Participate in Snowmass Transit Center, Brush Creek P&R Development, Airport, and regional transportation planning / visioning, as appropriate

Several committee members addressed the proposed retreat/long-term planning discussion. Rachael Richards and Kelly McNicholas Kury noted that they would like a longer discussion timeframe than the proposed 3-hours. Mr. Pesnichak explained that the current sketch plan for this long-term planning is to invite the Fehr and Peers team who did the Integrated Mobility Study (IMS) phase 1 and 2 to present their findings in more detail, including the options they identified for controlling congestion and supporting transit over the long run. Then, based on the outcome from this discussion, determine the next step to keep the momentum going in the desired direction. Mr. Pesnichak said that based on this feedback received, he would discuss the options with the other staff.

A few committee members noted that the North West Council of Governments meetings also occur on the last Thursday of the month and that, although it is a long day, does not otherwise conflict with the proposed EOTC meeting days and times.

Francie Jacober noted that she may have a conflict with EOTC meetings on the last Thursday of the month.

Steve Child noted that if there is a way to combine vehicle counting with HOV lane enforcement that would be ideal.

Kelly McNicholas Kury stated that she would like a report out on progress being made with EV charging and ideally the development of an EV master plan. Mr. Pesnichak explained that there is currently no room in the EOTC work plan for the development of such a plan in 2022 without removing another item. In addition, the EOTC is bound to looking at EV charging from the transit perspective, so the EOTC may not be the best forum to for the development of a comprehensive EV plan.

The vote for the 2022 EOTC Work Plan, without amendment, was conducted by jurisdiction. The motion, second and roll call vote was as follows:

Pitkin County: Kelly McNicholas Kury made the motion. Greg Poschman seconded the motion. The votes were: Kelly McNicholas Kury, yes; Steve Child, yes; Francie Jacober, yes; Greg Poschman, yes; Patti Clapper, yes; motion carried.

Town of Snowmass Village: Alyssa Shenk made the motion. Bob Sirkus seconded the motion. The votes were: Bill Madsen, yes; Tom Goode, yes; Tom Fridstein, yes; Alyssa Shenk, yes; Bob Sirkus, yes; motion carried.

City of Aspen: Ward Hauenstein made the motion. Rachael Richards seconded the motion. The votes were: Torre, yes; Ward Hauenstein, yes; Skippy Mesirow, yes; John Doyle, yes; Rachael Richards, yes; motion carried.

ADJOURN REGULAR MEETING

Rachael Richards moved to adjourn the regular meeting of the Elected Officials Transportation Committee at 6:25 p.m. Patti Clapper seconded the motion. Motion passed with 15 yea votes.

City of Aspen

_____
Torre, Mayor
City Council

_____
Nicole Henning
City Clerk

Town of Snowmass Village

_____
Bill Madsen, Mayor
Town Council

_____
Rhonda B. Coxon, CMC
Town Clerk

Pitkin County

_____
Kelly McNicholas Kury, Chair
Board of County Commissioners

_____
Jeanette Jones
Clerk to the Board of County Commissioners

_____
David Pesnichak
Regional Transportation Administrator

AGENDA ITEM SUMMARY

EOTC MEETING DATE:	March 24, 2022
AGENDA ITEM TITLE:	Brush Creek Park and Ride to AABC / Aspen Trail Connection Review – Feasibility and Alignment
STAFF RESPONSIBLE:	David Pesnichak, Transportation Administrator

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ISSUE STATEMENT: The Pitkin County Open Space and Trails (OST) Department, the City of Aspen Parks and Open Space Department, and the Elected Officials Transportation Committee (EOTC) have jointly funded a feasibility study to connect the Brush Creek Park and Ride to the Aspen Airport Business Center (AABC) via a safe, hard surface trail. This trail connection has been has been scoped to meet the profile grade requirements in the American with Disabilities Act (ADA) for both recreationists and commuters. The project funding partners contracted with SGM to conduct this study, which is attached.

The local project team consists of representatives from the City of Aspen Parks and Open Space Department, Pitkin County Open Space and Trails Department, the Town of Snowmass Village Parks and Recreation Department, and the Regional Transportation Administrator. This initial phase in 2021 and early 2022 consists of a feasibility analysis and a determination of possible alignment alternatives including estimated costs. The goal of this meeting with the EOTC is to discuss the options and determine if staff should move the project to a public process to obtain community feedback.

Improving bicycle and pedestrian connections from the Brush Creek Park and Ride was identified as an Upper Valley Priority by the EOTC within the Comprehensive Valley Transportation Plan (CVTP) adopted in 2020.

Filling this difficult system gap is important to the creation of a safe, seamless and attractive bicycle and pedestrian experience between Snowmass Village, the City of Aspen, the AABC, the valley wide Rio Grande Trail, and the Brush Creek Park and Ride. Making this bicycle and pedestrian connection is not only important for decreasing Vehicle Miles Travelled (VMT), congestion, and greenhouse gas (GHG) emissions, it is also needed to promote regional resiliency, quality of life, recreational access, and the economy.

BACKGROUND: As the EOTC may recall from the October 2020 and 2021 budget meetings, this partnership project started in 2021 and has been led by the Pitkin County OST department. The results of this feasibility and alignment study were reported out to the Pitkin County OST Board in a joint meeting with the City of Aspen Parks and Open Space Board on February 24, 2022. The comments received from the joint Pitkin County OST Board and City of Aspen Parks and Open Space Board meeting held in February are included later in this memo.

The study conducted by SGM is attached and outlines the identified trail alignments, costs, and recommendation.

Existing Conditions and Planning Overview

The Pitkin County Open Space and Trails Department has created a management plan for both the Roaring Fork Gorge and the Rio Grande Trail and this connection has been identified as a potential in the final plans. A feasibility report was created in 2014 that looked at how to create a hard and soft surface connection to the City of Aspen from the W/J hill where McLain Flats Road crosses the Rio Grande Trail. There were many options that were considered.

The main goals for the 2014 study included looking at a sustainable soft surface, a hard surface through Slaughter House Canyon, bike lanes on McClain Flats Road, and multiple bridge options to the AABC from the Rio Grande Trail. An add-on to this feasibility study was to look at the connection to the Brush Creek Park and Ride and how to connect to the AABC.

A robust public process was undertaken at that time and the community supported a hard surface connection from down valley to Aspen, but was split on paving the section through Slaughterhouse Falls.

When the Roaring Fork Gorge Management Plan was adopted the Board of County Commissioners (BOCC) did not choose to pursue a crossing to the Brush Creek Park and Ride or from the Rio to the AABC at that time. The BOCC decided to provide a dual surface trail from McClain Flats Road to the pinch point on Shale Bluffs and then increase maintenance of the soft surface/crusherfines trail to Stein Park.

This has been the current condition for the past five years. With discussions on how to improve the Brush Creek Park and Ride to better accommodate commuters and the County goals for a connected trail system from the Town of Snowmass Village and the communities down valley to Aspen, there is still a gap between the Brush Creek Park and Ride and the AABC and Aspen.

Highway 82 has wide shoulders through shale bluffs, but with the amount of traffic and drainage and rockfall from shale bluffs, very few cyclists and pedestrians use this as a connection and the ability to better manage these conditions is very limited. There is also a trail connection from the Brush Creek Park and Ride to the bottom of Smith Hill Road at Jaffee Park, but this requires a major elevation drop and gain to get either to or from the Rio Grande Trail. Cyclists do use this as a recreational trail, but use is limited since you have to drop and climb over 240-feet and travel approximately 2 miles to get to the same point on the other side of the Brush Creek Park and Ride.

To gauge the community's interest in a connection to the Brush Creek Park and Ride, specific questions have been asked in the Pitkin County Community Survey in 2016, 2018 and 2021. These questions were to determine the community desire for a hard surface connection both from down valley and the Brush Creek Park and Ride and 75.8% thought it was very or somewhat important in 2021, 79% thought it was very or somewhat important in 2018, and 80% thought it was very or somewhat important in 2016.

Overview of Comments Received from the Joint Pitkin County OST Board and City of Aspen Parks and Open Space Board held on February 24, 2022

- Recommend moving forward with the public process in 2022 of the two identified technically feasible alignments
- Identified general preference for Option 1 (Twin Bridges)
- Identified additional information needed as project goes to public process:
    - Bike commute time to Aspen and not just to AABC.

- Need for commuter study to determine: a) how many cars could be taken off the road, and b) the feasibility of this connection as a winter commute route.
- Identify whether 10ft trail width will provide enough capacity if it is a commuter trail along with a recreation trail.
- Look at phasing overall project and identify a list of potential issues should the project be phased.

Staff Recommendation

The next step is to move forward with public engagement of the technically feasible alignments. The EOTC, the City of Aspen Parks and Open Space Department, and the Pitkin County Open Space and Trails Department have each budgeted $25,000 ($75,000 total) for this next phase of the review should it move forward.

Based on the outcome of the SGM study and the recommendation received from the joint Board meeting in February, staff recommends that the EOTC provide Administrative Direction to staff to initiate the public process to gauge the public's desire for this connection based on the current design options. This direction would authorize the currently budgeted expenditure of up to $25,000 of EOTC funds in 2022 for this public input phase. This next phase will continue to be a funding partnership between the Pitkin County Open Space and Trails Department, the City of Aspen Parks and Open Space Department, and the EOTC. The results of this public input phase would be reported back out to all partners when it is complete.

RECOMMENDED EOTC ACTION:
- Administrative Direction authorizing the Staff Recommendation to initiate the public process to gauge the public's desire based on the current design options to create a hard surface bicycle and pedestrian connection between Snowmass Village, Aspen, the AABC, the Brush Creek Park and Ride and communities down valley.
(Motion, Second, and Roll Call Vote by Jurisdiction)

Adoption of Administrative Direction by the EOTC requires the direction be affirmatively authorized by a majority vote of each jurisdiction.

ATTACHMENTS:
1. SGM Feasibility and Alignment Study

AGENDA ITEM SUMMARY

EOTC MEETING DATE:	March 24, 2022
AGENDA ITEM TITLE:	Request for access through Brush Creek Park and Ride for Proposed Adjacent Development
STAFF RESPONSIBLE:	David Pesnichak, Transportation Administrator

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ISSUE STATEMENT: Attached for review and direction is a request from the Aspen Jewish Congregation (AJC) for access through the Brush Creek Park and Ride for a proposed adjacent development.

BACKGROUND: The engineering firm, SGM, has contacted EOTC staff on behalf of their client, the AJC, to request access through the Brush Creek Park and Ride in order to access Highway 82 at the Brush Creek Road intersection. Please see the attached letter from Jason Schnissel, Executive Director of the AJC.

Brush Creek Park and Ride Ownership and Management Structure

As the EOTC may recall, the Brush Creek Park and Ride has the following ownership and management structure:

- The Colorado Department of Transportation (CDOT) is the property owner.
- The City of Aspen and the Roaring Fork Transportation Authority (RFTA) hold leases with CDOT for different areas of the CDOT property.
    - RFTA leases the front portion of the Park and Ride property from CDOT, which is currently developed with the transit station and the access point onto Highway 82 at the Brush Creek Road intersection. RFTA is responsible for all maintenance and expenses within RFTA lease area.
    - The City of Aspen leases the back portion of the Park and Ride property from CDOT, which is currently developed with paved and unpaved parking, lighting, landscaping and the City's carpool pass kiosk. The City of Aspen is responsible for maintaining the Aspen lease area while the EOTC is responsible for all expenses.
- The City of Aspen, Town of Snowmass Village, Pitkin County, and RFTA are party to a 2005 "Brush Creek Park-N-Ride Management, Maintenance, and Use Plan" Intergovernmental Agreement (IGA). This IGA has the following requirement for "Change or Future Use of the Parking Lot":

> *Any proposed change … of the Park-and-ride Lot shall require unanimous approval of the member jurisdictions of the EOTC consistent with existing IGAs governing the EOTC, providing that the individual jurisdictions do not have the have a unanimous vote, rather a simple majority vote, and in coordination with CDOT.*

As background, according to the 2005 "Brush Creek Park-N-Ride Management, Maintenance, and Use Plan" IGA, the purpose of the Brush Creek Park and Ride is as follows:

The purpose of the Park-and-ride Lot is to provide parking and shuttle service for commuters, visitors, day skiers, special event attendees and others traveling to the Town of Snowmass Village, Pitkin County and/or the City of Aspen.

Process for Review and Approval for access through the Park and Ride

Based on the 2005 Management, Maintenance, and Use Plan IGA, it is Staff's opinion that a request to utilize the Park and Ride as a through access for an adjacent development can reasonably be considered a "change" of the Park-and-ride Lot use. As a result, this change in use requires: 1) unanimous approval of the member jurisdictions of the EOTC, and 2) coordination with CDOT.

In addition to approval from the EOTC for access through the Brush Creek Park and Ride, the developer will also need to obtain approval from Pitkin County for the land use as well as CDOT for access to Highway 82.

It is understood that CDOT will request comments from the City of Aspen and RFTA as leaseholders once the developer makes an application for access to Highway 82 through the Brush Creek Park and Ride. As the City of Aspen and RFTA are parties to the 2005 "Brush Creek Park-N-Ride Management, Maintenance, and Use Plan" IGA, and the City of Aspen and RFTA are also leaseholders with CDOT, the comments and direction provided by the EOTC regarding this request for access through the Park and Ride is expected to be carried forward to CDOT when requested. It is understood that CDOT will not issue an access permit for a development that includes access through the Brush Creek Park and Ride until favorable comments are received from the City of Aspen and RFTA as leaseholder.

Regarding the sequence of approvals, while it is understood that the developer has submitted a Traffic Impact Study to CDOT for initial review and has had preliminary discussions with the Pitkin County Community Development Department, the EOTC is the first step in the approval process.

The EOTC is first in this process for three main reasons:

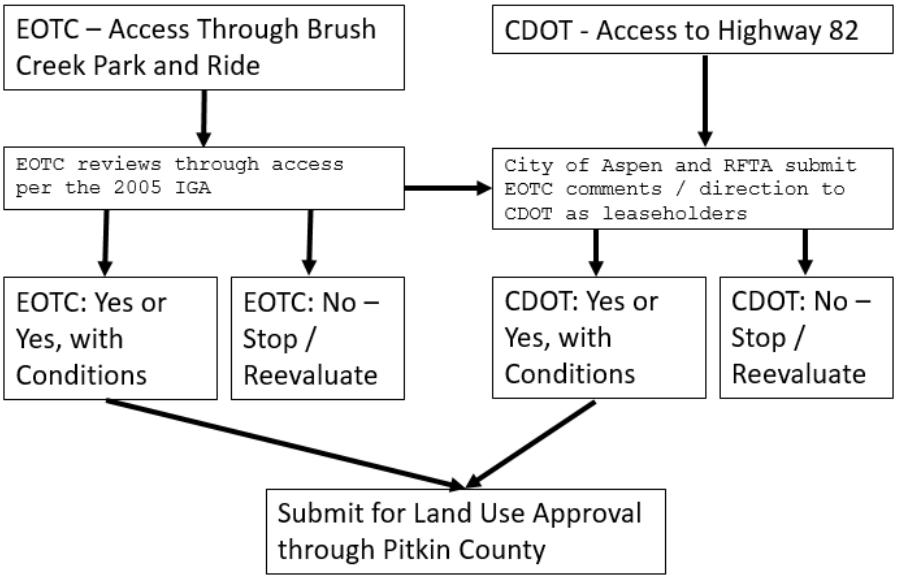
1) The feedback and decision from the EOTC on access through the Park and Ride are to be carried forward by the City of Aspen and RFTA as leaseholders of this CDOT owned property when requested as a part of CDOT's Access Permit application review process, and;

2) The feedback and decision from the EOTC can impact the land use proposal to Pitkin County; and,

3) As the Pitkin County Board of County Commissioners (BOCC) are members of the EOTC and the BOCC is the ultimate authority for land use approval, this request needs to come to the EOTC before submission of a land use application as it becomes a quasi-judicial process once a land use application is submitted to the County.

It is worth noting that as the developer in this case is a religious institution, it is understood that Pitkin County only has the power to condition the land use proposal. CDOT, on the other hand, does not differentiate between religious and non-religious institutions in the application of their requirements for access to the State highway system.

The below simplified process overview is intended to represent the overall process of approval.



Proposal

Please see the attached letter from Jason Schnissel, Executive Director of the AJC (Attachment 1), and the Traffic Impact Study prepared by Dan Cokley of SGM (Attachment 2) for a full description of the proposal to date.

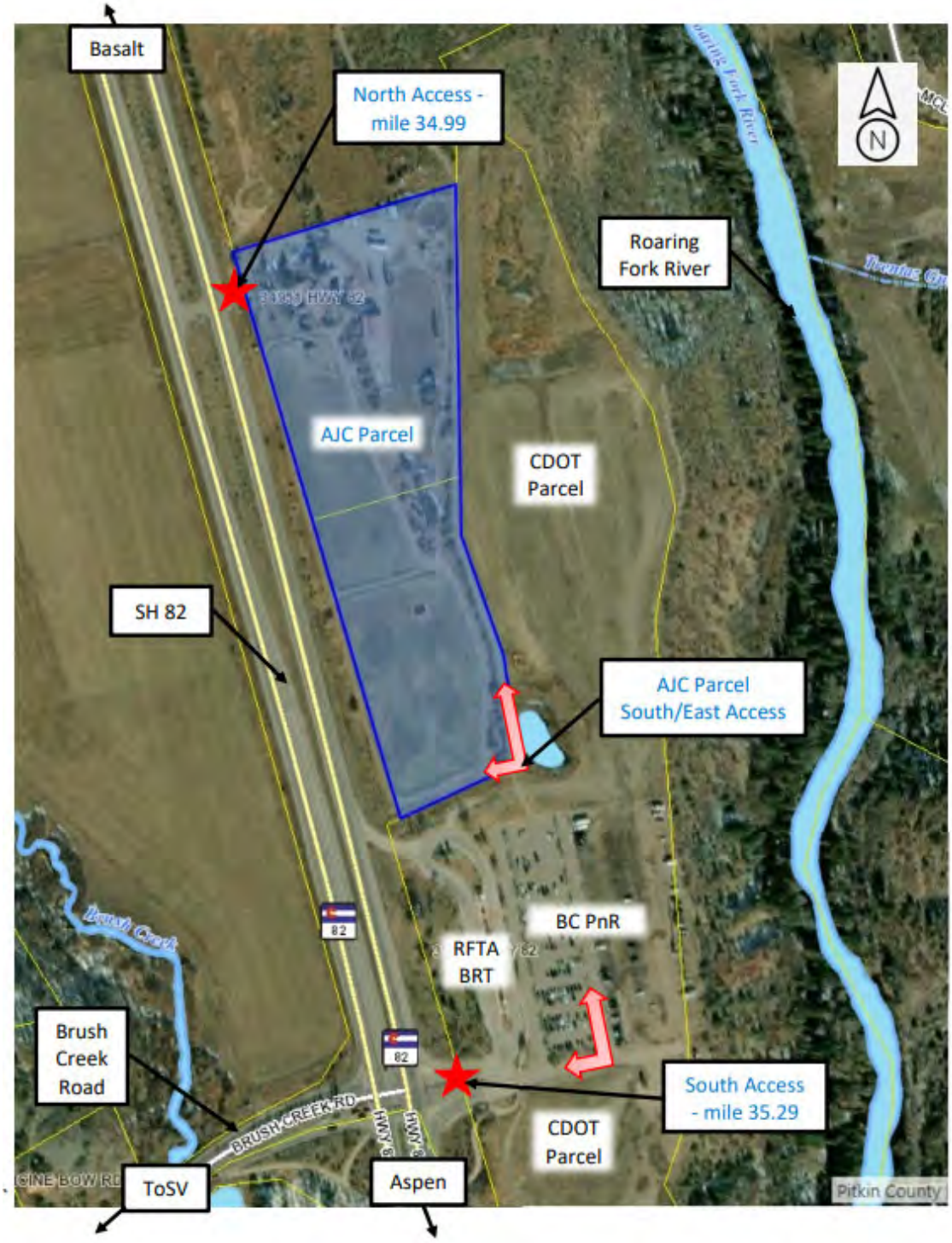
The proposal at this point is conceptual with no established site plan. The development of a site plan for the proposed facilities is to be created before submission of the land use application to Pitkin County.

The attached Traffic Impact Study does identify the below uses.

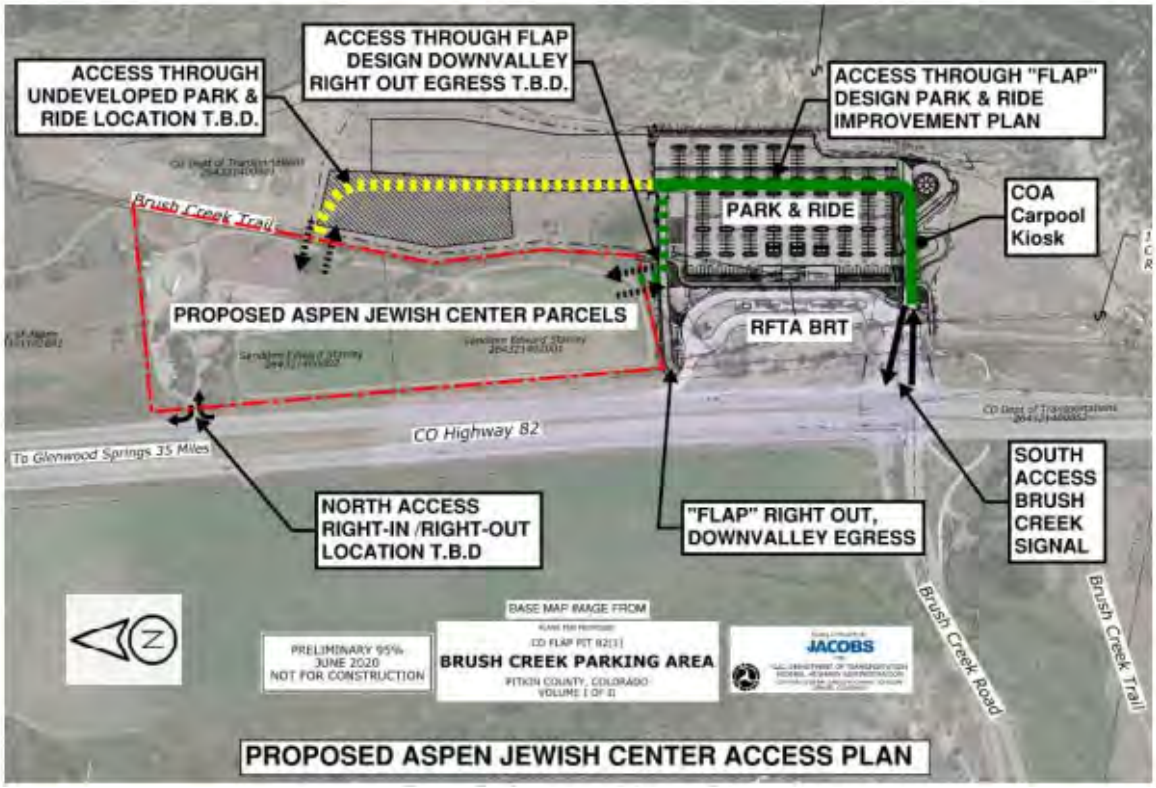
> *The proposed AJC development is in the conceptual stage and programming is envisioned as a single building, associated parking and the following use areas.*
>
> - *o 15,000 sf Worship / lobby / kitchen / restroom space*
> - *o 3,000 sf Hebrew school / restroom space*
> - *o 27,000 sf parking (75 spaces)*
> - *o Potential Day Care Facility*

The current CDOT access permit for the Brush Creek Park and Ride allows for a Design Hourly Volume (DHV) of 212. The Traffic Impact Study identifies that the proposed development would add a DHV of 52 to this access point onto Highway 82. As this is an increase greater than 20% (CDOT's access permit threshold) and it is a change in land use, the proposed development does require a new CDOT access permit.

Below is a parcel location map for the proposed development adjacent to the Brush Creek Park and Ride provided by the applicant. This also conceptually shows the proposed access points from Highway 82 to the development.



Below is the conceptual access plan for the development from the Traffic Impact Study, including the proposed access route through the Brush Creek Park and Ride.



The Traffic Impact Study (Attachment 2) provides the following mitigation measures.

• *Access through Brush Creek Road traffic signal and Park and Ride leg is the safest solution for the traffic generated by the AJC. If access is possible, the AJC will continue to explore the access further into site planning and design potential.*

• *Access through the Park and Ride area to the AJC parcel in conformance with Brush Creek Park and Ride Expansion Plans*

• *Based on preliminary discussion with CDOT, agreement by the AJC to limit access at North access (M 34.99) to right in and right out only, will relieve the AJC to any responsibility to upgrade the existing Brush Creek Road and SH 82 intersection to resolve existing path overlap issues with left turn movements (Split Phasing).*

o Remove SB left turn and crossover median as directed by the Access Permit.

• *Provide downvalley egress at North access (right out M 34.99) through AJC parcel for park and ride customers during large events (X Games, Labor Day JAS and others) in the form of an easement and / or planned improvements within the AJC site plan.*

o Downvalley egress will result in > 10 vph and may warrant a WB right turn acceleration lane per the SHAC with dimensions per Table 11.

• *Provide the ability to access and use the AJC parking lot during large events.*

Staff Recommendation

It is Staff's opinion that the proposed development and mitigation measures are too conceptual for Staff to be able to provide a recommendation on specific design elements at this time.

Further, due to the conceptual nature of the proposal to date, it is Staff's opinion that not enough information is available for the EOTC to make a determination (deny, approve, or approve with conditions) on this request at the March 24, 2022 EOTC meeting.

However, in the review of this proposal, EOTC staff drafted a list of standards that any developer requesting access through the Brush Creek Park and Ride should meet in order for the EOTC to consider allowing access. These standards were drafted in collaboration with staff from the City of Aspen, Town of Snowmass Village, Pitkin County, RFTA, and the Transportation Administrator.

At this point, Staff recommends that the EOTC provide Administrative Direction to follow the below standards in the review of access through the Brush Creek Park and Ride. These standards will assist Staff in the creation of a staff recommendation when this proposal comes back to the EOTC later for final approval, approval with conditions, or denial.

It is worth noting that the below standards do not represent final comments for the City of Aspen or RFTA to provide to CDOT as a part of the CDOT Access Permit Review. The developer will need to come back to the EOTC later once more details are identified for a final review and determination by the EOTC. It will be this later EOTC determination on access and any associated conditions for this development that should be presented to CDOT by the City of Aspen and RFTA as a part of the CDOT Access Permit review process. It is understood that CDOT will not issue an access permit for a development that includes access through the Brush Creek Park and Ride until favorable written comments are received from the City of Aspen and RFTA as leaseholder.

Proposed standards for access through the Brush Creek Park and Ride:

- **Demonstration of Significant Public Benefit**. The developer shall demonstrate that access through the Brush Creek Park and Ride will provide a significant benefit to the public. Access to private developments through the Brush Creek Park and Ride shall not be granted unless a significant public benefit is provided.

- **All alternatives explored**. The developer shall explore, analyze and provide justification for alternatives to access through the Brush Creek Park and Ride. This analysis is intended to provide transparency in the selection of access through the Park and Ride as the best alternative. Options that help support the function of the Park and Ride are encouraged.

- **Traffic operations at the Highway 82 / Brush Creek Road intersection shall not be impaired.** It is understood that increases in traffic volumes can occur at this intersection when providing access to new developments. At the same time, CDOT generally considers a Level of Service (LOS) "D" as being acceptable. Any new development shall demonstrate that the proposed access:

    a) Will not decrease any movement within the Highway 82 / Brush Creek Road intersection below a LOS "D" either in the near term or future projections, and;

b) For any movement within the Highway 82 / Brush Creek Road intersection that is shown to have an existing or future LOS of "F", the new development shall not further increase that overall delay, and;
c) All signal queues must clear with each signal cycle regardless of LOS within both the near term and future projections, and;
d) When overall transit system performance is operating at a LOS of "D" or worse, the applicant should engage the transit provider to evaluate the potential for improving transit service to offset the impacts for that particular development.

- Any traffic increases through the Park and Ride shall be demonstrated to not create any degradation to transit service and access, bicycle and pedestrian access and pathways, carpool kiosk access, and internal traffic queuing or delay. The developer proposing access through the Park and Ride shall provide site circulation details with respect to safety and operations. The plan shall demonstrate that there will be no disruptions or degradation to the intended uses of the facility, which include transit and carpooling. Potential disruptions and degradations include, but are not limited to: increased facility entrance or exit queuing or congestion, disrupting transit vehicles ability to access or egress the transit station, vehicle blockage or queuing over identified transit, bicycle and pedestrian ways, disruptions for vehicles accessing the carpool kiosk, and/or high through traffic volumes that may impede customer parking. Mitigation options that promote transit service and access efficiency, bicycle and pedestrian access, carpool kiosk access, and/or reduce internal traffic queuing or delay are encouraged.

- Development shall pay its own way. Any improvements necessary to accommodate access to an adjacent development shall be the responsibility of the developer. The developer shall construct all improvements. Payment in lieu of improvements will not be accepted.

- No increase in facility maintenance and/or operational costs. The developer shall demonstrate that access through the Park and Ride will not increase maintenance or operating costs for the Park and Ride facility within either the City of Aspen or RFTA lease areas. Should an increase in operating and/or maintenance costs be identified, then an agreement shall be established to offset those costs to the EOTC and/or RFTA. Mitigation options that reduce the overall cost of maintenance and/or operational costs are encouraged.

- No conflict with existing City of Aspen lease, RFTA lease, or the Brush Creek Park and Ride Management, Maintenance and Use Plan Intergovernmental Agreement (IGA). The developer shall demonstrate that there will be no conflict with any of the terms and agreements identified within the City of Aspen lease with CDOT, the RFTA lease with CDOT, and the Brush Creek Park and Ride Management, Maintenance and Use Plan IGA.

- Development access shall not hinder or impede the use of the facility for special event parking and staging. The Brush Creek Park and Ride is regularly used for parking and staging for special events. The developer shall demonstrate that the proposed access through the Park and Ride is complementary to or at a minimum will not hinder or impede the use of the facility for this purpose. Mitigation options that support special event parking and staging is encouraged.

- Any development shall comply with the parameters and requirements of any existing or new CDOT Access Permits. All improvements required by CDOT on Highway 82 must be completed before access through the Brush Creek Park and Ride can be permitted.

RECOMMENDED EOTC ACTION:
- Administrative Direction authorizing the Staff Recommendation for staff to use and follow the above standards for access through the Brush Creek Park and Ride
(Motion, Second, and Roll Call Vote by Jurisdiction)

Adoption of Administrative Direction by the EOTC requires the direction be affirmatively authorized by a majority vote of each jurisdiction.

ATTACHMENTS:
1. Letter from Jason Schnissel, Executive Director of the Aspen Jewish Congregation, dated February 9, 2022
2. Traffic Impact Study conducted by Dan Cokley of SGM, dated February 11, 2022

ASPEN JEWISH CONGREGATION
Serving the Roaring Fork Valley

February 9, 2022

Pitkin County - Elected Officials Transportation Committee (EOTC)
Attention: David Pesnichak, AICP
530 E Main St., Suite 302
Aspen, CO 81611

Dear Mr. Pesnichak,

The Aspen Jewish Congregation (AJC) is an open and inclusive community committed to building relationships and enriching the lives of the residents in Aspen, the Roaring Fork Valley and beyond. The AJC brings Jewish tradition and learning to life in harmony with the natural beauty of the Valley. As the EOTC begins to evaluate the AJC's initial proposal the following background and project information is presented for consideration.

The AJC began as a modest and grassroots organization in 1973. After a decade plus of gathering as a community with informal settings, the Congregation entered a partnership with the Aspen Chapel (at the round-a-bout) in 1986 and since then The Chapel has served as the AJC's home and base of operations. As the AJC congregation has grown over the last thirty-five years there have been many limitations and issues with the existing space at the Chapel. The first limitation is total capacity in the Chapel's sanctuary. Due to capacity issues the Congregation's High Holiday services must be held off-site. The High Holidays are the most important days of the Jewish year and ideally would be spent under a roof that is not rented and that incorporates the security needs that are touched upon later in this document.

Capacity limits also occasionally inhibit members from being able to use our space to host life-cycle events, including Bar/Bat Mitzvahs, weddings and funerals. The second limitation for the AJC is for the past eight years the Hebrew school has needed to rent space to host classes due to the growing number of children and families in the Valley. This is logistically challenging for the staff as they must bring school supplies to different venues each week to support the school and again poses security concerns.

Another limitation at the current space is the lack of actual usable space and amenities to host events. The AJC is limited in the scope of events that are able to be hosted onsite due to limited capacity, a lack of a commercial kitchen, a HVAC system and accessibility.

Security issues are also of major concern with the Chapel. The current space does not have a robust or any security system. With Anti-Semitism on the rise and growing hate crimes safety precautions need to be considered more than ever. Sadly, even in our quiet community, we are not immune to this threat and this has become a major concern among congregants and clergy.

Lastly, over the past several years the relationship with the Chapel community has become strained. While this may subside, the congregation has become more interested in a long-term, stable home for future generations. With these considerations, the AJC is exploring the feasibility of relocating and building a new facility to accommodate the needs and growth of the community.

The AJC is currently reviewing all the requirements for the potential project which includes due diligence on a property located at 34951 Highway 82, Woody Creek, CO 81656. The property is directly adjacent to the Brush Creek Park and Ride (BC P&R). The AJC is very early in the planning stages of the project and has determined that a roughly 18,000 SF space including a place of worship, lobby, multi-purpose space, kitchen, classrooms and office space for clergy. In addition, there will be roughly 75 parking spaces in 27,000 SF. The AJC is also considering the inclusion of a day care facility to serve the residents in the area.

Today there is only a single family home on the 10 acre property, with an existing access via a right in and right out only. The AJC has commissioned SGM to perform a traffic impact study (TIS) to review the project and the effects and requirements of the potential facility. The TIS indicates that the current access is not sufficient or safe for the proposed facility. Access to the AJC site is proposed to be provided from the existing residential property access at 34951 SH 82 and the east leg of the Brush Creek Road signalized intersection serving the Roaring Fork Transit Authority (RFTA) BRT station and BC P&R lot. The existing right in/out at the North end of the property will still be utilized as a secondary access.

Access through the P&R is a critical piece to understand whether this property will work for the AJC. Access through the P&R is a safe solution to the minimal traffic generated by the facility. If access is possible, the AJC will continue to delve further into site planning and design potentials.

The AJC is excited about this opportunity and understands the reality that all parties will want to see benefit through a coordinated approach. The AJC very much believes this is achievable and would like to engage, collaboratively, in creative solutions that are beneficial to all concerned. For example, the AJC understands that overflow parking during large community events is needed. This overflow could be accommodated on the AJC land, along with peak demand egress through the north end of the parcel to help alleviate special event congestion.

If access through the P&R is a possibility, the AJC is committed to working with the various parties towards a favorable outcome. The efforts to date and the advice provided by local transportation staff has been invaluable. We very much appreciate the time and consideration and look forward to seeing this idea move forward.

Sincerely,

Jason Schnissel
Executive Director

AGENDA ITEM SUMMARY

EOTC MEETING DATE: March 24, 2022

AGENDA ITEM TITLE: EOTC Retreat Updates

STAFF RESPONSIBLE: David Pesnichak, Transportation Administrator

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ISSUE STATEMENT: This update is intended to provide advance information to the Committee members for the April 28, 2022 EOTC retreat.

BACKGROUND: As the Committee members are aware, the 2022 EOTC Work Plan includes a retreat on April 28, 2022. Staff have been working over the past few months to develop goals and an agenda for this event.

Retreat logistics:

When: April 28, 2022 from 12.15 to 5pm
Optional: Lunch from 12.15-1pm (In-Person Only)
Retreat Sessions: 1-5pm

Format: Hybrid In-Person or Virtual
(Virtual Links to be Provided Prior to Retreat)

In-Person Location: New Aspen City Hall, Pearl Room

Facilitator: Mark Collins

The goals that staff have identified for the retreat are:

a) To reestablish a baseline understanding of the EOTC purpose, requirements, structure, funding, operations, and current project programming;
b) Take a deep dive into the outcomes from the Integrated Mobility System (IMS) study; and,
c) Identify and refine a long-term (11+ years) transit oriented conceptual direction based on the IMS study recommendations.

In order to provide information and background that progresses the above goals, staff have identified the following presentation topics.

- EOTC formation and structure, legal guardrails, governance and decision-making, guiding documents, and projects and efforts that are underway and planned
(Presenter – David Pesnichak, Regional Transportation Administrator)

- Upper Valley Mobility Report and the Integrated Mobility System (IMS) background
(Presenters – John Bennett, Maria Morrow, and Cristal Logan; members of the Community Forum Task Force on Transportation and Mobility)

- Deep Dive into the Integrated Mobility System (IMS) effectiveness on greenhouse gas emissions (GHG), Vehicle Miles Traveled (VMT), and congestion reduction, as well as implementation strategies, and the long-term transit oriented congestion reduction options identified by the IMS
(Presenters – Chris Breiland, Ann Bowers, and Marissa Milam; Fehr and Peers)

These presentations are intended to provide the groundwork for facilitated discussions on the long-term congestion reduction measures identified through the 2020 and 2021 IMS Study conducted by Fehr and Peers. These congestion reduction measures are identified as two methods for dynamic congestion pricing into and out of the Upper Valley, including a cordon toll and managed lanes. An outline of these options along with benefits and shortfalls are to be provided by the Fehr and Peers team within their presentation on April 28th and are further described in their 2021 report. This report is available on the EOTC website under "Relevant Studies" and will be attached to the pre-retreat packet, discussed below, for easy reference.

Pre-Retreat Packet

In advance of the EOTC retreat, Committee members and staff will received Pre-Retreat Packet that will include EOTC background, decision-making and governing documents for the EOTC, an overview of demographic and transportation related data and trends, and an appendix of relevant studies, plans, and agreements that will be relevant to the retreat.

Next Steps Following Retreat

Based on the discussion and feedback received at the April 28 retreat, staff will reconvene to determine logical next steps.

BUDGETARY IMPACT:
None at this time.

RECOMMENDED ACTION:
None at this time.

FEEDBACK REQUESTED:

- Roster of who is planning on attending.
- If planning on attending, do you plan to attend In-Person or Virtual?
- If planning to attend In-Person, do you plan to attend lunch from 12.15-1?

ATTACHMENTS:

1. Draft Retreat Agenda

Attachment 1

EOTC RETREAT AGENDA
Hybrid In-Person and Virtual

Time	Topic	Lead	Outcome
12:15-1:00	**Lunch, mingling**		
1:00-1:15	Introductions, Overview of Retreat Agenda, Ground Rules	David Pesnichak and Mark Collins	Participants agree to process and expected outputs of the retreat
1:15-1:40	Presentation: • EOTC History, Governance and Decision Making • Accomplishments • Environmental scan	David Pesnichak	1. Participants are familiar with the purpose, requirements, structure, funding and operations of the EOTC 2. Participants are familiar with EOTC accomplishments and environmental scan to use during retreat discussions
1:40-1:55	**Break**		
1:55-2:30	Presentation: • Community Forum Task Force on Transportation and Mobility • Upper Valley Mobility Report Dialogue and Discussion	John Bennett, Maria Morrow, Cristal Logan	1. Participants are familiar with the motivation and process that led to the formation of the Community Forum Task Force on Transportation and Mobility 2. Participants understand the components of the Integrated Mobility System (IMS)
2:30-2:45	Presentation: • Near Term Transit Improvement Program	David Pesnichak	Participants understand how the IMS was the foundation for the Near Term Transit Improvement Program adopted by the EOTC in July 2021
2:45-3:00	**Break**		

3:00-3:30	Presentation: • Integrated Mobility Study (IMS) and Future Transportation Patterns Dialogue and Discussion	Fehr and Peers Team: Chris Breiland, Ann Bowers, and Marissa Milam	1. Participants understand the GHG and VMT impacts from each of the IMS strategies and the recommended plan for implementation both in the near term and long term 2. Participants understand the structure and long-term identified options to Congestion Reduction Measures: 1) Cordon Tolling, and 2) Managed Lanes
3:30-4:40	Cordon Tolling and Managed Lanes • Small group work (25 minutes): pros and cons list • Small group report out and individual ranking on Effectiveness and Implementability (20 minutes) • Dotocracy Discussion (25 minutes)	Mark Collins	Participants produce a pros and cons list for each alternative, rank each option based on effectiveness and implementability, and conclude with visual dotocracy
4:40-5:00	Wrap-Up and Next Steps	Mark Collins and David Pesnichak	Facilitator will provide a summary of the day's work and outline of next steps to be executed by staff and EOTC members

AGENDA ITEM SUMMARY

EOTC MEETING DATE: March 24, 2022

AGENDA ITEM TITLE: Transportation Administrator Updates

STAFF RESPONSIBLE: David Pesnichak, Transportation Administrator

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ISSUE STATEMENT: This memo is intended to keep the EOTC up to date on efforts that are within or could affect areas within the EOTC's purview. The updates included in this memo are as follows.

a) Status Update on 2021 EOTC Near Term Transit Improvement Program
b) Town of Snowmass Village Transit Center – Progress Update
(Provided by David Peckler, Transportation Director, Town of Snowmass Village)

BACKGROUND: The following update is provided for EOTC information.

a. Status Update on 2021 EOTC Near Term Transit Improvement Program

As the EOTC members may recall, at the July 29, 2021 EOTC meeting, the Committee adopted the 2021 EOTC Near Term Transit Improvement Program.

The purpose of this Program is to identify the near term priority projects to improve transit within the Upper Valley. As originally anticipated, starting with the 2022 budget year staff will continue to utilize this document to development the upcoming EOTC budgets and work plans.

Staff is currently working through the identified Tier 1 priorities, which have been appropriately budgeted and / or identified in the 2022 Work Plan.

In addition, at the retreat to be held in April the EOTC will start to dive into the identified options available for Dynamic Road Pricing (Cordon Pricing or Managed / HOT Lane). Dynamic Road Pricing s is identified as a Tier 3 Priority in the Near Term Transit Improvement Program due to its long timeframe for implementation relative to other projects that are already in progress or in queue for programming.

Progress is also being made on the Sage Way Sidewalk Extension, which is also a Tier 3 Priority, as this identified sidewalk gap connection could potentially be a part of the Brush Creek Park and Ride to AABC trail.

Please see Attachment 1 for an update overview of each of the projects within the Near Term Transit Improvement Program.

b. Town of Snowmass Village Transit Center – Progress Update
(Provided by David Peckler, Transportation Director, Town of Snowmass Village)

AGENDA ITEM SUMMARY

TO: Elected Officials Transportation Committee

FROM: David Peckler, Town of Snowmass Village Transportation Director

MEETING DATE: March 24, 2022

SUBJECT: Snowmass Transit Station Project Update

BACKGROUND:

The adopted conceptual design of the Snowmass Transit Station (STS) was done by SEH and approved by Council in April of 2020. We have tweaked the project slightly to save on construction costs, but the bus platform is essentially the same. The requirements for the bus turning movements allow little change to the bus platform. The Federal Transit Administration (FTA) has completed their review of our project's Environmental Assessment and has approved it. This is a requirement for any project that is looking to secure Federal funding for construction. We have also submitted an Equity Analysis to CDOT which has been approved.

Our project is listed as a Priority Project for the Intermountain Transportation Planning Region (IMTPR). The IMTPR is the CDOT planning region that covers Pitkin County and the Highway 82 corridor. The project has been reviewed by the Transportation Commission and was awarded $4.5 million from the State in SB-267 funding. We have kept the Roaring Fork Transportation Authority (RFTA) informed on the design work for the transit station and it has been incorporated in their Destination 2040 Plan.

A recent projection of the construction costs for the facility based on 90% Design Drawings puts the project cost at roughly $26.5 million. I have submitted a grant application for the project to the Federal Transit Administration (FTA) and Colorado Department of Transportation (CDOT) for a Section 5339 Bus and Bus Facility program grant for $13.5 million. The application was due on November 19, 2021 and I hope to hear about the status of the grant in February or March of 2022. With the "local match" we have being roughly 50% of a Federal grant project, I feel that we are in a competitive position to be awarded a Federal grant. Construction will start when the grant funding is all in place.

FINANCIAL IMPACT:

The last Rough Order of Magnitude (ROM) cost projection for the project was $26.5 million. We have reengineered the replacement parking beneath the transit deck to reduce the amount of excavation need for the parking. We also reoriented two bus bays for stagging to have less of an impact on the West side of the station. This will help to reduce the height of a retaining wall there and the fill requirements. At present we have
$6 million dedicated to the project from the Elected Officials Transportation Committee (EOTC). There is $2 million in local funding for the project and $500,000 from RFTA. A SB-267 award to the project was $4.5 million. I am waiting to hear the status of our 5339 grant application, which should be coming in late February or March of 2022.

BUDGETARY IMPACT:
None at this time.

RECOMMENDED ACTION:
None at this time.

ATTACHMENTS:

1. 2021 EOTC Near Term Transit Improvement Program with Project Tracking

2021 EOTC Near-Term Transit Improvement Program - Approved July 29, 2021 - Administrative Direction - UPDATED 02-25-22						
	Project Name	IMS Tenant	Project Attribute(s)	Relative Implementation Cost ($-$$$)	Notes	Project Tracking
Tier 1	First Priority - Higher value* to dollar ratio and / or Important preliminary effort					
	Aspen Country Inn Trail Improvements to Bike / Ped Underpass and Transit Stops at Truscott and Buttermilk **	BRT Enhancements	Higher value to dollar ratio	$	Important bike / ped connection to transit for senior housing and service destinations. Basic infrastructure connection. Move to concept plan in 2021.	PROGRAMMING: 2022 Feasibility, Planning, Design, Stakeholder Engagement, Construction Funding Identification - Budget $200k & Work Plan; Cost Estimate: $200k total design, $1,050,000 total construction = Total $1.25M (Mead and Hunt - 8-19-21). Currently recruiting for consulting team - RFP developed, to be advertised shortly.
	Design and Feasibility Review of Maroon Creek Roundabout Down Valley Channelization and Down Valley Queue Jump at Cemetery Lane **	BRT Enhancements	Higher value to dollar ratio	$$ (design only)	Move to design and permitting to further evaluate feasibility. Initial rollout anticipated as an experiment. Requires CDOT approved design and permitting. Potential benefit to all motorized roadway users including transit. Channelization likely to be seasonal due to snow removal issues. Move to concept plan in 2021.	Fatal Flaw Identified, STOP 8-26-21 - Radii analysis shows incompatibility with WB-67s and RFTA MCI Coaches; Cost Estimates: $30k queue jump & $25k channel design, $200k queue jump & $21,500 channelization install = Total $276,500 (Mead and Hunt - 8-19-21).
	Design and Feasibility Review of Harmony / Owl Creek Transit Signal Bypass Lane and Buttermilk Bike / Ped Underpass **	BRT Enhancements	Higher value to dollar ratio	$$ (design only)	First move to design to make eligible for funding. Superior bike / ped protection crossing Hwy 82 and increased transit speed and reliability. High construction cost. Move to concept plan in 2021.	PROGRAMMING: 2022 Feasibility, Stakeholder Engagement, and Initial Design - Budget $200k & Work Plan; Cost Estimate: $830k underpass / bypass lane design, $8.570M construction = Total $9.4M (Mead and Hunt - 8-19-21). Currently recruiting for consulting team - RFP developed, to be advertised shortly.
	HOV Lane Enforcement Analysis	HOV Lane Enforcement	Important Preliminary Effort	$ (analysis only)	Necessary to determine best alternatives for HOV enforcement options (automated vs. personnel). Could require a phased implementation.	PROGRAMMING: 2022 Staff Analysis - Budget $0 & Work Plan. In development.
	Analysis of Up Valley and Down Valley BRT Direct Service to Snowmass	BRT Enhancements	Higher value to dollar ratio	$ (analysis only)	Aspen to Snowmass, and Snowmass to down valley transit connection analysis to evaluate transit effectiveness and efficiency, and determine cost, frequency, and expected utilization of increased/enhanced service levels. Current BRT connecting service to remain in place.	PROGRAMMING: 2022 Budget $50k & Work Plan. Currently recruiting for consulting team - RFP advertised, closed 2/11/22. Selection committee currently reviewing potential consulting teams.
	Additional Permanent Automated Vehicle Counters on Brush Creek Road, Owl Creek Road, Airport/AABC and Highway 82 in Pitkin County	Congestion Reduction Measures	Important Preliminary Effort	$$	Additional vehicle counters are necessary to monitor program success, VMT and greenhouse gas emissions over the long term.	PROGRAMMING: 2022 Planning, Permitting, Design, and Install Budget $200k & Work Plan. Currently recruiting for consulting team- RFP advertised, closed 2/11/22. No responses received - selection committee currently reviewing options.
Tier 2	Second Priority - Lower value* to dollar ratio and / or Dependent on Tier 1 effort					
	Pilot Ridesharing app for Commuters	Ride Sharing	Dependent on Tier 1 Effort	$-$$	Effort dependent on HOV lane enforcement implementation for highest level of effectiveness. May be able to use results of RFTA's 2021 First Last Mile Mobility (FLMM) Study to guide this effort. Ongoing cost and staff time unknown.	Pending
	Analysis of Regional Ride Hailing and Car Sharing Service	Ride Sharing and Ride Hailing	Lower value to dollar ratio	$ (analysis only)	Potentially lower relative benefits to transit ridership, GHG emissions, and VMT reductions. Analysis necessary to determine service scope, type and ensure service supports transit. May be able to use results of RFTA's 2021 First Last Mile Mobility (FLMM) Study to guide this effort.	Pending
	Analysis of Valley Wide Commuter Parking, EV Charging, and Ride Hailing / Sharing Pick Up / Drop Off Locations	Congestion Reduction Measures, Ride Sharing, and Ride Hailing	Important Preliminary Effort	$ (analysis only)	Necessary to determine amount and location of needed parking, appropriate parking pricing, and incentives via EV charging placement to encourage transit ridership.	Pending

Tier 3	Third Priority - Hold status due to dependence on efforts outside EOTC purview, Significant cost, and / or Significant legal hurdles					
	Service Center Road Signalization and Hwy 82 Brush Creek P&R to Airport Speed Limit Reduction	BRT Enhancements	Hold status due to dependence on efforts outside EOTC purview and Significant legal hurdles	$$	Relatively expensive improvement. Gains in vehicular and bike / ped safety accessing transit. Hold due to ongoing design of new airport terminal and layout. Speed limit reduction to be reviewed by CDOT and possibly incorporated with signalization of intersection. Would require amending Access Control Plan with CDOT.	Hold
	Extension of HOV Lanes Up Valley from Airport and / or Down Valley of Maroon Creek Roundabout	BRT Enhancements	Significant legal hurdles and Significant cost	$$	Initial construction cost of exclusive bus lanes must be reimbursed to EOTC if any loss of exclusive bus lanes occurs. Source of reimbursement funds is unknown and amount of initial construction cost reimbursement could be high. Potential conflicts with ROD. Only to be pursued if 1) no loss to bus only lane can be achieved and 2) effective HOV lane enforcement is in place.	Hold
	Dynamic Road Pricing (Cordon Pricing or Managed / HOT Lane)	Congestion Reduction Measures	Significant legal hurdles and Significant cost	$$$	Significant legal hurdles as State law would need to be amended to allow for cordon pricing. Cordon pricing or managed lane would require significant permitting, operational infrastructure, and partnerships. Implementation, public relations and maintenance costs expected to be high for either cordon or managed lanes. Potential legal hurdles if bus only lanes are converted to HOT lanes. Amendment or new Hwy 82 EIS / ROD is necessary. Additional analysis is necessary. Could have significant positive impacts on GHG emissions and VMT if implementable.	Presentation and Discussion of Alternatives at April 28, 2022 EOTC Retreat
	Sage Way Sidewalk Extension	BRT Enhancements	Hold status due to dependence on efforts outside EOTC purview	$	Hold pending implementation of Access Control Plan to be triggered by Airport redevelopment and/or large developments within the AABC.	Hold. Potential implementation as a part of BC P&R to AABC Trail Connection.
Other Efforts Considered - Not to be Pursued at this Time						
	Signal Timing for Transit Speed and Reliability Improvement	BRT Enhancements	Not to be pursued at this time	$$	Limited deployment in Pitkin County modeling showed very little effectiveness. Additional modeling for entire Hwy 82 corridor may demonstrate ability to substantively improve transit speed and reliability.	N/A
	Airport Terminal BRT Routing	BRT Enhancements	Not to be pursued at this time	$$$	Dependent on Airport terminal redevelopment. Very expensive improvement as down valley BRT line would need to be grade separated to and from the Airport in order to maintain current transit times. Gains in access at airport terminal only with possible detriment to greater BRT system. Significant transit operational issues to be overcome. Other options should be analyzed first.	N/A
	HAWK Beacon at Aspen Country Inn	BRT Enhancements	Significant cost	$$	Relatively significant implementation cost relative to number of users.	N/A

* "Value" is determination based on efforts' ability to support transit through increased access, speed and reliability; reduce greenhouse gas emissions (GHG); and reduce vehicle miles traveled (VMT)

** Efforts are proposed to be carried forward in the second half of 2021 for development of conceptual design by Mead and Hunt utilizing remaining UVTE study funds

BRUSH CREEK PARK AND RIDE TO ASPEN AIRPORT BUSINESS CENTER
TRAIL FEASIBILITY STUDY

PITKIN COUNTY OPEN SPACE & TRAILS

DRAFT REPORT: FEBRUARY 2022

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 Executive Summary

The trail section from the Brush Creek Park and Ride to the Aspen Airport Business Center represents a significant missing link for commuters and recreational trail users. Pitkin County Open Space and Trails assembled a team of agency partners, consultant engineers, and stakeholders to review alignment alternatives to create a grade separated multi-purpose trail between the Brush Creek Park and Ride and Aspen Airport Business Center. The primary trail design criteria was to have a 10-foot minimum width hard surface trail that meets the profile grade requirements in the Americans with Disabilities Act (ADA). The following three trail alignment options were considered by the project team:

- Option 1 – Twin Bridges Alignment
  - Exits the south end of the Brush Creek Park and Ride
  - Bridge crossing of the Roaring Fork River east of the Brush Creek Park and Ride
  - Continues east to the existing Rio Grande Trail
  - Follows the existing Rio Grande Trail south
  - Bridge crossing back over the Roaring Fork River south of Owl Creek
  - Continues south along the flat bench east of State Highway 82 until it connects with existing infrastructure at the Aspen Airport Business Center
  - Total length of connection = 2.55 miles, Total length of new trail = 1.54 miles
- Option 2 – SH82 East Alignment
  - Exits the south end of the Brush Creek Park and Ride
  - Continues south roughly parallel to and east of State Highway 82 using bridges, elevated trail sections, and retaining walls along much of its length to cross the steep and rugged terrain
  - Continues south along the flat bench east of State Highway 82 until it connects with the existing infrastructure at the Aspen Airport Business Center
  - Total length of connection = 2.28 miles, Total length of new trail = 2.28 miles
- Option 3 – River Alignment
  - Exits the south end of the Brush Creek Park and Ride
  - Gradually descend to a relatively flat area on the west bank of the Roaring Fork River
  - Follows the west bank to the south
  - Gradually ascends back up to the approximate elevation of State Highway 82 at the relatively flat bench east of the highway
  - Continues south along the flat bench east of State Highway 82 until it connects with the existing infrastructure at the Aspen Airport Business Center

The project team considered and compared the three options based on the following criteria: cost, maintenance, user experience, constructability, and environmental impacts.

Option 3 – River Alignment was dismissed due to the environmental impacts, the disturbance the trail would cause to one of the most remote sections of the Roaring Fork River and the significant elevation change along the alignment (approximately 175 feet). To maintain ADA grade requirements, switchbacks were required which increase the total length of trail. Since it was dismissed early on, a preliminary alignment, profile, and cost were not presented in this report.

Option 2 – SH82 East Alignment has major challenges. The Shale Bluffs area is extremely steep, rugged, and prone to landslides. This alignment alternative would require a significant length of bridge, elevated trail structure, and retaining wall. The user experience would be reduced due to its proximity to State Highway 82, it would have significant maintenance challenges due to the terrain and would require significant approval and coordination with CDOT to build. The estimated construction cost of the trail and structures, based on 2025 construction, is $22.9 million, estimated design and construction engineering cost is $4.6 million.

Option 1 – Twin Bridges Alignment is the preferred alignment option. This alignment would require the construction of two major bridges over the Roaring Fork River. However, it requires the smallest length of new trail construction, best utilizes existing infrastructure, provides the best user experience, causes the least environmental impact, and requires the least agency coordination. The elevation change between the Brush Creek Park & Ride and the Aspen Airport Business Center is relatively small. We believe this option best aligns with Pitkin County Open Space & Trails mission to create purposeful multi-modal routes while preserving the region's character. The estimated construction cost of the trail and structures, based on 2025 construction, is $17.3 million, estimated design and construction engineering cost is $3.5 million.

For the chosen alignment option, three bridge types were considered for the crossings of the Roaring Fork River. The following three bridge types were considered:

- Weathering Steel Deck Arch-This option was modeled off the Terral Wade Bridge (Tiehack Bridge) connecting Buttermilk to the Aspen Recreation Center.
- Painted Steel Deck Truss-This option was modeled off the Deception Pass and Canoe Pass Bridges connecting Fidalgo Island and Whidbey Island in Washington State.
- Multi-span Prefabricated Steel Truss-This option used typical prefabricated truss option to create three long spans at each crossing of the Roaring Fork River.

The Painted Steel Deck Truss was dismissed by the project team due to its more industrial and heavy aesthetic, higher anticipated maintenance cost, high anticipated construction cost and construction duration. The Multi-span Prefabricated Steel Truss was dismissed due to the aesthetics, shorter span capability over the river resulting in piers closer to the river's edge, challenge of utilizing an "off the shelf" option in this setting, and requirements of large cranes to pick and assemble these heavy spans.

The Weathering Steel Deck Arch was the selected structure type for the crossings of the Roaring Fork River. The project team determined that this structure would provide the best aesthetic and continuity with the Terral Wade Bridge just up valley. Also, it is the most constructible bridge type, has the least environmental impact, and is cost competitive with the other bridge types considered.

Based on the complexity of the structural design and constructions risks, Pitkin County should consider the Construction Manager/General Contractor project delivery method.

2.0 Project Background and Environmental Assessment

2.1 Project Overview/Previous Study

Pitkin County Open Space & Trails (OST), the City of Aspen, and the Elected Officials Transportation Committee (EOTC) are partnering to study the feasibility of a trail connection from the Brush Creek Park and Ride (BCPR) to the Aspen Airport Business Center (AABC). An overview of the project area is provided in Figure 2-1.

This trail connection was first evaluated as part of a trail study in 2012-2013 that considered a larger project area to create a paved trail connection to Aspen. The *2012 Rio Grande Trail Connection Engineering Feasibility Study* by Loris and Associates looked at overall trail improvements from W/J Hill to Stein Park. Options using the existing Rio Grande Trail (RGT), adding climbing lanes along McLain Flats Road, and adding new trail connections that cross the Roaring Fork River were all considered. The study considered trail alignment, safety, cost, environmental impact, right-of-way requirements, geologic conditions, and utility crossings. The study divided the project into eight segments and then grouped the segments into improvement options which were evaluated against each other.

The 2013 Addendum to the Study investigated three new segments, using the same evaluation criteria as the main study. One of the new segments included in the addendum was the trail connection between the BCPR and the AABC. The alignment would parallel SH82, starting at the BCPR and ending at the AABC. Other alternatives in the addendum were connections to the RGT from the BCPR via a bridge over the Roaring Fork River and then back across the river near the existing Stein Bridge at the AABC.

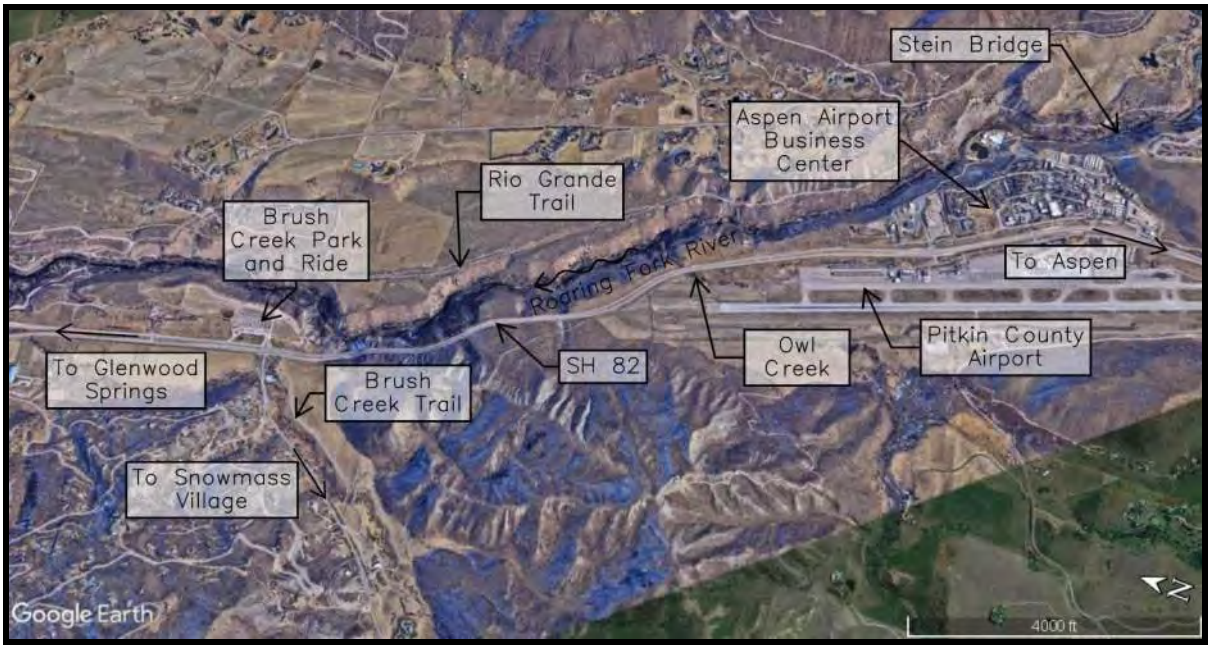


Figure 2-1: Overview of Project Area
(Imagery Courtesy of Google Earth)

2.2 Project Purpose

The purpose of this project is to provide a trail connection between the BCPR and the AABC. The purpose of this study is to determine a preferred alignment that best fits the connection. Completing this missing link to the trail network will provide connectivity and community access which is a key component of Pitkin County Open Space and Trails' mission:

> "*The mission of the Open Space and Trails program is to acquire, preserve, maintain and manage open space properties for multiple purposes including, but not limited to, recreational, wildlife, agricultural, scenic and access purposes; and to acquire, preserve, develop, maintain and manage trails for similar purposes. The program was founded in 1990 with the passage of a Pitkin County property tax devoted to acquiring open spaces and developing trails. The program has since conserved more than 20,000 acres, either as open space or through conservation easements. In addition, it maintains some 84 miles of trails and 60 miles of Nordic trails."*

The Pitkin County Strategic Plan includes a Climate Action Plan which includes initiatives to reduces emissions. The goal of this project is to reduce vehicle trips and replace them with pedestrian, bicycle and/or public transit trips. Construction of this trail will reduce greenhouse gas emissions by facilitating a more direct route to and from the Aspen Airport Business Center.

This segment of trail was identified in the 2012 OST Recreation Inventory and Analysis.

> *"GOAL 8 - Continue to plan and develop trail connections, linking desirable destinations and population centers, creating loop systems, providing opportunities for non-motorized commuting and serving multiple user groups.*
>
> *Rio Grande Trail dual-surface trail connection into Aspen (See Goal 6) - This missing link was one of the top five identified in the 2011 Visitor Use Survey. On this same survey over 75% of the respondents were in favor of looking at creating a safe, hard surface connection into Aspen. Planning documents as old as the 1979 Aspen/Pitkin County Trails Master Plan (an amendment to the 1966 Aspen Area General Plan) have called for a paved trail connection between Basalt and Aspen. And this connection would work towards the County's Strategic Plan Success Factor calling for efficient multi-modal transportation systems linking municipalities. Safe, dual surface trail connection from the ABC to the Rio Grande Trail - This missing link was one of the top five identified in the 2011 Visitor Use Survey. This connection would work towards the County's Strategic Plan Success Factor calling for efficient multi-modal transportation systems linking residential areas."*

The EOTC has also identified "Bike and Pedestrian Connections to Transit Stops and Brush Creek Park and Ride" as an Upper Valley Priority within their 2020 Comprehensive Valley Transportation Plan.

2.3 Project Partners

The study was led by Pitkin County Open Space and Trails with additional funding and partnership provided by the City of Aspen, the EOTC, and the Town of Snowmass Village. The project partners share many of the same goals. While Pitkin County is facilitating this

study, the project partners listed above also have a joint interest in seeing this project come to fruition. The construction of this project will better connect the communities within the Roaring Fork Valley.

2.4 Project Engineering Team

SGM is leading the consultant engineering team and developed this report, trail alignments, cross sections, bridge alternatives and cost estimate. ERO Resources Corporation led the environmental review, provided the Natural Resources Assessment report, and the Cultural Resources Memorandum. Golder Associates provided an assessment of the geotechnical conditions and geologic hazards in the project vicinity. DHM provided visualizations of the trail concepts including the bridge renderings.

2.5 Description of Existing Facilities

2.5.1 Rio Grande Trail (RGT)

The RGT is a rails-to-trails project built along the Aspen Branch of the historic Denver and Rio Grande Western Railroad. The RGT is 42-mile-long mixed-use trail that travels from Glenwood Springs at the north end to Aspen at the south end. The north end of the trail also connects to the Glenwood Canyon Recreation Path. Except for at-grade crossings, the trail is mostly separated from vehicular traffic along its full length.

This study focuses on the area of the existing RGT between Jaffee Park at the north end and the Stein Trail at the south end. The RGT through this corridor includes a 10-foot-wide asphalt hard surface trail with a parallel separated soft surface trail. The existing RGT can be utilized as part of the trail connection from the BCPR to the AABC. This segment of the RGT is owned and maintained by Pitkin County Open Space and Trails. This segment also meets the Americans with Disabilities Act (ADA) grade requirements.

2.5.2 State Highway 82

State Highway 82 (SH82) is an 85.3-mile-long highway connecting Interstate 70 and US Highway 6 in Glenwood Springs at the west end to US24 at Twin Lakes at the east end. The highway parallels the Roaring Fork River along most of its western half and serves as the primary transportation route through the Roaring Fork Valley. This study focuses on the area of SH82 south of Brush Creek Road and north of the Aspen Airport Business Center. This section crosses the Shale Bluffs area as well as historic landslide paths and drainages. Many of the portions are elevated on either bridges or retaining walls.

2.5.3 Aspen Airport Business Center

The Aspen Airport Business Center is a residential and commercially zoned area located across SH82 from the Pitkin County Airport. The mixed-use development connects to the RGT via the Stein Trail and Stein Bridge over the Roaring Fork River. The existing Stein Trail is not paved nor is it ADA compliant and requires steep switchbacks to descend from the AABC to the west bank of the Roaring Fork River. The AABC also connects to the City of Aspen via the AABC Trail. While the AABC has paved and ADA connectivity through the SH82 corridor to Aspen, the connection to the RGT is not a paved ADA route and there is no direct connection to the BCPR to the north.

2.6 Environmental Assessment

SGM has worked in conjunction with ERO Consultants to better understand the environmental impacts of all trail alignment options throughout the project corridor. ERO has provided a Natural Resources Assessment and a Cultural Resource Memo that can be found in Appendix D and E. A summary of the key findings is included below.

2.6.1 Wetlands

Wetlands occur in the project area along the narrow banks of the Roaring Fork River and Owl Creek. Wetlands were also observed in the stormwater pond to the south of the Brush Creek Park and Ride. None of the proposed alignments would affect the wetlands located adjacent to the Roaring Fork River. It is recommended to avoid impacts to Owl Creek and the stormwater pond. Wetlands occurring within Owl Creek would be considered a jurisdictional (waters of the U.S) wetland whereas the stormwater pond wetlands are likely non-jurisdictional.

2.6.2 Threatened, Endangered, and Candidate Species

The project area contains potential habitat for Monarch butterfly and Ute Ladies' Tresses Orchid (ULTO). It is recommended to avoid wetlands in order to avoid potential impacts to the Monarch butterfly or ULTO habitat. While no habitat was present, there is potential for milkweed plants (Asclepiadoideae) and ULTO to occur within the wetlands in the project area due to the presence of commonly associated species, and alluvial soils, and due to the presence of known ULTO populations downstream near Carbondale.

2.6.3 Other Species of Concern

No migratory birds' nests were observed in the project area during the September 2021 site visit. However, because of the variability in the breeding seasons of various bird species, there could be nests present at other times of the year. It is recommended to conduct a nest survey one week before any construction take place. The project area occurs in the winter range for the bald eagle, in the osprey foraging area, in the overall range of American elk, mule deer, and mountain lion, and in the human conflict area and fall concentration area of black bear. The proposed trail alignments parallel to Highway 82 or that cross the Roaring Fork River and utilize the Rio Grande Trail would minimally impact these species. The alignment closer to the Roaring Fork River has greater potential to disturb these species.

3.0 Trail Connection Options

3.1 Summary of Alignment Options

Multiple trail alignments were looked at to determine the best connection between the BCPR and the AABC. With the alignments considered, the primary goal was to propose an ADA compliant hard surface trail with a width of 10 feet that would safely and efficiently connect these two locations while reducing total elevation gain and loss. The following three alignment options were considered. Options 1 and 2 are shown in Figure 3-1:

- **Option 1 – Twin Bridges Alignment**: This proposed alignment would bridge the Roaring Fork River at the southeast corner of the BCPR and continue east to connect with the existing RGT. It would follow the existing RGT south and then bridge back across the Roaring Fork River south of Owl Creek. The trail would

continue south along the flat bench east of SH82 until it connects with the existing infrastructure at the AABC.

- **Option 2 – SH82 East Alignment**: This proposed alignment would exit the BCPR at the south end and follow a path generally parallel to and east of SH82. This alignment would use bridges, elevated platforms, and retaining walls along much of its length to cross the steep and rugged terrain. Eventually, it would reach the flat bench east of SH82 and follow that south until it connects with existing infrastructure at the AABC.
- **Option 3 – River Alignment**: This proposed alignment would exit the BCPR at the south end and gradually descend to a relatively flat area on the west bank of the Roaring Fork River. The alignment would follow the bank to the south. The trail would gradually ascend back up to the approximate elevation of SH82. It would continue along the flat bench south of Owl Creek and east of SH82 until it connects with the existing infrastructure at the AABC.

Figure 3-1: Overall Site Map with Alignment Options 1 and 2

3.2 Trail Typical Sections

Typical sections representing each alignment option were developed to determine the feasibility and cost. More complex sections result in added cost, constructability issues, and varying degrees of land disturbance. A longer trail with less complex sections could be less expensive and easier to construct than a shorter more complex trail. Typical sections were rated based on their construction complexity using the familiar system found at mountain areas: least difficult (green), more difficult (blue), and most difficult (black). Most civil contractors should be able to construct the least difficult or green sections while specialized contractors would be required to construct the most difficult or black sections. A cost per linear foot was developed for each typical section. Costs were based on asphalt, base course, presence of railings, presence of walls, and type of retaining walls. Detailed cost information per typical section can be seen in Section 5 of this report. An overall site map with alignment difficulty levels can be seen in Figure 3-2 below. A complete set of typical sections is included in Appendix A.

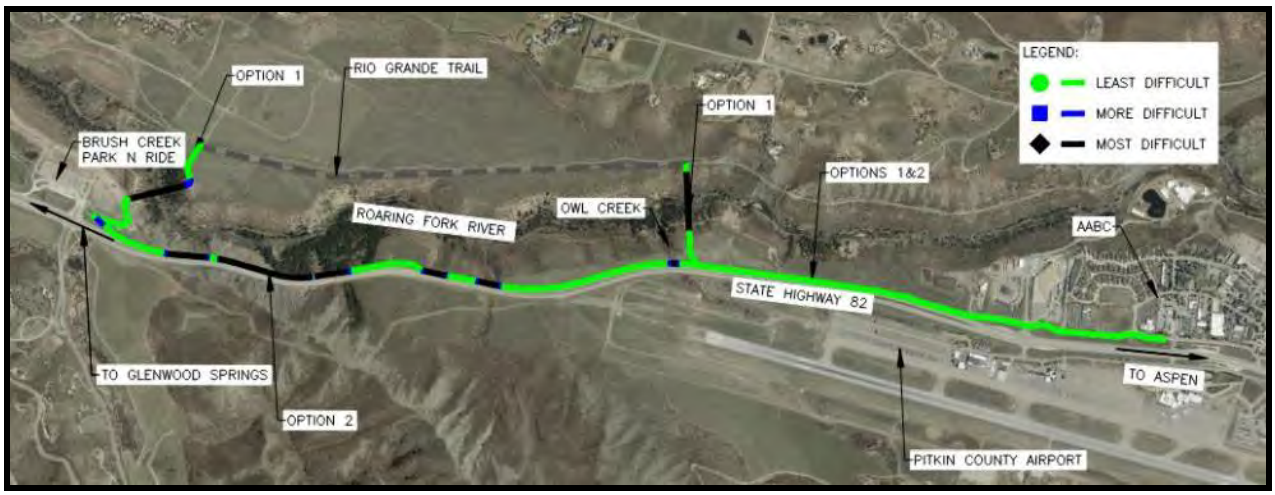


Figure 3-2: Overall Site Map with Alignment Difficulty Levels

"Least Difficult" segments of trail will consist of a 10-foot width with 1-foot shoulders and 3:1 or 2:1 horizontal to vertical slopes. The trail will consist of placing a weed barrier and aggregate base course under a layer of asphalt pavement. Pedestrian railing may or may not be needed in these sections depending on the slopes adjacent to the trail. These sections will be the least expensive to construct. An example of a "Least Difficult" trail segment is shown in Figure 3-3 below.

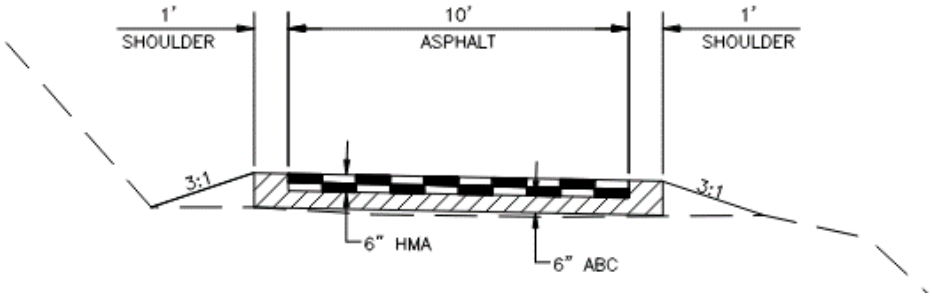


Figure 3-3: Least Difficult Section Example

"More Difficult" segments of trail will be defined similarly to the above sections but with the addition of retaining walls. These sections will be made up of uphill and downhill walls. Walls will likely consist of some combination of boulder, MSE (mechanically stabilized earth), large block, cast-in-place concrete, and soil nail walls. Boulder walls would be used for wall heights less than 4 feet. Gravity block, MSE walls, or cast-in-place concrete walls would be used for taller walls. Sections with especially steep slopes that require a top-down construction method would likely be soil nail walls. These sections will be more expensive than the "Least Difficult" sections to construct, but less expensive than the "Most Difficult". These sections will require more earthwork and materials to create a workable area wide enough to construct the pavement and wall sections. An example of a "More Difficult" trail segment is shown in Figure 3-4 below.

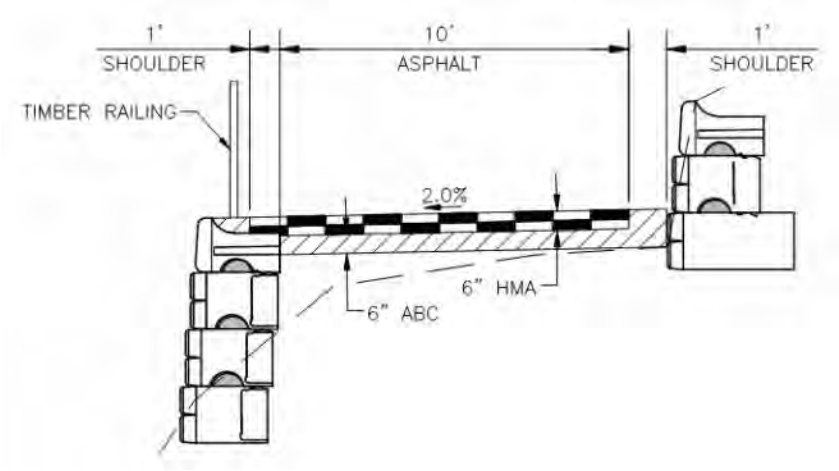


Figure 3-4: More Difficult Section Example

"Most Difficult" segments of trail will consist of elevated concrete walkways, prefabricated steel truss bridges or steel deck arch bridges. Bridges and elevated concrete walkways will be 12-feet wide with a concrete deck. These structures will be the costliest to construct. An example of the "Most Difficult" trail segments is shown in
Figure 3-5 below. The bridge crossings will be explored in greater detail in the next section.

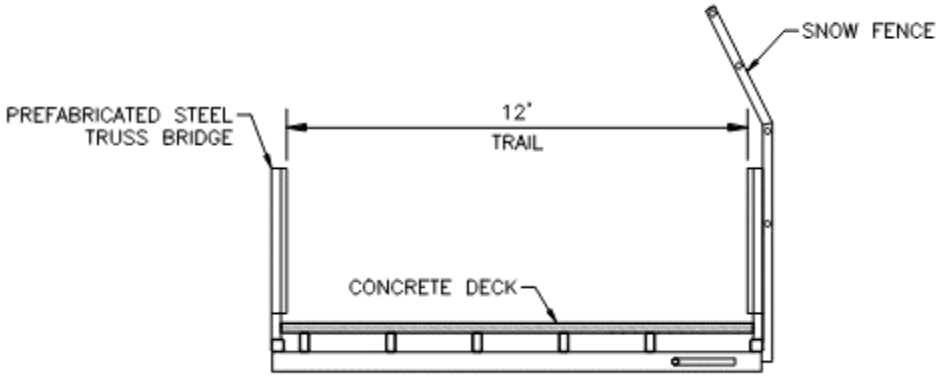


Figure 3-5: Most Difficult Section Examples

3.3 Option 1 – Twin Bridges Alignment

A 10-foot-wide trail would depart from the existing Brush Creek Trail at the southeast corner of SH82 and Brush Creek Road and traverse the open space to the south of the BCPR. A long span steel bridge, called the Brush Creek Bridge, would cross the Roaring Fork River and the 175-foot-deep gorge. The bridge would land on the northwest corner of Aspen Consolidated Sanitation District's Property and then join the RGT. The alignment would use the existing paved portion of the RGT for 5,340-feet. A second long span steel bridge, called the AABC Bridge, would depart the RGT and cross back over the Roaring Fork River north of the Sardy property landing on Pitkin County property. The trail would then follow the east side of Highway 82 until its termination at the AABC. An overview of this alignment is shown in Figure 3-6 below. The trail will be located within CDOT ROW, but outside of the traveled lane clear zone so that guardrail or safety barriers are not required. This alignment provides

RGT users with a direct connection to both the BCPR and AABC. An additional benefit to this alignment option is providing the W/J Ranch neighborhood (on the east side of the Roaring Fork River) a more direct connection to the BCPR.

Figure 3-6: Overview of Trail Alignment Option 1 – Twin Bridges Alignment

A combination of "Least Difficult" and "Most Difficult" sections would be required to construct this alignment. Generally, the "Most Difficult" sections would be the bridge crossings of the Roaring Fork River and the rest of the alignment would be least difficult sections. The trail surface would consist of 10-foot asphalt trail and 12-foot concrete bridge deck. The total length of the alignment would be approximately 2.55 miles and the total length of new trail would be approximately 1.54 miles. Trail length by section type is summarized in Table 3-1.

Table 3-1: Trail Alignment Option 1 – Segment Length by Construction Difficulty Level

Trail Segment/Difficult	Trail Length (LF)
Least Difficult	**6,806**
More Difficult	**70**
Most Difficult	**1,248**
Rio Grande Trail (existing)	5,340
Total Length of Connection	13,464
Total Length of New Trail	8,124

3.3.1 Structures

Multiple bridge locations were evaluated to determine the preferred alignment across the Roaring Fork River. Two bridges are needed to cross the Roaring Fork River in this alignment. Bridge locations were selected based on how they would look against the natural topography of the area, trail grade, and span length. To minimize span lengths, both bridges are placed perpendicular to the Roaring Fork River in locations that the gorge narrows. To ensure the bridges blend in with the surrounding topography they have been tucked into their launch points. Pitkin County expressed that a primary aesthetic goal was to limit visibility of the bridges from SH82. The trail grade was set such that the bridges could be tucked into their surroundings while still meeting ADA requirements. The Brush Creek Bridge and AABC Bridge would have longitudinal grade of 1.25% and 3.50% respectively. A

rendering of these two bridges is provided in Figure 3-7 and Figure 3-8 below. Bridge types, span lengths and location choices are discussed in greater detail in Section 4.

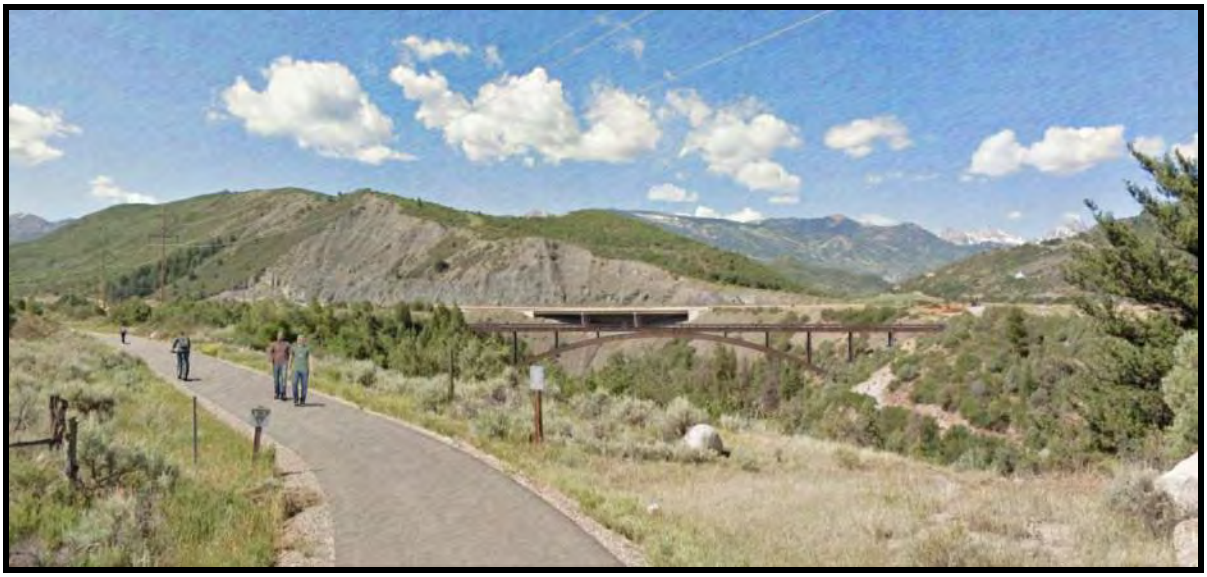


Figure 3-7: Rendering of the Brush Creek Bridge from the RGT Looking Southwest

Figure 3-8: Rendering of the AABC Bridge from the RGT Looking Southwest

An alternative alignment in which the AABC Bridge was pushed further south on the RGT was initially considered. This alignment would have had two key benefits: it would have significantly reduced the span length and the bridge would have landed closer to the AABC. However, this crossing is located within the unpaved portion of the RGT where slopes adjacent to the trail steepen and the trail width narrows. The narrow trail and difficult terrain would make construction in this location significantly more difficult and extensive closures to this section of the RGT may be required. In the winter months, the RGT is groomed and used for Nordic skiing. This bridge location would not leave room for a Nordic skiing route.

This bridge alignment was ultimately deemed unfeasible due to all the reasons mentioned above. See Appendix A for a layout of this alignment.

3.3.2 Permitting and Easements

The east abutment of the Brush Creek Bridge and the trail connection to the RGT is located within Aspen Consolidated Sanitation District Property. An easement agreement will be required for the trail. The City of Aspen held preliminary discussions with the Aspen Consolidated Sanitation District, and they are in support of the project. They have requested that the trail alignment be located as close as possible to the north property line to better accommodate any future use of the site. The bridge will also span over the southern end of the Snowmass Water and Sanitation District parcel. This would be an aerial crossing and no structures would land on that parcel. The County will be undergoing discussions with the District regarding aerial access to this parcel.

The BCPR is owned by CDOT. The trail connection will require a CDOT ROW Permit and EOTC approval. The portion of trail adjacent to SH82 and south of the AABC Bridge is primarily located within CDOT right-of-way, which will also require a CDOT ROW Permit. CDOT is supportive of multi-purpose trail projects within the region that reduce vehicle trips. Preliminary discussions with CDOT Region 3 Engineer did not indicate any issues with the proposed trail alignment.

The west abutment of the Brush Creek Bridge and trail in the BCPR is owned by CDOT and leased to the City of Aspen. Pursuant to a 2005 IGA (Intergovernmental Agreement) for the Park and Ride between the City, Town, County and RFTA, the landing and trail through the P&R also need to be approved by the EOTC.

3.3.3 Utilities

On the west side of the Roaring Fork River there is a Black Hills Energy large regulator station with several incoming and outgoing high pressure and transmission gas mains that are 6” or 10” inches in diameter. If there is impact to this area two department representatives from Black Hills Energy will need to be involved. Holy Cross Energy also has a pair of underground electric transmission lines that are in proximity to the Black Hills Energy regulator station. On the east side of the Roaring Fork River there is a pair of Holy Cross Energy overhead electric 115-kV transmission lines that generally run parallel to the Rio Grande Trail. The lines are owned by Holy Cross Energy, however they have an Operations and Maintenance agreement with Xcel Energy, so any impacts will also require coordination with Xcel. These lines are close to the Brush Creek Bridge east abutment. It is not anticipated at this time that there will be any impacts to these lines during construction of the Brush Creek Bridge. However, the east abutment of the AABC Bridge will conflict with these electric lines and they are anticipated to need to be relocated.

Figure 3-9 below shows an overview of the utilities along this alignment. This alignment may also benefit utility providers. If desired, the two bridges could carry utility lines across them for the City of Aspen, Town of Snowmass Village, or other private utility companies.

Figure 3-9: Overview of Utilities Along Alignment Option 1

3.4 Option 2 - SH82 East Alignment

A 10-foot-wide trail would head south from the BCPR and parallel SH82. This alignment would cross the Shale Bluffs area with numerous bridges, elevated walkways, and extensive retaining walls. It would bridge Owl Creek and then continue south terminating at the AABC. Figure 3-10 provides an overview and Figure 3-11 provides an aerial view of this alignment. This alignment was included in the 2013 Addendum study prepared by Loris, denoted as "Segment 12". Prior to this study, this alignment seemed to be the unofficial preferred alignment by the public. It provides the shortest connection between BCPR and AABC.

Figure 3-10: Trail Alignment Option 2 – SH82 East Alignment

Figure 3-11: Aerial of Alignment Option 2 – SH82 East Alignment Looking South

While it seems prudent to align the proposed trail next to existing infrastructure, the topography creates significant challenges. An extensive length of bridge, retaining wall, and elevated structure would be required to maintain ADA grades through the undulating terrain. These structures would be challenging and expensive to construct and maintain. The user experience and safety would be impacted by the trail's proximity to a high-volume expressway and the geologic hazards in this area. Snowplow operations may require a snow fence to be installed on the SH82 side of the trail structures. The snow fence would also serve as a throw fence to prevent objects being thrown on to vehicles traveling on SH82. During the winter months, the trail will be shaded by the shale bluffs which could make the trail surface icy. To demonstrate some of the challenges associated with this alignment, DHM Design developed the renderings of the Shale Bluffs crossing shown in Figure 3-11 through Figure 3-13 below.

Figure 3-12: Rendering of Existing and Proposed Shale Bluffs Crossing Looking South

Figure 3-13: Rendering of Proposed Shale Bluffs Crossing Looking South

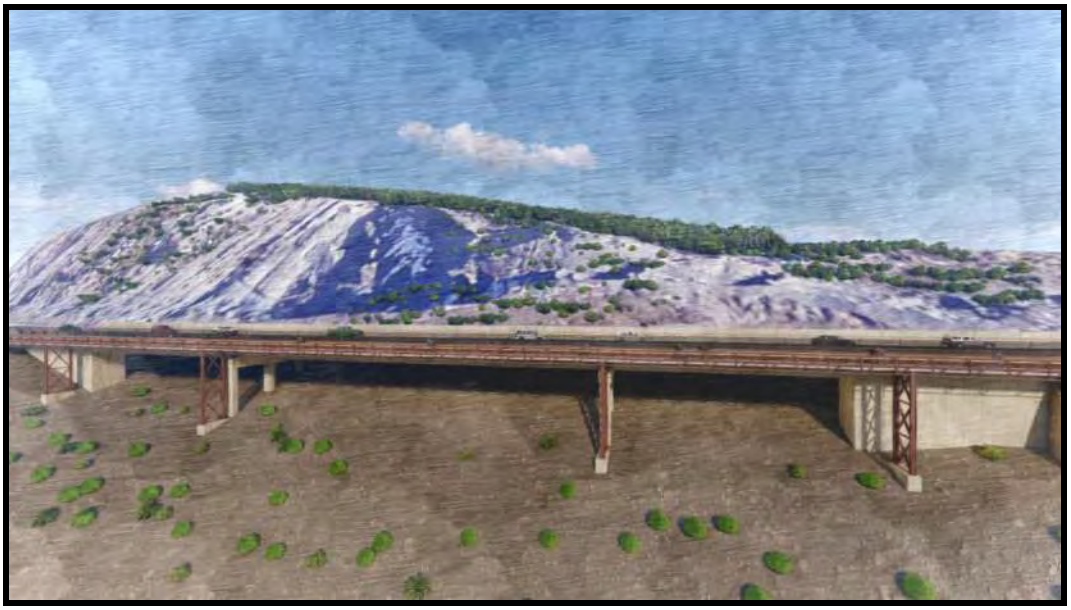


Figure 3-14: Rendering of Proposed Shale Bluffs Crossing Looking West

Primarily “More Difficult” and “Most Difficult” sections will be utilized for this alignment. “Least Difficult” sections will be used south of the Owl Creek crossing. “More Difficult” segments would be constructed before and after bridge and elevated structures. “Most Difficult” segments would be constructed across the Shale Bluffs area as well as known drainages. Any bridge or opening under SH82 would be mimicked in the adjacent trail to reduce impacts. The trail surface would consist of 10-foot asphalt trail and 12-foot concrete bridge decks and elevated walkways. The total length of the alignment would be approximately 2.28 miles. Trail length by section type is summarized in Table 3-2.

Table 3-2: Trail Alignment Option 2 – Segment Length by Construction Difficulty Level

Trail Segment/Difficult	Trail Length (Linear Feet/LF)
Least Difficult	**9,249**
More Difficult	**418**
Most Difficult	**2,378**
Total Length of Connection	12,045

3.4.1 Structures

The main challenge would be the crossing of Shale Bluffs. However, other structures would be required throughout most of this alignment to cross drainages, terrain features, steep slopes, and to maintain ADA grades.

The Shale Bluffs area represents a significant geological hazard that would make construction and maintenance of any structure built along this alignment challenging and expensive. The shale in this area is highly erodible and prone to frequent and significant rockfall. Any structure crossing this feature would have to mitigate rockfall and do so without causing a safety hazard for trail users. For these reasons, construction of this alignment would be extremely challenging.

Based on preliminary conversations with the CDOT Region 3 Resident Engineer, CDOT is in support of projects within their ROW that would reduce vehicle trips. However, there are significant concerns with attaching the trail to existing CDOT structures. Primarily, CDOT would only approve this if it could be shown that it would not significantly reduce the load rating of those existing structures. It is unlikely that this could be demonstrated. Additionally, if CDOT were to widen or replace the existing structures, then the connected trail structure would have to be removed.

For these reasons, an alignment adjacent to SH82 with independent structures was considered. While the trail alignment would be separate from the SH82 roadway, the highway would need to be utilized during construction of the trail. This would involve significant impacts to SH82 such as a northbound lane closure to allow for cranes and other construction equipment to build the trail platform. Nighttime closures may also be necessary for critical construction work such as erecting the bridges that have higher risks of being completed safely with adjacent traffic. Significant approvals from and coordination with CDOT would be required and may not be feasible.

If SH82 were used for the construction of an independent structure, it would be beneficial to have the independent structure as close to the existing structures as possible. This would reduce the reach required for construction equipment. However, the closer the independent structure is to the existing structure, the more problematic it would become. The structure would be more impacted by a future CDOT widening or replacement. A trail structure built closer to the existing structures would have a reduced user experience due to road noise and would be harder to maintain.

It is uncertain if an alternative construction access that doesn't utilize SH82 is feasible. The terrain is extremely steep and unstable, and it is unlikely that heavy construction equipment could be safely brought in on a bench built across Shale Bluffs. If an access independent of

SH82 was feasible, it would require significant environmental impacts. To get a better understanding of the terrain along this alignment, Figure 3-15 through Figure 3-18 below provide pictures of the existing conditions.

Figure 3-15: Looking South at Existing Shale Bluffs Bridge

Figure 3-16: Looking West at Shale Bluffs and SH82 Bridge
(Imagery Courtesy of Google Earth)

Figure 3-17: Looking North at Existing Box Culvert under SH82

Figure 3-18: Looking South at Existing SH82 Wall and Box Culvert

3.4.2 Permitting and Easements

CDOT clearance will be required for any bridge or wall constructed within their ROW. This typically involves a detailed process which includes multiple reviews, documentation of structure type selection, submittal of calculations, addressing of review comments, and designing to the relevant CDOT standards. Also, CDOT environmental, utility, and ROW clearances are required. Except for the southern connection to the AABC, the entire trail alignment would be located within the CDOT ROW. The trail will require a CDOT Special Use Permit.

The trail section crossing the BCPR will require approval by the EOTC.

3.4.3 Utilities

Comcast, CenturyLink/Lumen, Holy Cross Energy, and CDOT all have facilities that run through the SH82 Corridor in this area. There are two Variable Message Signs (VMS) operated by CDOT with electric lines feeding them located adjacent to SH82. Holy Cross Energy also has an underground primary electric line that crosses SH82 on the south end of the Sardy Family Holdings property. Comcast and CenturyLink/Lumen facilities are located around Service Center Drive in the AABC. It is not anticipated that any utilities would be disturbed in the construction of this alignment.
Figure 3-19 below shows an overview of the utilities along this alignment.

Figure 3-19: Overview of Utilities Along Alignment Option 2

3.5 Option 3 – River Alignment

This alignment would follow the existing topography of the river gorge from the top of the gorge to approximately 60 feet above river level. It would maintain a maximum grade of 5.0% to keep in compliance with ADA guidelines but would lose roughly 80 vertical feet in elevation over 1600 linear feet and be built with a great deal of “more difficult” and “most difficult” sections. This alignment would not be conducive to commuter traffic due to the steep grade going down to the river level and then returning back up on either end of the project limits. While some recreational users may prefer this alignment, ultimately it does not fulfill the goals of the project to provide connectivity, nor does it meet Open Space and Trails mission to preserve open space for wildlife.

This alignment ultimately was determined to be a non-viable trail location due to the difficulty of construction, the large disturbance of untouched river corridor, and extreme grade changes making the route difficult for commuters. This section of river is one of the most pristine and remote sections of the Roaring Fork. A desire to protect the sensitive natural environment within the gorge led the project stakeholders to abandon this alignment.

4.0 Bridge Alternatives

Based on initial evaluation that showed Alignment Options 2 and 3 had significant challenges, Alignment Option 1-Twin Bridges was determined to be the preferred alignment. Due to the environmental impacts, not meeting project goals and costs, the structural bridge details were not fully evaluated for alignments Options 2 and 3. Discussions regarding

relevant structures for Alignments 2 and 3 are included in their respective trail alignment sections.

The following bridge alternatives are presented for the preferred trail Alignment Option 1 which includes two bridges crossing the Roaring Fork River. The AABC Bridge is approximately ¾ of a mile north of the Aspen Airport Business Center. The Brush Creek Bridge is located just to the southeast of the BCPR. The two river crossings on Alignment Option 1 are relatively similar in length and height above the river. For this reason and for continuity within the corridor, a similar bridge type will be selected for both crossings. See Figure 4-1 for an aerial overview of the bridge crossings and Figure 4-2 and Figure 4-3 for a vicinity map of each bridge location.

The total bridge length varies slightly for each bridge alternative. The AABC Bridge is 625-655 feet and the Brush Creek Bridge is 565-592 feet. The bridge length varies based on the abutment location which is dependent on the structure depth. The shorter bridge lengths require longer wingwalls and/or retaining walls to support the trail at the approaches. For all alternatives considered, the bridge piers are located outside of the Roaring Fork River flood plain.

Each bridge structure type is evaluated based on the following criteria:

- Constructability
- Aesthetics
- Feasibility
- Maintenance
- Cost

Three potential structure types were considered at each crossing, which will be described in detail in the following section. For both river crossings, the following structure types were considered: steel deck arch, steel deck truss, and prefabricated steel deck truss. Only steel structures were considered due to the long span lengths and the difficult construction access created by the steep slopes of the gorge. Other long span structure types such as a through truss, cable stay, or suspension bridge were not considered. OST's direction was to evaluate alternatives in which the structure was below the bridge deck, to minimize visibility of the structure. Based on the evaluation criteria, the weathering steel deck arch is the preferred bridge alternative for both crossings of the Roaring Fork River on Alignment Option 1.

Figure 4-1: Bridge Location Aerial Overview
(Imagery Courtesy of Google Earth)

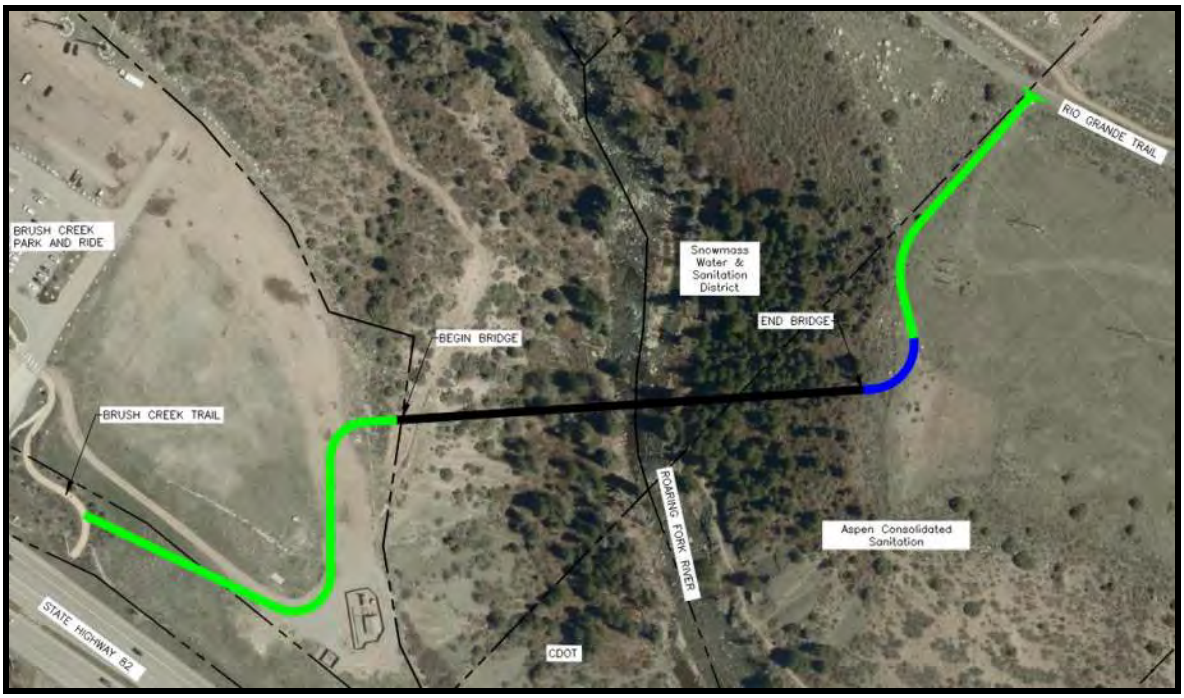


Figure 4-2: Vicinity Map – Brush Creek Bridge

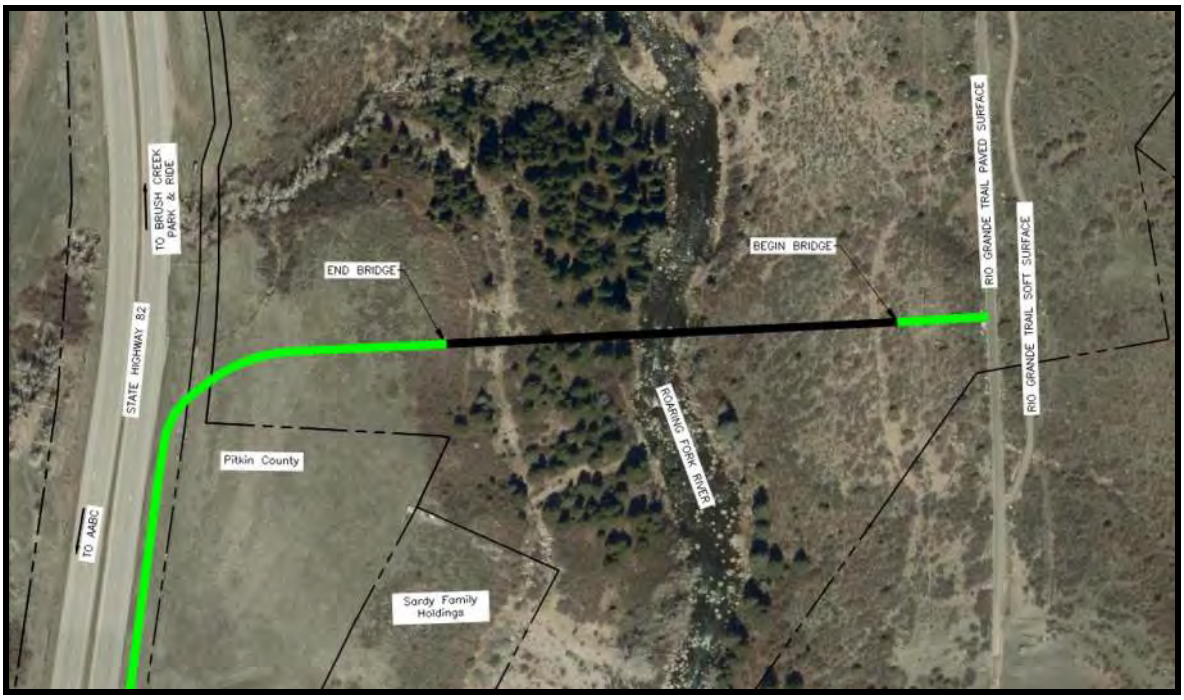


Figure 4-3: Vicinity Map – AABC Bridge

4.1 Steel Deck Arch

The steel deck arch alternative consists of the arch structure entirely below the bridge deck. The main span would be 453 feet (AABC) and 430 feet (Brush Creek). Longitudinal steel girders would support the bridge deck and connect to the arch with spandrel columns. Both crossings have two approach spans on each side, for five total spans with total bridge length of 655 feet (AABC) and 592 feet (Brush Creek). The approaches on either side of the arch would consists of longitudinal steel girders supported on steel piers. We propose using weathering (patina) steel for all structural steel elements. See Figure 4-4 for an example of this bridge type and Figure 4-5 and Figure 4-6 for renderings of the bridge at the proposed river crossing locations.

Figure 4-4: Terral Wade Bridge (Tiehack Nordic Bridge, 605 LF) Aspen, Colorado. Weathering Steel Deck Arch

Figure 4-5: AABC Bridge Rendering Looking Northwest Steel Deck Arch

Figure 4-6: Brush Creek Bridge Rendering Looking Northwest from SH82 Steel Deck Arch

4.1.1 Constructability

The constructability challenges are similar for all three bridge types and both river crossing locations and will be described in general in this section. Issues unique to each structure type will be described in their respective sections.

This site is characterized by steep, rocky, and vegetated riverbanks which are approximately 170 feet (AABC) and 160 feet (Brush Creek) high. Both alignments attempt to utilize flat benches clear of vegetation where possible. However, clearing and grading will be required to provide a flat bench for the foundation elements and crane pad.

The flat benches above the steep riverbanks generally provide reasonable access to the bridge locations. The west side of the Brush Creek Bridge can be accessed easily from the BCPR. The east side of the Brush Creek Bridge will require construction equipment to access the RGT at either McClain Flats Road or Stevens Street (if permitted), drive south on the RGT and west to the project site. The west side of the AABC Bridge would likely require access from the shoulder of SH82 south of the highway crossing of Owl Creek. The east side of the AABC Bridge would likely require the same access as the east side of the Brush Creek Bridge and travelling approximately 1.5 miles south along the RGT.

An assessment in the field indicated that the corridor was wide enough to get most construction equipment in. Since this is an old railroad bed, the subgrade is likely adequate to support heavy equipment. The ability to move heavy equipment along this section of the RGT should be explored in detail during final design.

All bridge types for each alternative will require cranes to get partially down the riverbanks to shorten the pick length. Likely a graded access road would need to be built. Ideally, shallow pier foundations could be constructed on bedrock because only excavation equipment would be needed. Rebar and lumber could be lowered from above with a crane and

concrete could be pumped from above. The rest of the work could be done by manual labor. A concrete or steel pier could be built up using the same method. If the bridge was founded on deep foundations, it would be a significant challenge to get a pile driving or drill rig down to the riverbanks.

Due to the challenging site, we reviewed the feasibility of erecting these bridges with representatives from PSI Crane. Their conclusion was that erecting a bridge along each alignment was challenging but feasible. They recommended using a cantilever construction method like what was used at the Terrel Wade Bridge. The steel arch would be erected in segments equally on both sides by cranes. A tall tower would be erected at the end of each arch and cables would be anchored into the hillside on each end to support the erected segments. This would continue until the arch is completed in the middle. A photo of this method is shown in Figure 4-7. Overhead electrical lines generally run parallel to the RGT through here. We anticipate that these will need to be relocated for the construction of these bridges. See utility sections for additional details.

Construction of the AABC Bridge would likely require a closure and detour of the paved surface RGT onto the parallel soft surface trail. Construction of the Brush Creek Bridge would likely only require temporary closures of the RGT when construction equipment is being moved in and out. Construction operations and staging at the west side of the Brush Creek Bridge will require some area at the BCPR for the Contractor.

Figure 4-7: Terral Wade Bridge During Construction
(Imagery Courtesy of Modjeski and Masters)

Construction at both bridge locations will likely impact aircraft using Aspen/Pitkin County Airport. The Federal Aviation Administration (FAA) requires a permit on construction cranes any time that they will exceed a 100:1 sloped surface from the nearest point of the nearest runway out to 20,000 feet or 200 feet above ground level and beyond.

The AABC Bridge and Brush Creek Bridge are approximately 1,200 and 6,000 feet respectively from the nearest point of the nearest runway. We anticipate that crane operations at both bridges will require a permit. A form FAA 7460-1 will need to be submitted at least 30 days before or more either before the date the proposed construction is to begin or the date an application for a construction permit is to be filed. All crane operators should be familiar with this requirement and will be responsible for obtaining it. Since the structures will both be tucked into the riverbanks, the bridges, once erected, should not have any impacts to the operations at the airport.

While airport impacts were not addressed for the structures on Alignment 2, it should be noted that they will also trigger this permitting requirement.

4.1.2 Aesthetics

Opinions on aesthetics are subjective. The following is our opinion and generally informed by feedback from clients and the public. The structural components of all three options are below the deck. Once the user is on the bridge, all options will provide an open structure with an unobstructed view of the river valley. While the bridges will be “tucked” into the gorge, they will still be visible along the trail and SH82 as the renderings show.

A deck arch would provide an elegant structure that would blend in well with the natural environment of the gorge. This would be a signature bridge aesthetic with a slender appearance. The center of the arch would approximately match the center of the river. It has a more open appearance than the steel truss options due to fewer vertical elements. The geometry of the steep river gorge lends itself to this type of structure.

This type of structure has the most industrial and generic appearance of the types considered. This is because these are off the shelf designs while the other two structure types are custom designs. Most people will have seen similar structures in other places. With that said, these structures are attractive, and the open truss provides good sight lines and natural light. Weathering steel or paint can be used to provide a finish that matches the environment and desired aesthetic.

4.1.3 Feasibility

This structure type is the most feasible of the three. The Terral Wade Bridge has a 406-foot main span in a similar steep sloping gorge. The arch was built using the cantilevered construction method with temporary towers for bracing during erection. The similarities of scale provide a reasonable cost basis with adjustments for inflation and the current construction climate. The deck arch, like most long span bridge options, would require a specialty contractor to erect.

4.1.4 Maintenance

Weathering steel bridges are fairly low maintenance structures. Weathering steel is a corrosion protection system in which a patina forms when exposed to the environment that protects the base metal. While these systems provide reliable corrosion protection, they do eventually fail and will require painting of the bridge. This will be the primary maintenance item and will be a significant expense. With that said, a corrosion protection system generally fails first at the connections. Connections are locations at which water and debris get trapped and can accelerate corrosion. This structure type has the fewest connections

and the least complex connections. Therefore, we would anticipate that this structure type will require the least maintenance.

In addition to painting to extend the life of the structure, another significant maintenance item for this type of structure is seasonal cleaning. This will prevent the buildup of debris which can accelerate the corrosion process. Additionally, graffiti removal, deck cleaning, and snow removal will likely be other maintenance items.

4.2 Steel Deck Truss

The steel deck truss alternative consists of the truss structure entirely below the bridge deck. The main span is 450 feet (AABC) and 420 feet (Brush Creek). Both crossings have one approach span on each side for three total spans with total bridge length of 650 feet (AABC) and 580 feet (Brush Creek). The approach spans (or back-spans) are continuous with the main truss span. The depth of the truss varies along the length of the bridge, the tallest section is at the interior piers and the shallowest section is at the abutments and the mid-point of the main span. The bottom chord of the truss is chorded into straight segments that will resemble an arch shape. We propose using painted steel for all structural steel elements. See Figure 4-8 for an example of a steel deck truss bridge and Figure 4-9 for the proposed bridge elevation. This alternative was dismissed due to the aesthetics and the higher maintenance cost.

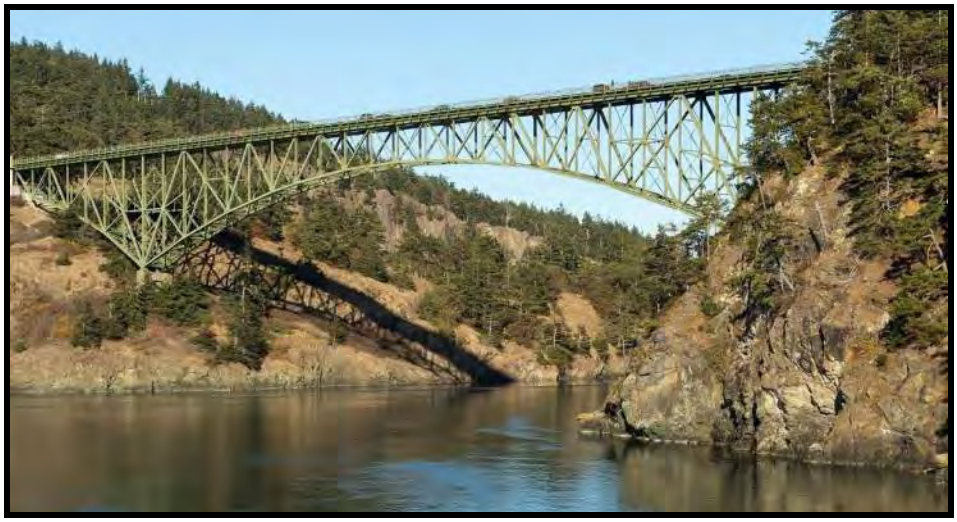


Figure 4-8: Deception Pass Bridge Whidbey Island, Washington. Steel Deck Truss (Imagery Courtesy of Frank Schulenburg)

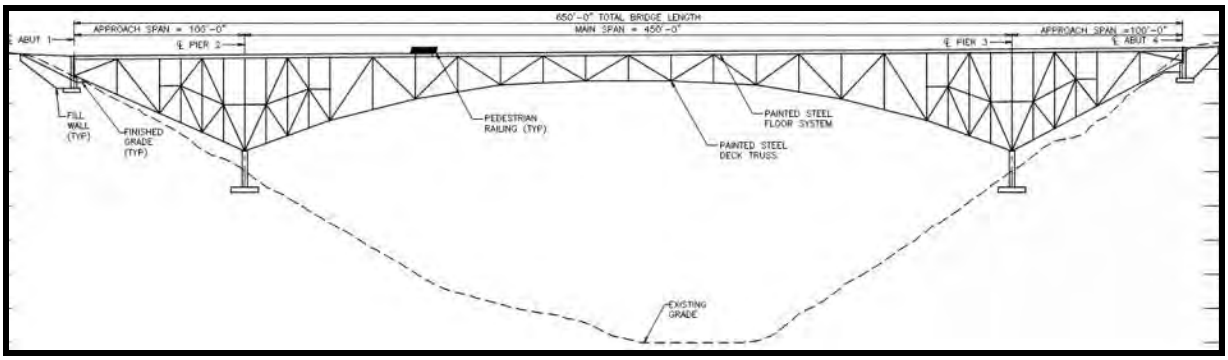


Figure 4-9: Proposed Elevation of AABC Bridge (Steel Deck Truss)

4.2.1 Constructability

The truss would be constructed using the balanced cantilever method. This is a similar concept to the deck arch construction except that the truss sections are built out in a balance configuration over the pier. This structure would have significantly more field connections than the arch. We anticipate that this construction would take significantly longer but may be able to use smaller cranes due to the larger number of bridge elements. See Figure 4-10 for an example of this construction method.

Figure 4-10: Deception Pass Bridge during Construction, Whidbey Island, Washington. (Imagery Courtesy of WSDOT)

4.2.2 Aesthetics

The steel deck truss would also provide an elegant structure that would blend in well with the natural environment of the river gorge. However, it has a more bulky and industrial appearance than the steel deck arch due to the additional vertical and diagonal truss members.

4.2.3 Feasibility

This structure type is considered feasible but more challenging than the steel deck arch. This bridge type is uncommon today and would certainly require a specialty steel erector and an immense amount of labor to make all the steel connections. At least two large steel cranes would be required.

4.2.4 Maintenance

This type of structure would require significantly more maintenance than the deck truss. Because of the large amount of field connections, this structure is not conducive to weathering steel. Instead, this structure would need to be painted. The paint system will typically last from 30-50 years with good maintenance and will eventually need to be repainted. The cleaning and repainting would be slightly more costly due to the additional members and connections. As mentioned above, any corrosion protection system typically fails first at the connections. Since this will have significantly more and complex connections, there are more locations for corrosion to initiate. Otherwise, the typical maintenance should be similar to the steel deck truss.

4.3 Multi-span Prefabricated Steel Truss

The prefabricated steel deck truss alternative consists of the truss structure entirely below the bridge deck. The main span is 338 feet (AABC) and 325 feet (Brush Creek). Both crossings have one approach span on each side for three total spans with total bridge length of 625 feet (AABC) and 565 feet (Brush Creek). The approach spans cantilever over the interior piers to support the center truss span. The truss has a constant depth along the length of the bridge. It has the shallowest cross section of all three alternatives. We propose using weathering steel for all structural steel elements. See Figure 4-11 for an example of a prefabricated truss and Figure 4-12 for the proposed bridge elevation.

Figure 4-11: Prefabricated Weathering Steel Truss Bridge, Hat Creek, CO (Imagery Courtesy of Excel Bridge) (Note this is a half through truss)

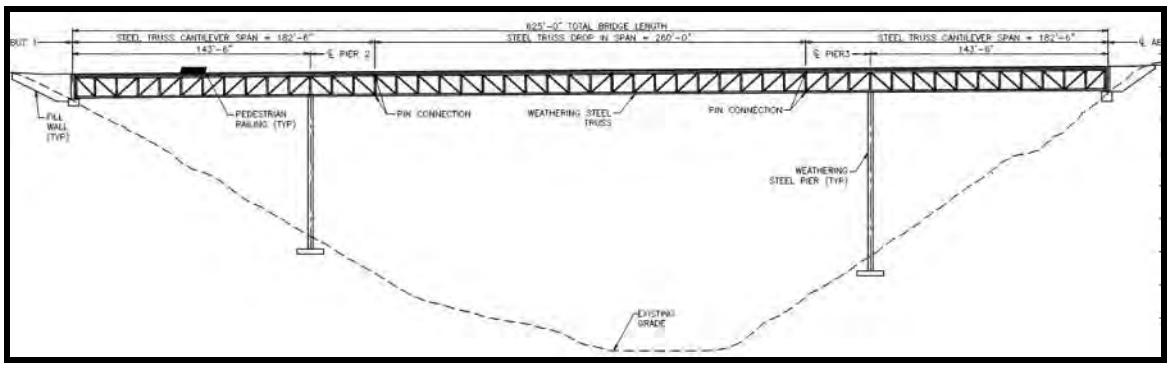


Figure 4-12: Proposed Elevation of AABC Bridge (Prefabricated Steel Truss)

4.3.1 Constructability

The truss will come pre-assembled in sections to the bridge site. The length of the segments will be limited by the truck turning radius on the delivery route and the pick weight. Access to the west side of the Roaring Fork River/SH 82 abutments will be relatively straight forward, however access to the RGT abutments will be more complicated. Access to the east side of the Roaring Fork River will likely be via Smith Way and McLain Flats Road. Navigating the curves will likely require a temporary road closure or flagging.

The truss segments will be assembled into four sections on the ground. The cantilever spans will be installed first and connected to the steel piers. The main span drop-in span will be installed in two sections and will require an in-air moment connection splice at mid-span. The pier locations are located closer to the river than the other two alternatives. This will require a longer temporary access road to construct the piers and foundations and greater impacts to the riverbanks. These sections will be extremely heavy and will require the largest cranes available position far down into the gorge to erect this structure.

4.3.2 Aesthetics

The prefabricated steel deck truss has a constant depth, which does compliment the river gorge topography as well as the other alternatives. It has the shallowest depth of the three alternatives. This type of structure has the most industrial and generic appearance of the types considered. This is because the prefabricated truss will resemble a box while the other two structure types have a variable depth. Most people will have seen similar structures in other places.

4.3.3 Feasibility

Unlike the other two options, the feasibility of the prefabricated truss option is questionable. The benefit of prefabricated truss structures are that they are “off the shelf” and are typically good applications at standard sites. This alternative is putting a square peg in a round hole because it is not a standard site. The main issues are the large pick weights, the tall pier that would need to be constructed, and this would provide the smallest opening for the river. The cranes would need to get way down into the gorge which may not be feasible. We anticipate that two 400 Ton cranes would likely be required to erect this structure. Cranes of this size may not be readily available in the area.

4.3.4 Maintenance

These are typically low maintenance structures. The primary maintenance item is that the weathering steel, which provide corrosion protection, will eventually fail and require repainting. The maintenance for this structure would be similar to the steel deck arch but with significantly more connections.

4.4 Bridge Alternatives Cost Analysis

The cost estimate for the bridges and alignments are presented in Section 5. The following is a summary of how the cost information was developed.

Planning level cost estimates were developed for the deck arch bridge and prefabricated truss bridge alternatives. Since the steel deck truss alternative was dismissed by the project team, planning level cost information was not determined for this alternative. The following information was used in the development of the planning level cost information:

- Preliminary Plans for the Maroon Creek Bridge Received from the City of Aspen
- CDOT Cost Data Information from 1999 to Current
- FHWA Highway Cost Inflation Database
- General Square Foot Cost Data for Specific Bridge Structure Types

The construction industry is going through a significant period of uncertainty. Major issues such as supply chain issues, labor shortages, and material shortages have resulted in an uncertain period for construction pricing and certainty. Further, with labor shortages, the passage of the Infrastructure Investments and Jobs Act, a significant amount of money will be flowing into the transportation industry. All this is to say, contractors will be busy over the next five years. Further, add in that a specialty Contractor will be required to do this work, large cranes from all over the state and possibly the country will be required, the construction pricing climate will be uncertain at best.

To develop the cost estimate for the deck arch, a few approaches were taken. Since the deck arch option was modeled off the Maroon Creek Bridge, the summary of quantities from that bridge was used to develop a quantity tabulation for the proposed bridge. The numbers from the summary of quantities were scaled to match the differences in geometry and complexity on this project from that project. Using the assumed quantities, the CDOT cost data books from 2019, 2020, and 2021, and other local projects, a present-day cost per square foot for the construction of this bridge was determined. A 3% annual inflation factor was applied for each year after that to bring it from present day costs to costs in the assumed year of construction. The year of construction was assumed to be 2025.

The present-day numbers were compared to other recent projects put out to bid in Colorado as a reality check on the numbers. The team also reached out to the AISC Steel Solutions Center and local fabricators for cost information. A 30% contingency factor was applied to this number to account for the uncertainties highlighted above.

To develop the cost estimate for the prefabricated truss, recent local projects utilizing prefabricated trusses were reviewed. The costs of those projects were then inflated to present day dollars using an inflation factor computed from the CDOT cost data books.
Then, a 3% annual inflation factor was applied for each year after that. The year of construction was assumed to be 2025. These projects were also scaled up to reflect the

complexity of this project. The present-day numbers were compared to other recent projects put out to bid in Colorado as a sanity check on the numbers. A 30% contingency factor and a complexity factor were applied to this number to account for the uncertainties highlighted above.

4.5 Preferred Bridge Alternative

The steel deck arch is the preferred bridge alternative. This is the most aesthetic, efficient, and constructible. We believe this will be the lowest maintenance of the alternatives considered.

5.0 Alignment Option Comparison

5.1 Cost Analysis

SGM generated costs estimates for alignment Options 1 and 2. Unit costs have been created from each typical section per linear foot of trail/bridge and per square foot of wall. These are items such as asphalt pavement, concrete deck, boulder walls, MSE block walls, pedestrian railing, and earthwork. Miscellaneous costs are those items that apply across the entire project and not by typical section type. These items include clearing and grubbing, traffic control, utility relocations, and erosion control.

Inflation has been added to the overall cost estimate, assuming an inflation rate of 3% per year, and a construction year of 2025. Mobilization cost of 10% is assumed. The cost estimates are conceptual in nature and therefore include a 30% contingency. Table 5-1 shows a summary of each construction cost estimate. A detailed cost estimate per segment of trail can be found in Appendix C. For this type, scale, and level of complexity of project, design and construction engineering fees will likely range between 15-25% of the total construction costs. The design and construction engineering estimated cost range for both alignment options is also included in the cost estimate table.

Table 5-1: Trail Cost Estimate

Trail Segment/Difficulty	Option 1 Twin Bridges	Option 2 SH82 East Alignment
Least Difficult	**$846,000**	**$1,151,000**
More Difficult	**$203,000**	**$545,000**
Most Difficult	**$16,381,000**	**$21,269,000**
Total Construction Cost	$17,430,000	$22,965,000
Design and Construction Engineering	$2,615,000- $4,358,000	$3,445,000- $5,741,000
Total Project Cost	$20,045,000- $21,788,000	$26,410,000- $28,706,000

5.2 Option Evaluation

5.2.1 Evaluation Criteria

Alignment Options 1 and 2 were compared in the following categories:

- Cost
  - Total Construction Cost
  - ROW or Easements Needed
- Maintenance
  - Structure Maintenance (cleaning, painting, railing, expansion joints)
  - Trail Maintenance (plowing, pedestrian railing, asphalt crack sealing)
- User Experience
  - Safety
  - Recreation Users
  - Commuters
  - General Public/Vehicle Traffic
  - Aesthetics
- Complexity of Construction
  - Construction / Equipment Access
  - Construction Techniques
  - Existing Trail Impacts
  - Roadway Impacts
  - Utility Impacts
- Environmental
  - Wildlife Habitat Impacts
  - Wetland Impacts
  - Geological Hazards

5.2.2 Evaluation Matrix

Each alternative alignment was evaluated based on the above criteria and assigned a color. Positive features are highlighted in green, neutral features are highlighted in yellow, and negative features are highlighted in red. See Table 5-2 below for evaluation matrix.

Table 5-2: Options Evaluation Matrix

Comparison Item	Option 1 Twin Bridges Alignment	Option 2 SH82 East Alignment
Cost		
Total Cost (2025 Construction Only)	Construction: $17.3 Million Design & Const. Engineering: $3.5 Million	Construction: $22.9 Million Design & Const. Engineering: $4.6 Million
ROW or Easements Needed	Special Use Permit needed from CDOT and Easement needed from Aspen Consolidated Sanitation and Snowmass Water and Sanitation	Special Use Permit permit needed from CDOT and extensive approvals and coordination required
Maintenance		
Structure Maintenance	Moderate maintenance concerns due to preferred bridge type selected	Significant due to large amount of structure, structure types required, proximity to snow plowing and traffic, and rockfall hazard
Trail Maintenance	Minimal maintenance concerns (large portion of trail overlaps with existing RGT)	Higher maintenance concerns due to difficulty of trail access along Highway 82 corridor. Longer additional trail length.
User Experience		
Safety	No concerns	Potential for debris and snow throw from Highway 82 to impact trail
Recreational Users	A good connection between W/J, RGT, BCPR and AABC utilizing existing trail	Not an ideal location for recreational users due to proximity to Highway 82
Commuters	A good connection between W/J Ranch, RGT, Park and Ride and AABC utilizing existing trail BCPR to AABC trail length = 2.55 miles	A more direct route to and from AABC BCPR to AABC trail length = 2.28 miles
General Public / Vehicle Traffic	View of bridges would be limited since majority of structure is below deck, structure would blend into gorge.	Construction would have impacts to Highway 82, Trail location proximity to highway could be distraction to drivers
Aesthetics	Bridges spanning Roaring Fork River provide new perspectives of valley, Bridges would blend into natural environment	Trail bridges separate from existing Highway 82 bridges and different structure type. New trail piers to match existing vehicle bridge pier locations.
Constructability		
Construction / Equipment Access	Large crane operations and work platforms needed to construct long span bridges	Significant crane operations needed to construct long and mid span bridges and structures, extensive coordination and approval with CDOT
Existing Trail Impacts	Temporary RGT closures required to deliver materials for bridge construction and detour needed at AABC Bridge east abutment	No impacts
Roadway Impacts	Minimal impacts to Highway 82 and McLain Flats Road to reach bridge construction site	Significant impacts due to closures necessary to build structures adjacent to Highway 82
Utility Impacts	Potential impacts to overhead electric lines during bridge construction	No impacts
Environmental Impacts		
Wildlife Habitat Impacts	Negligible impacts	Negligible impacts
Wetland Impacts	No impacts	Potential impacts at Owl Creek
Geological Hazards	No impacts	Construction on unstable Shale Bluffs area

6.0 Project Delivery Methods

Based on the complexity of the structural design and construction risks, SGM recommends that the Pitkin County Open Space and Trails considers the CM/GC (Construction Manager/General Contractor) delivery method. In this delivery method, the owner has a separate contract with the designer and with a contractor serving as the construction manager during the design phase. The owner initially selects the construction manager based on qualifications rather than lowest qualified bidder. Once the project is close to final design, the construction manager will submit a "guaranteed maximum price". If the owner agrees, a contract for construction services is executed. At this point, the construction manager transitions to the general contractor role. This contracting method was used for the City of Aspen Terral Wade (Tiehack) steel arch pedestrian bridge.

The benefit of this contracting method is that the contractor is brought on the project team prior to final design. The contractor provides input on construction methods, value engineering, schedule, and ways to minimize or mitigate risk. Having a contractor on-board will be very helpful to design the steel deck arch. The loads during construction may control the design of the arch rib, so having the contractor available during the design process will provide the bridge designers with precise construction loads. Another potential cost and time savings element is coordination between the bridge designer and the steel fabricator. The steel fabricator will be able to review member sizes and details and make recommendations for more economical details. If schedule is critical to the project delivery, the contractor could begin earthwork and foundation construction prior to all the steel details being finalized.

This type of project is challenging for a design-build delivery method. Design-build projects are typically more successful on projects with a large number of standard and repeatable structures. It is less ideal for complex bridge designs. There are various project risks that would be difficult for the contractor to estimate prior to the design being substantially complete.

The more traditional design-bid-build delivery method could be utilized here. However, we anticipate that it would require a significant amount of coordination during construction between the Contractor and Engineer. This is because the construction method will likely impact the ultimate loads on the structure. If this was the case, members may need to be changed or upsized during construction. The Engineer would try to assume a construction sequence during design, but if the Contractor's sequence or methods were different, it could result in significant changes to the design during construction. This has potential to result in delays and cost overruns.

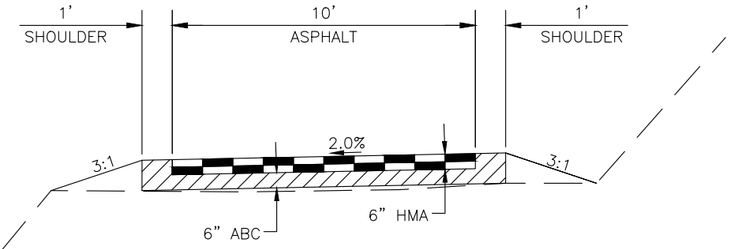
Appendix A

01 – Trail Typical Sections

02 – Bridge Layout and Typical Sections

03 – Alternate Bridge Alignment

04 – Full Size Report Exhibits



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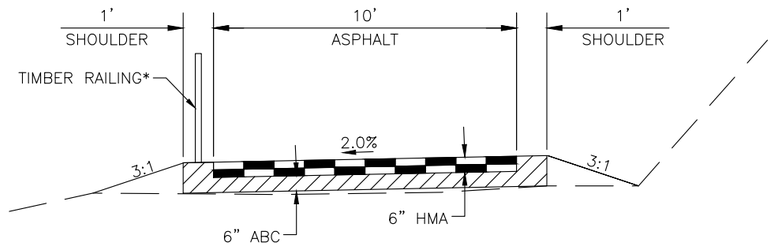

LEAST DIFFICULT TYPICAL SECTION – 1B
SCALE: 1" = 5'

*TIMBER RAILINGS MAY BE ON LEFT, RIGHT, OR BOTH SIDES OF SECTION

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BRUSH CREEK P&R TO AABC TRAIL
TYPCIAL SECTIONS - LEAST DIFFICULT

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	TYP	Subset Sheets:	1 of 3

Project No./Code	
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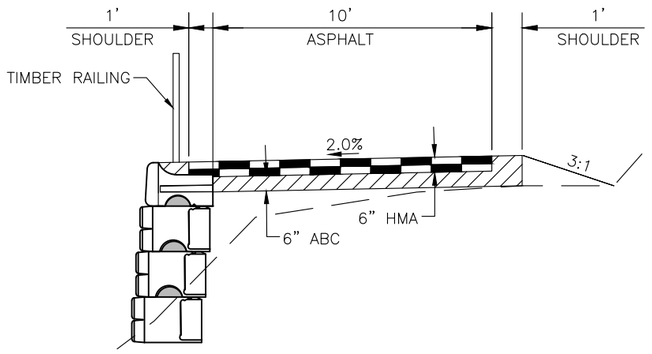
Sheet Number	1



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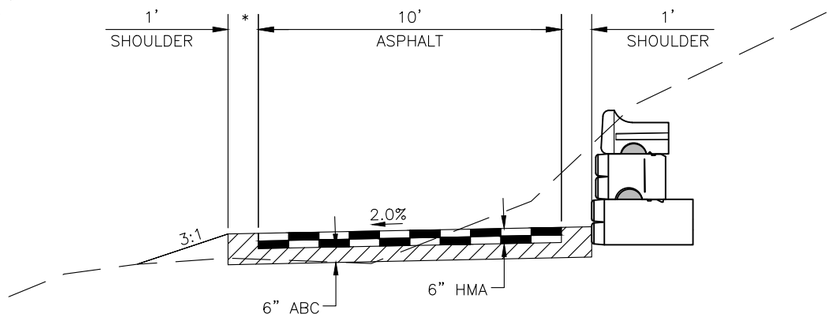

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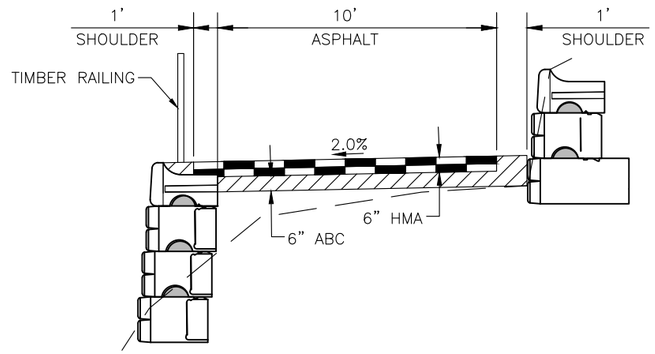

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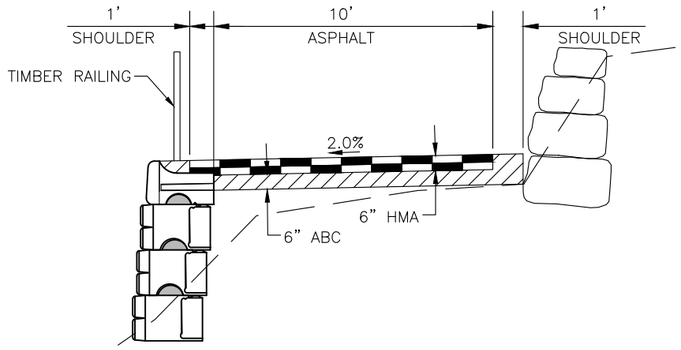

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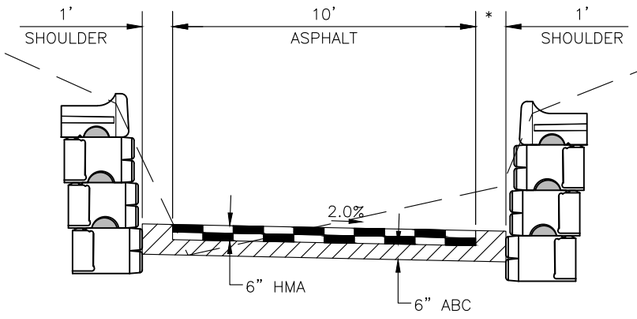

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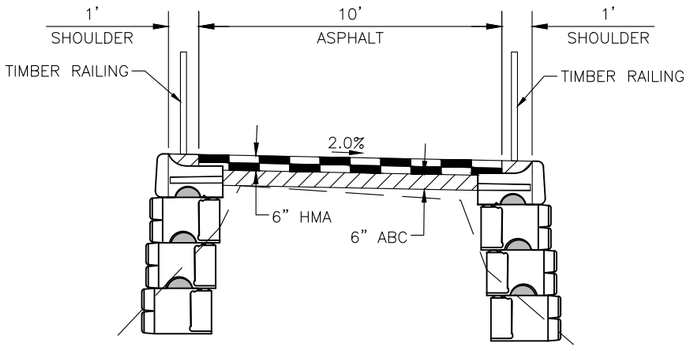

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TYPICAL SECTIONS - MORE DIFFICULT

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Drawn By:	MWM		
Sheet Subset:	TYP	Subset Sheets:	2 of 3

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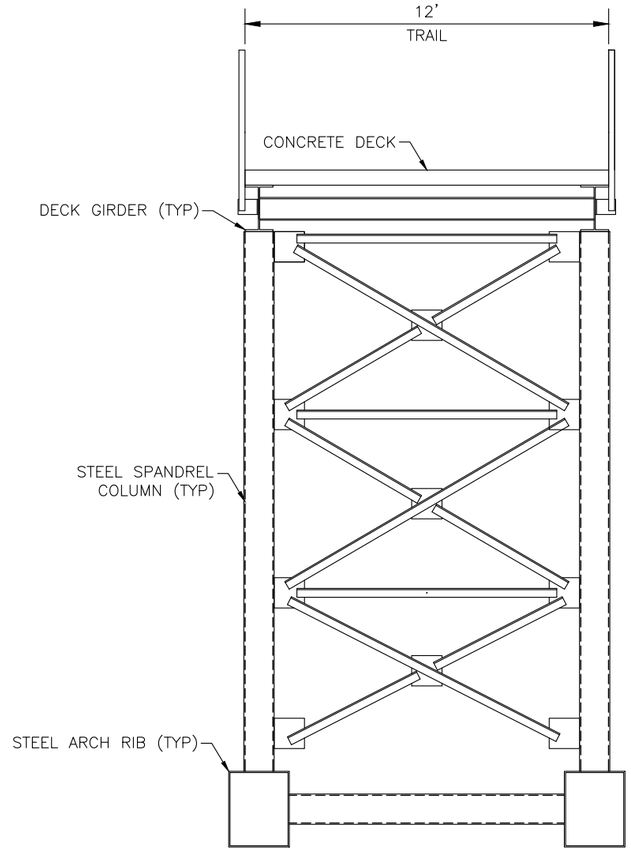
Sheet Number	2



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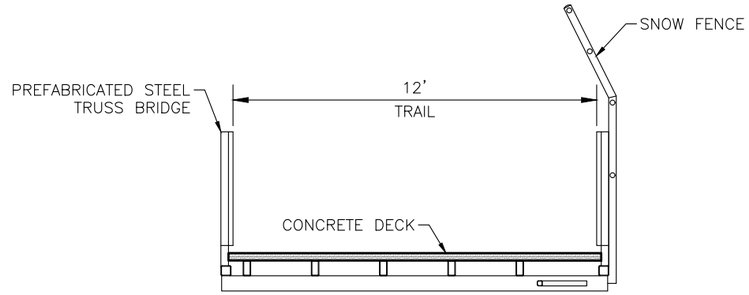

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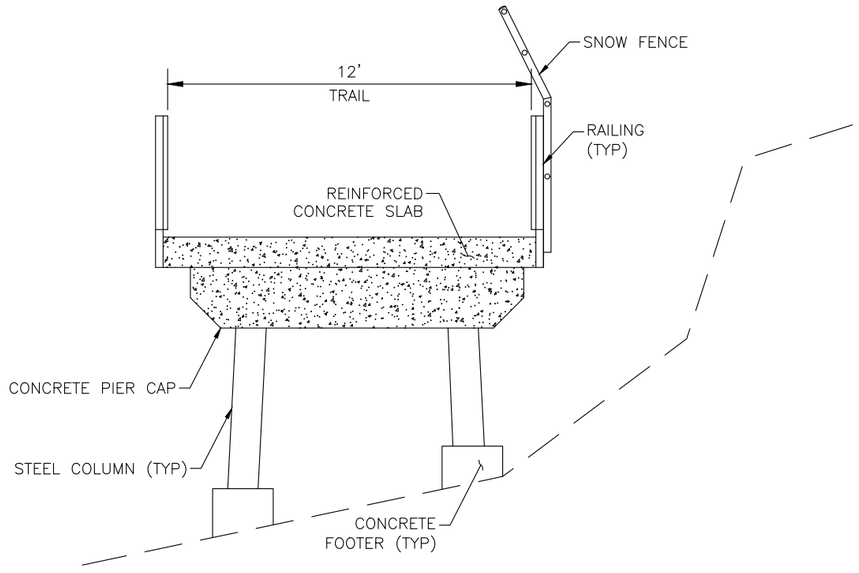

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Sheet Number	3

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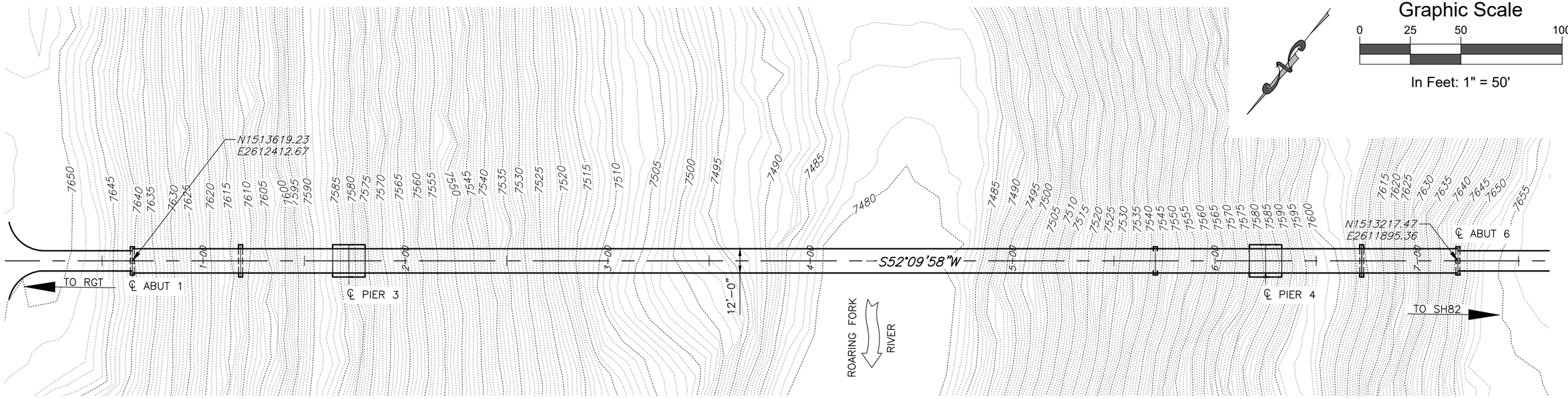

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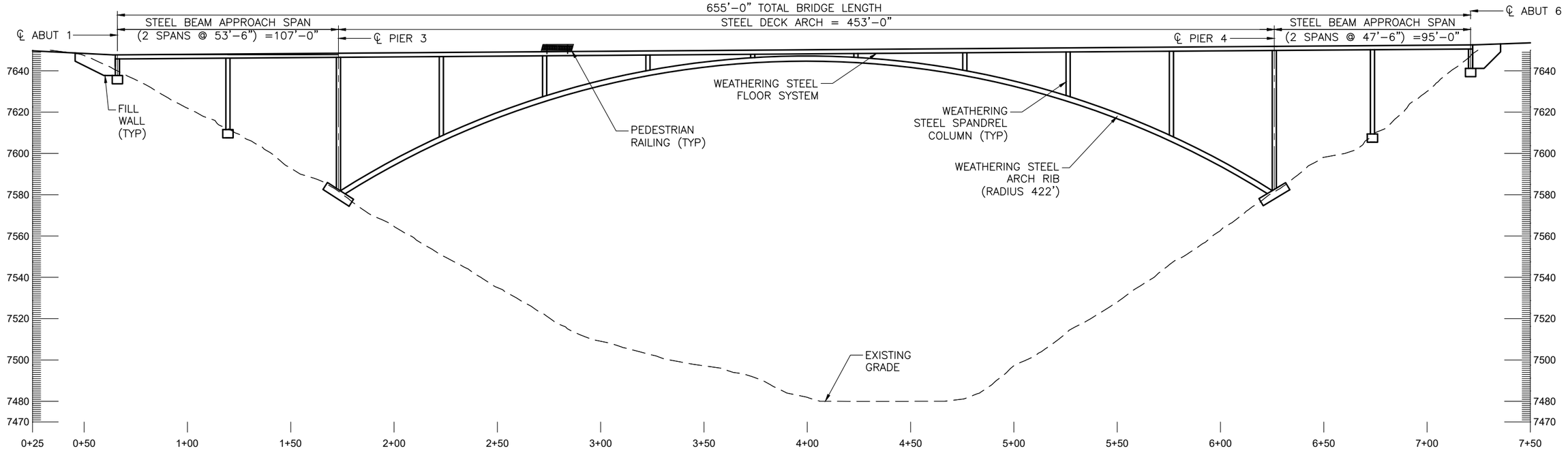

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AABC Bridge - Alternative #1

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B1 of B7

Project No./Code	
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Sheet Number	1

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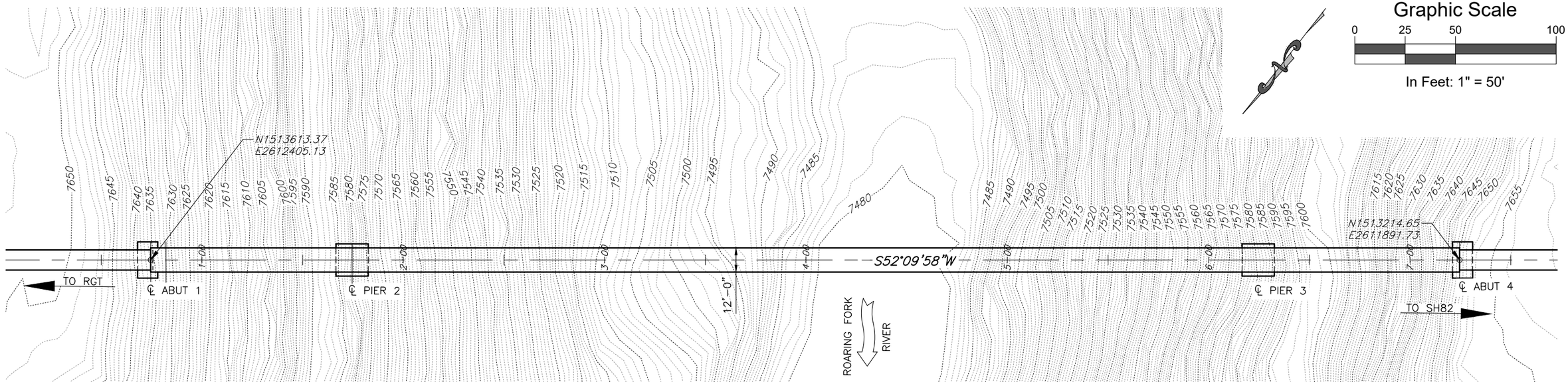

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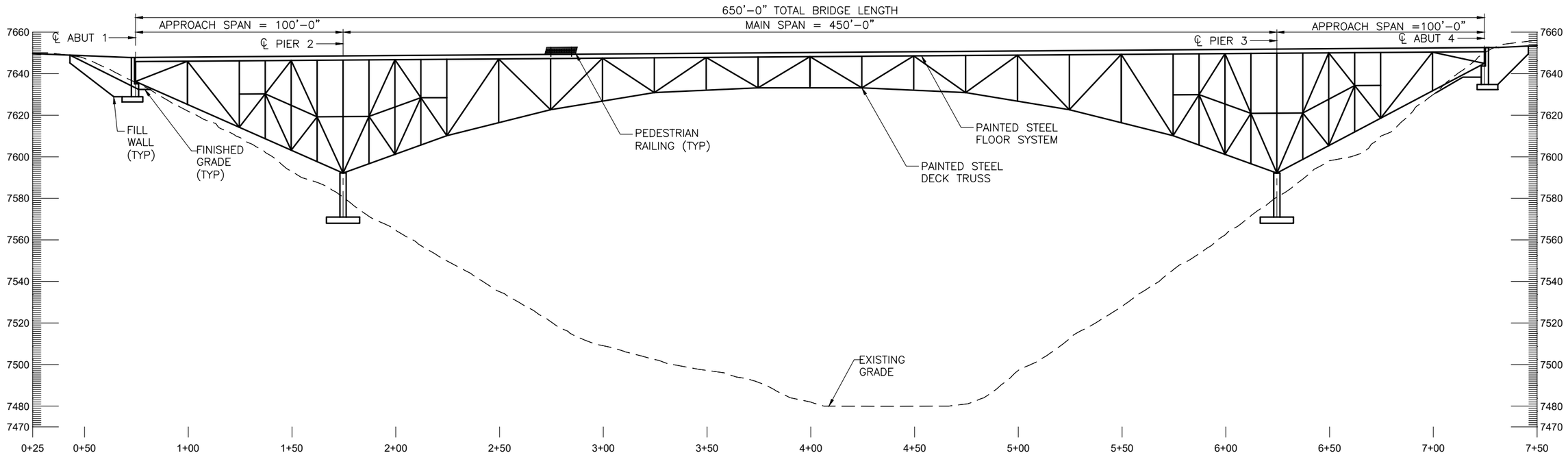

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AABC Bridge - Alternative #2

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B2 of B7

Project No./Code	
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Sheet Number	2

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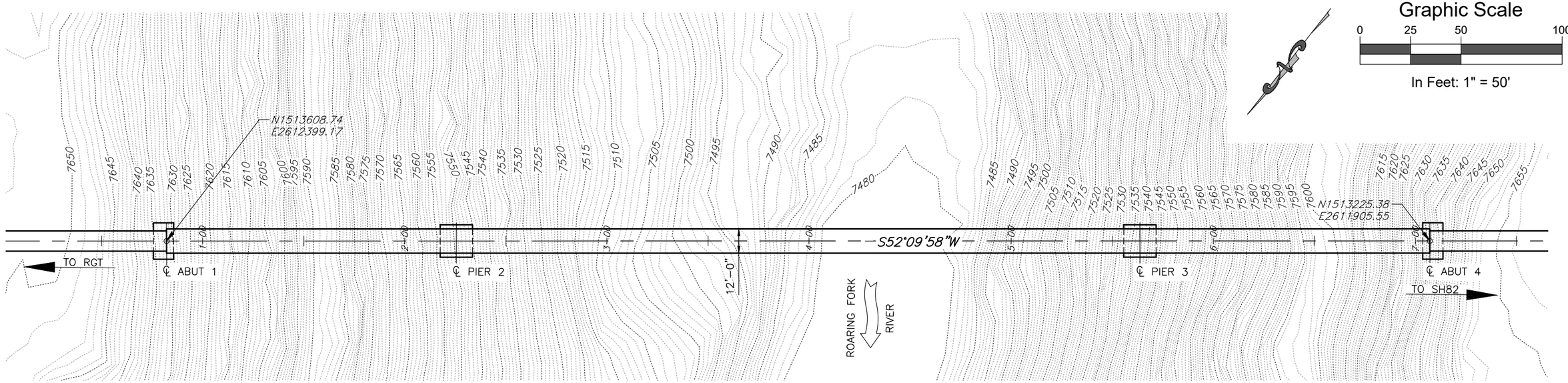

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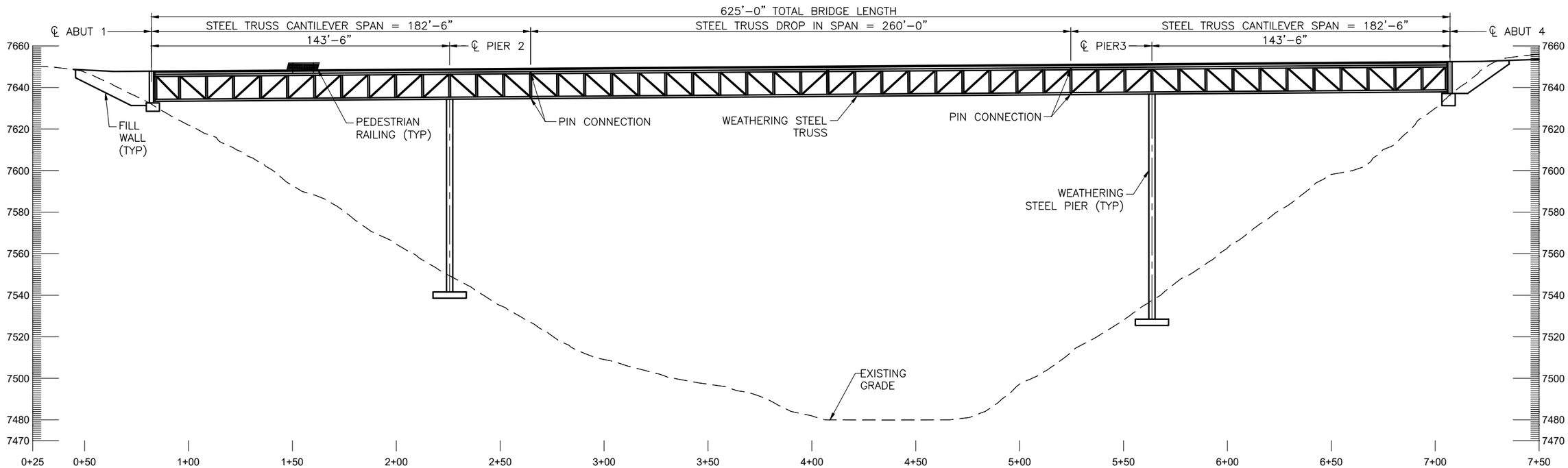

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AABC Bridge - Alternative #3

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B3 of B7

Project No./Code	
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Sheet Number	3

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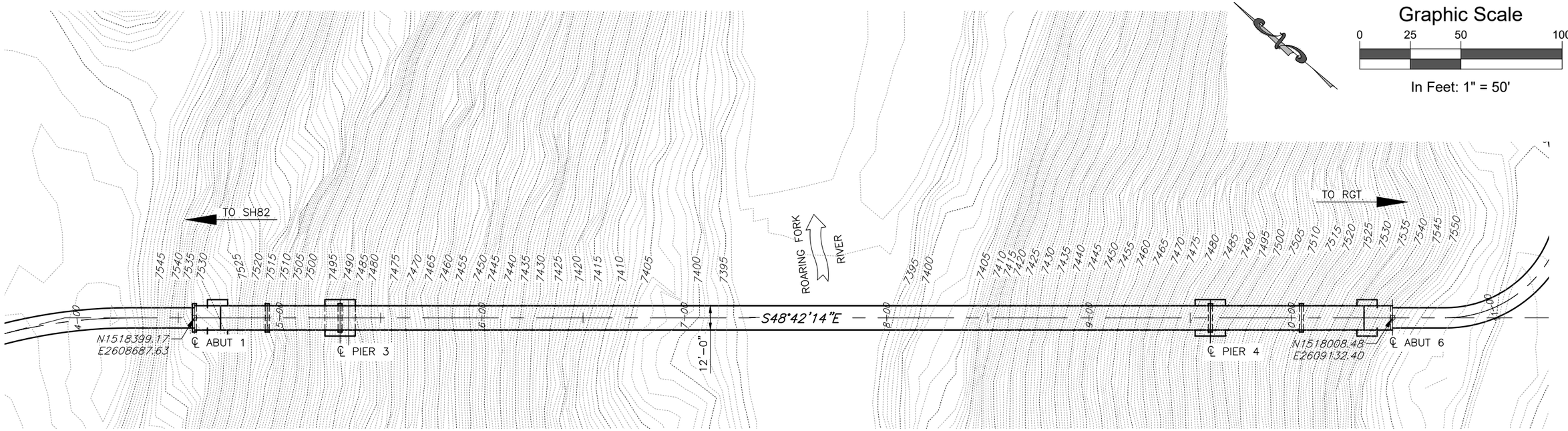

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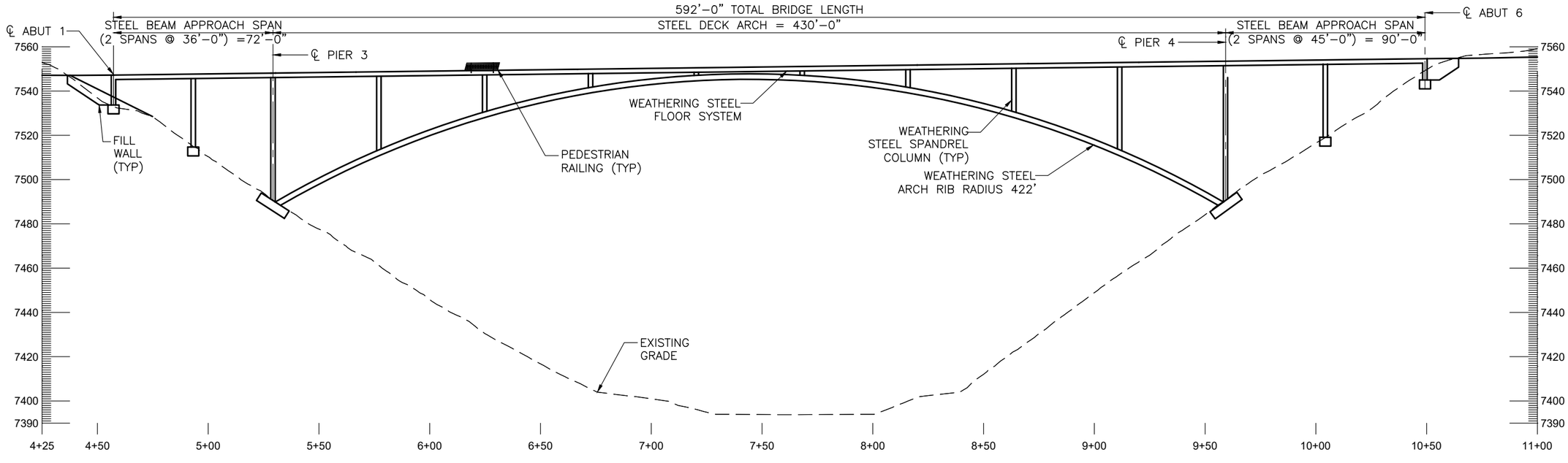

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Brush Creek Bridge - Alternative #1

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B4 of B7

Project No./Code	
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Sheet Number	4

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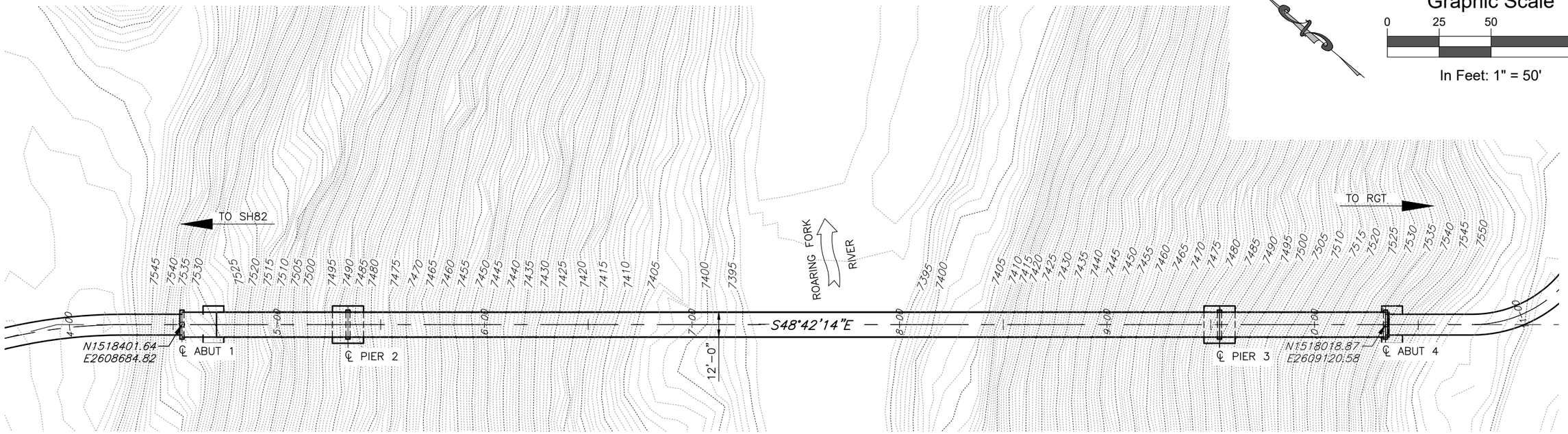

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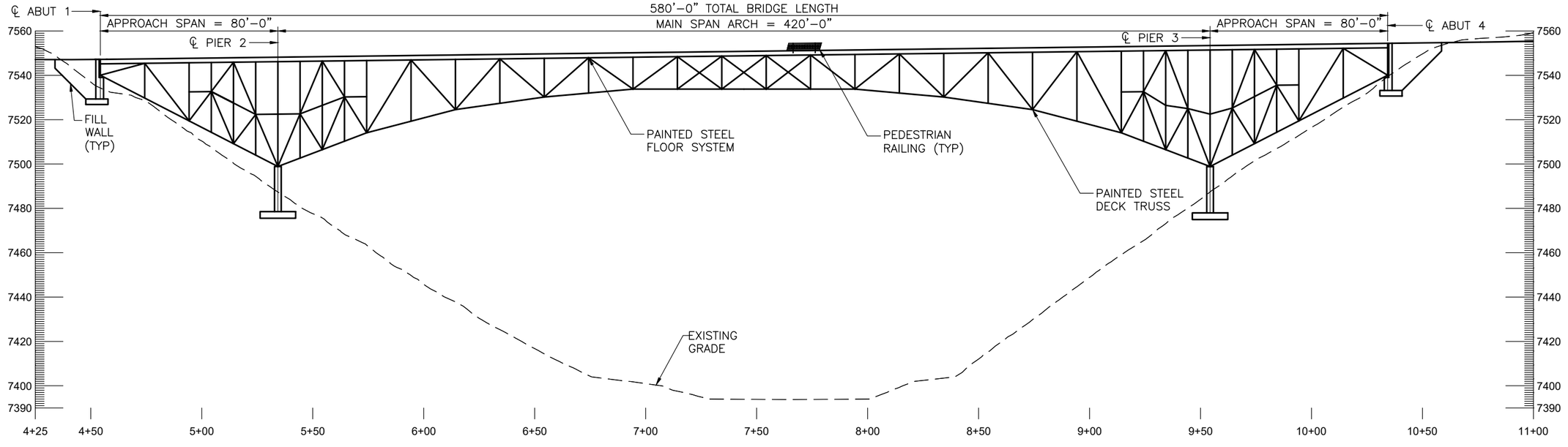

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Brush Creek Bridge - Alternative #2

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B5 of B7

Project No./Code	
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Sheet Number	5

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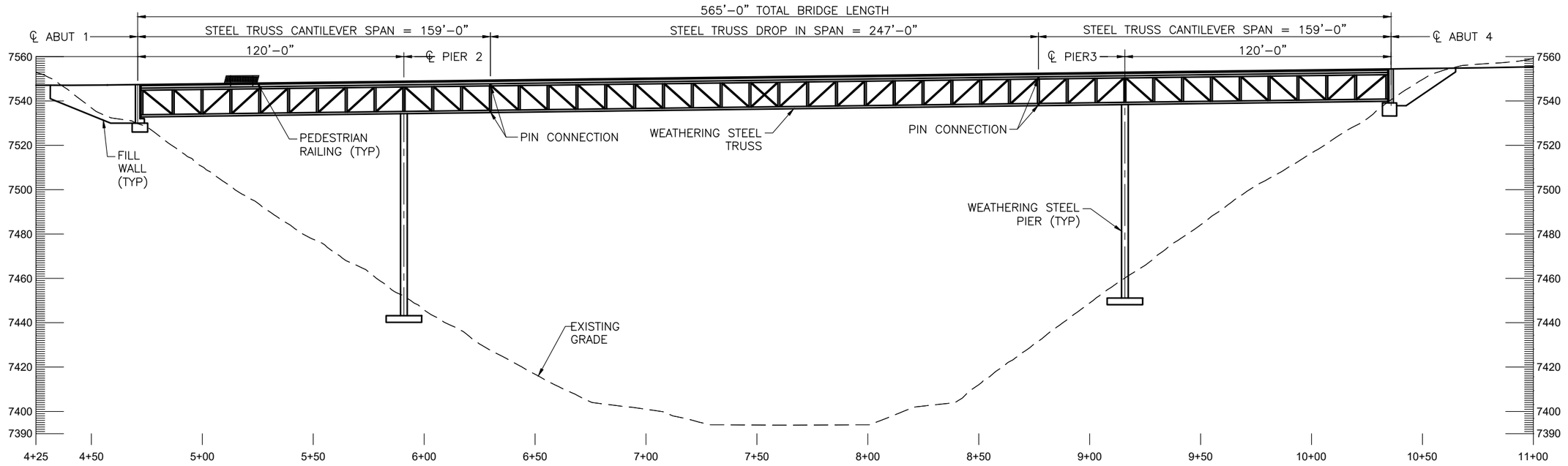

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BRUSH CREEK P&R TO ASPEN ABC TRAIL
Brush Creek Bridge - Alternative #3

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B6 of B7

Project No./Code	
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Sheet Number	6

PRELIMINARY DESIGN FOR FEASIBILITY STUDY - NOT FOR CONSTRUCTION

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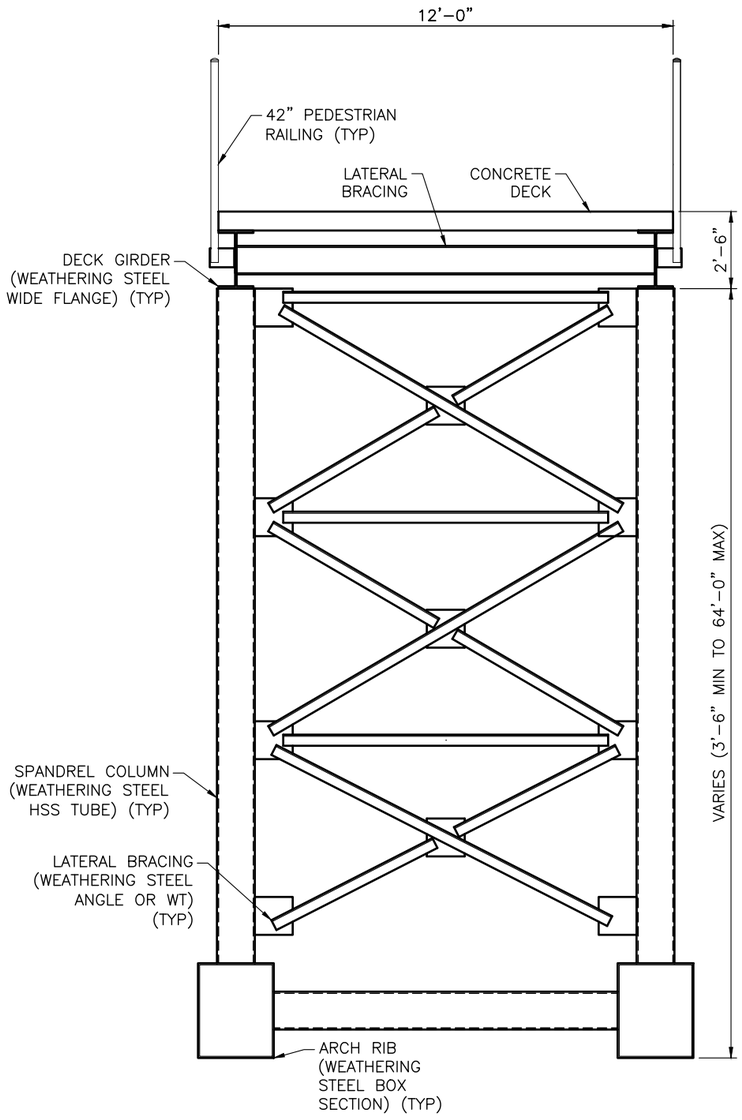

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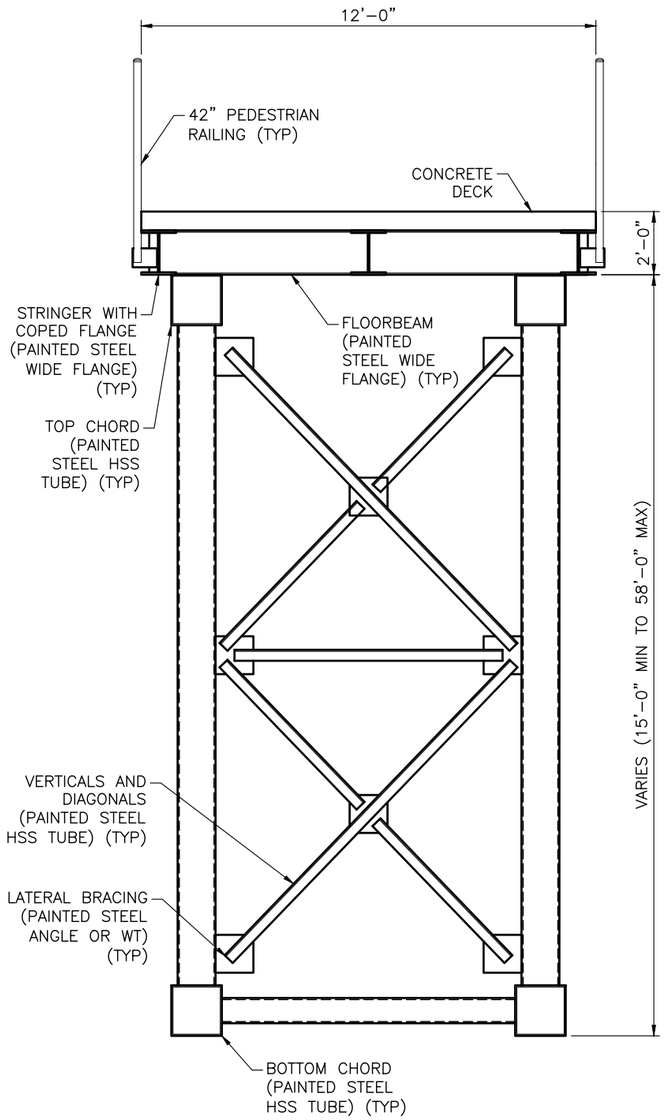

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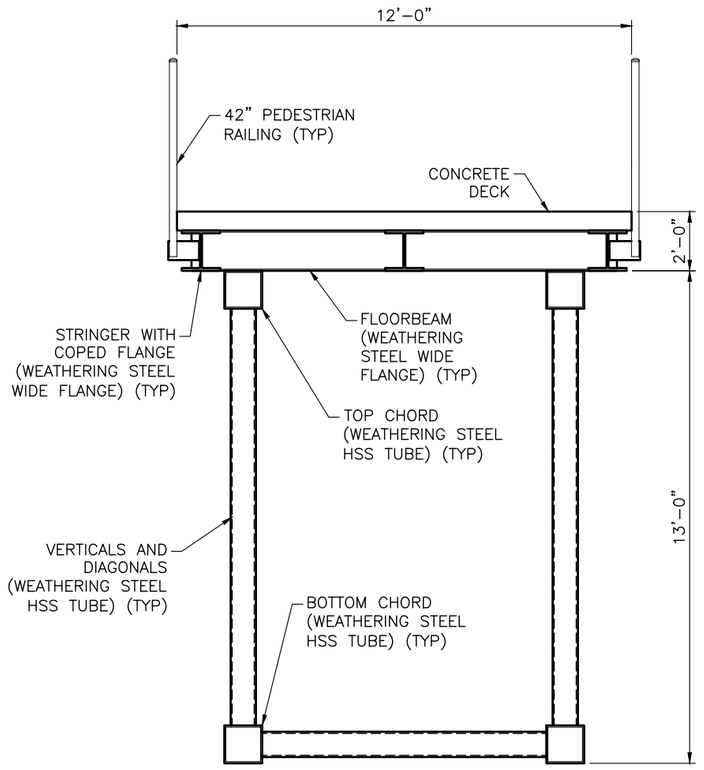
(DECK TRUSS)



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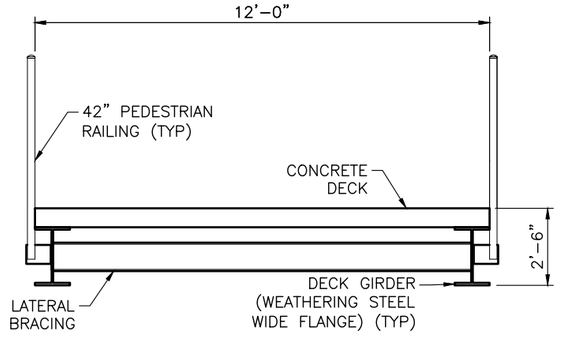

ALTERNATIVE #1 STEEL MULTI BEAM
APPROACH SPAN TYPICAL SECTION

PRELIMINARY DESIGN FOR FEASIBILITY STUDY - NOT FOR CONSTRUCTION

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Last Modification Date: 11.15.21	
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SGM Project No.: 2021-401.001	Quality Control: MLF

Sheet Revisions			
Rev.	Date	Comments	Init.
1			

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BRUSH CREEK P&R TO ASPEN ABC TRAIL
Typical Sections

Engineer:	MCF	Structure Numbers	
Drawn By:	CWG		
Sheet Subset:	Bridge	Subset Sheets:	B7 of B7

Project No./Code	
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Sheet Number	7

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SGM Project No.: 2021-405.001	Quality Control: XX

Sheet Revisions			
Rev.	Date	Comments	Init.
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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTIONS BY DIFFICULTY

Engineer:	XX	Structure Numbers	
Drawn By:	XX		
Sheet Subset:	--	Subset Sheets:	-- of --

Project No./Code	
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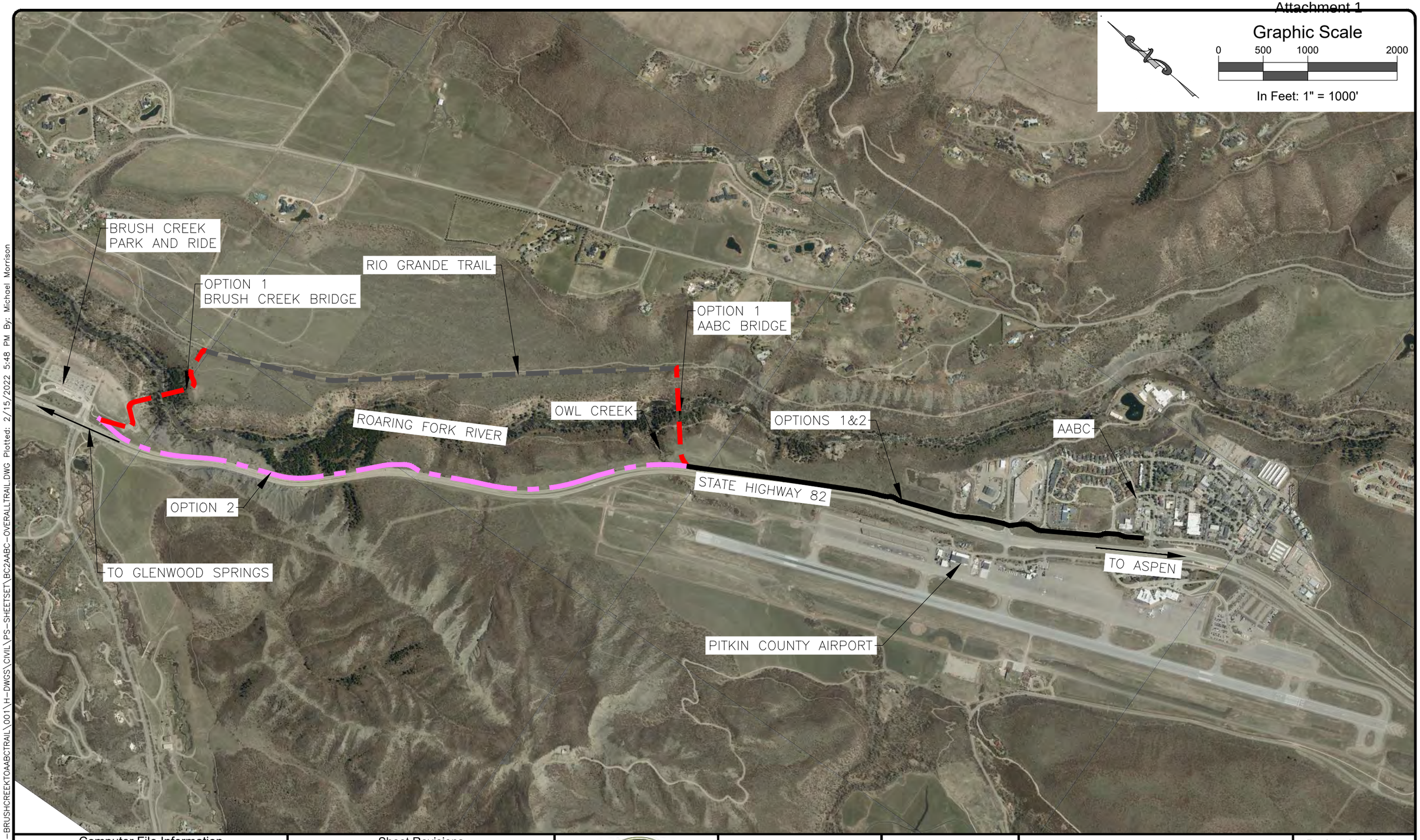
Sheet Number	----



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Autocad Ver. 2020	Scale: As Shown
SGM Project No.: 2021-405.001	Quality Control: AMC

Sheet Revisions			
Rev.	Date	Comments	Init.
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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTIONS 1&2 - OVERVIEW

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	1 of 9

Project No./Code	
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Sheet Number	1

Graphic Scale
0 500 1000 2000
In Feet: 1" = 1000'

LEGEND:
- LEAST DIFFICULT
- MORE DIFFICULT
- MOST DIFFICULT

OPTION 1
RIO GRANDE TRAIL
BRUSH CREEK PARK N RIDE
OPTION 1
OPTIONS 1&2
ROARING FORK RIVER
OWL CREEK
AABC
STATE HIGHWAY 82
TO GLENWOOD SPRINGS
OPTION 2
TO ASPEN
PITKIN COUNTY AIRPORT

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Last Modification Date: 12.10.21	
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Autocad Ver. 2020	Scale: As Shown
SGM Project No.: 2021-405.001	Quality Control: AMC

Sheet Revisions			
Rev.	Date	Comments	Init.
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OVERALL SITE PLAN BY DIFFICULTY

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	2 of 9

Project No./Code	
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Sheet Number	2

Graphic Scale

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In Feet: 1" = 1000'

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Autocad Ver. 2020 Scale: As Shown	
SGM Project No.: 2021-405.001	Quality Control: AMC

Sheet Revisions

Rev.	Date	Comments	Init.
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TRAIL OPTION 1

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	3 of 9

Project No./Code

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Sheet Number 3

Graphic Scale

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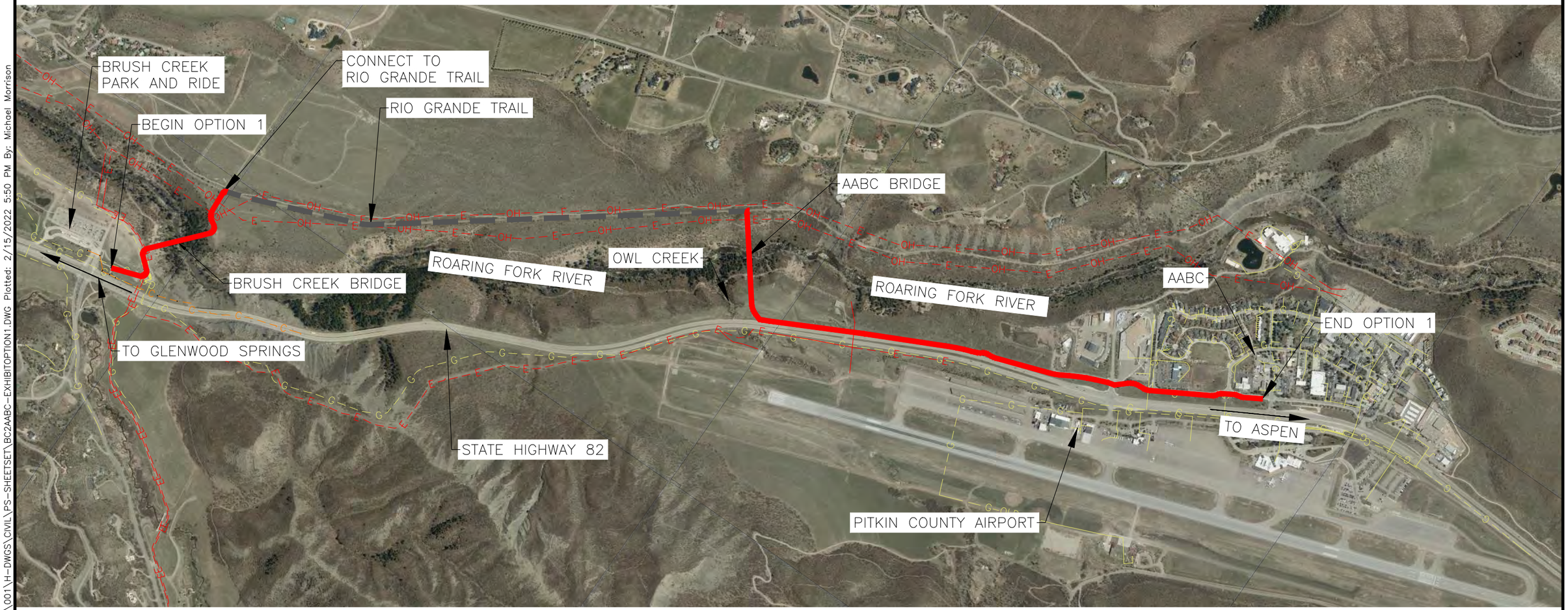
In Feet: 1" = 1000'



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Print Date: 2/15/22	
Last Modification Date: 12.10.21	
Drawing File Name: BC2AABC-EXHIBITOPTION1	
Autocad Ver. 2020	Scale: As Shown
SGM Project No.: 2021-405.001	Quality Control: AMC

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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTION 1 - UTILITIES

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	4 of 9

Project No./Code

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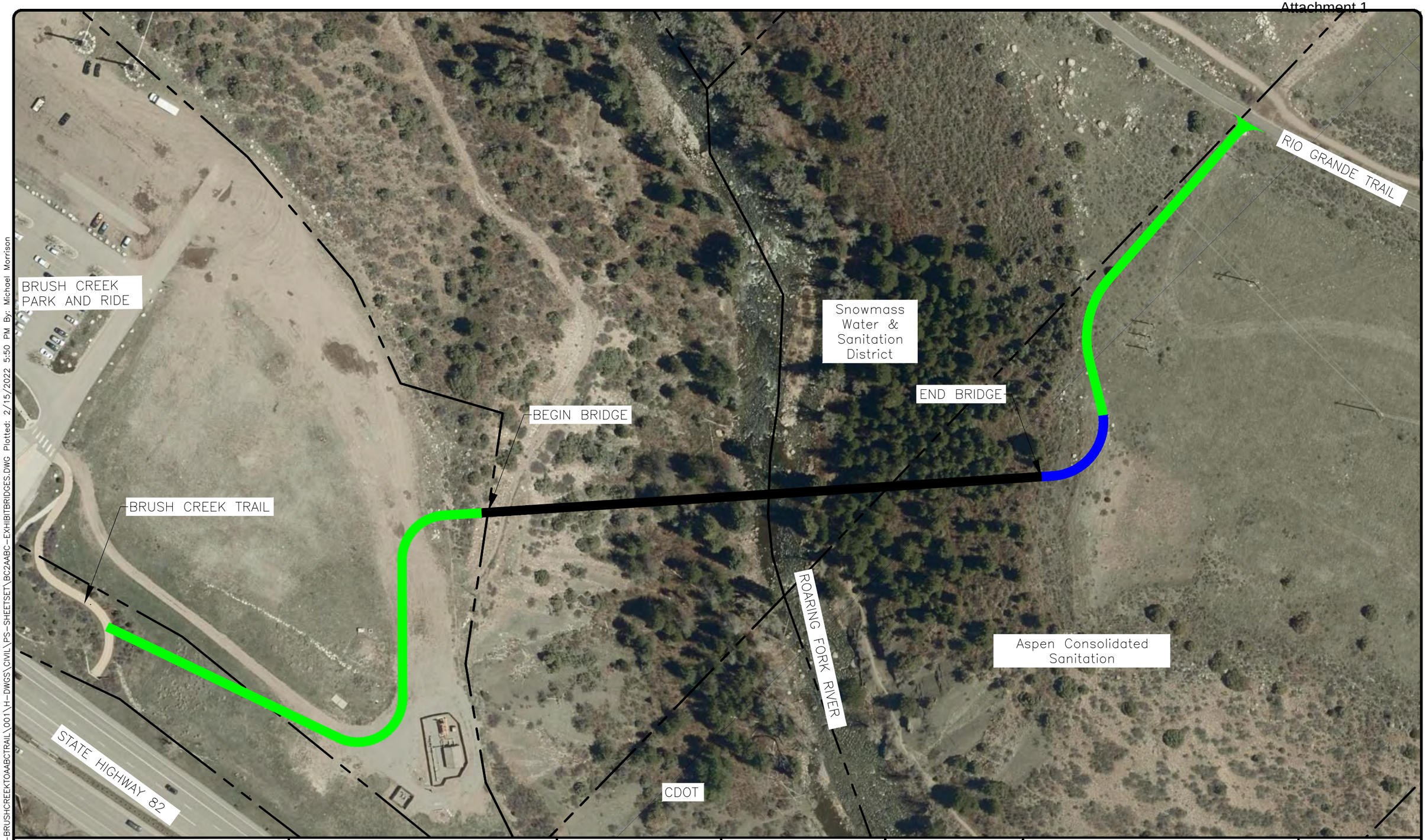
Sheet Number 4



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Last Modification Date: 12.10.21	
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Autocad Ver. 2020	Scale: As Shown
SGM Project No.: 2021-405.001	Quality Control: AMC

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Rev.	Date	Comments	Init.
1			

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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTION 1 - BRUSH CREEK BRIDGE

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	5 of 9

Project No./Code	
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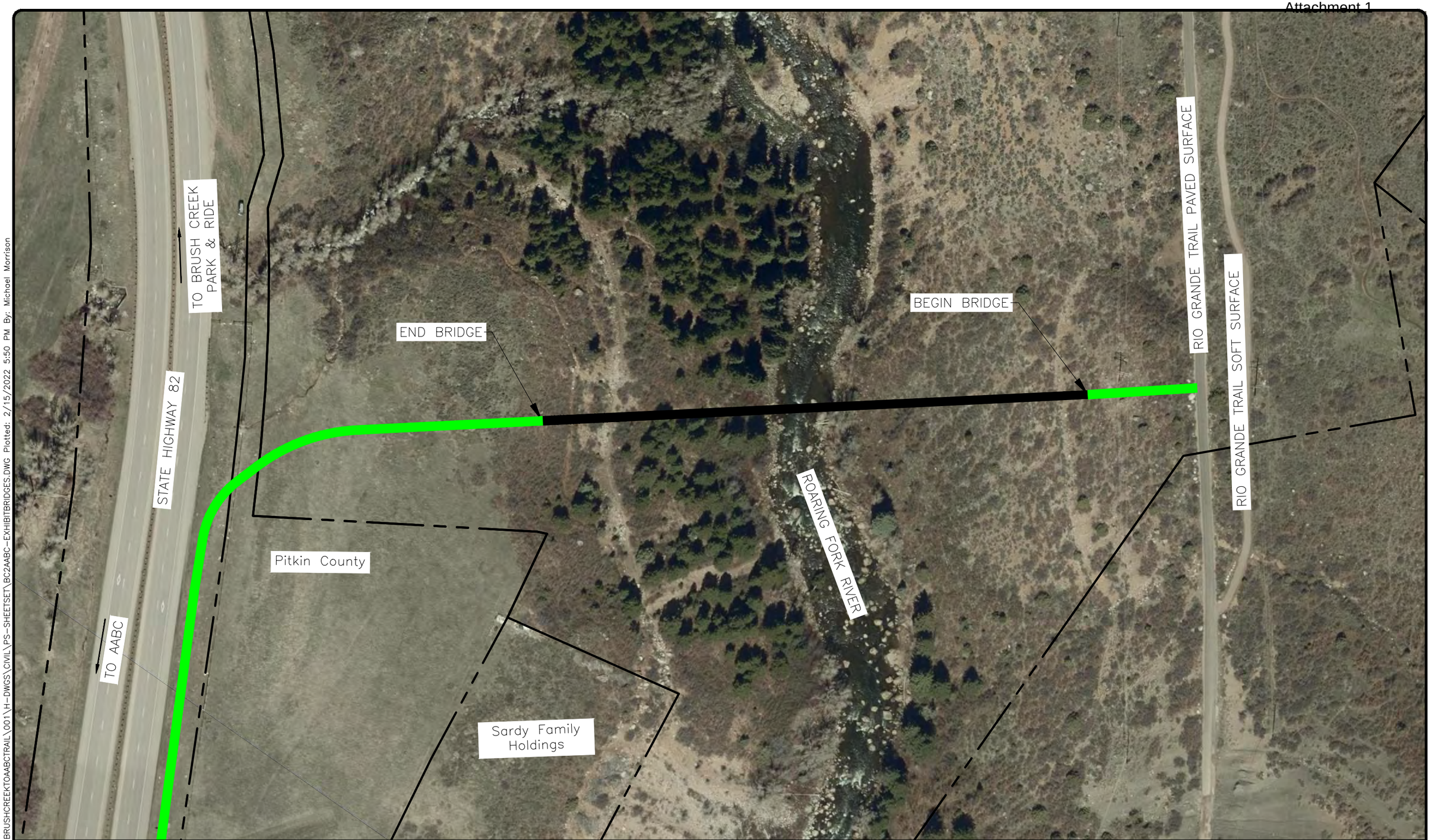
Sheet Number	5



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Last Modification Date: 12.10.21	
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Autocad Ver. 2020	Scale: As Shown
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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTION 1 - AABC BRIDGE

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	6 of 9

Project No./Code	
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Sheet Number	6

Graphic Scale

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In Feet: 1" = 1000'

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Print Date: 2/15/22	
Last Modification Date: 12.10.21	
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Autocad Ver. 2020 Scale: As Shown	
SGM Project No.: 2021-405.001	Quality Control: AMC

Sheet Revisions			
Rev.	Date	Comments	Init.
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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTION 2

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	7 of 9

Project No./Code	
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Sheet Number	7

Graphic Scale

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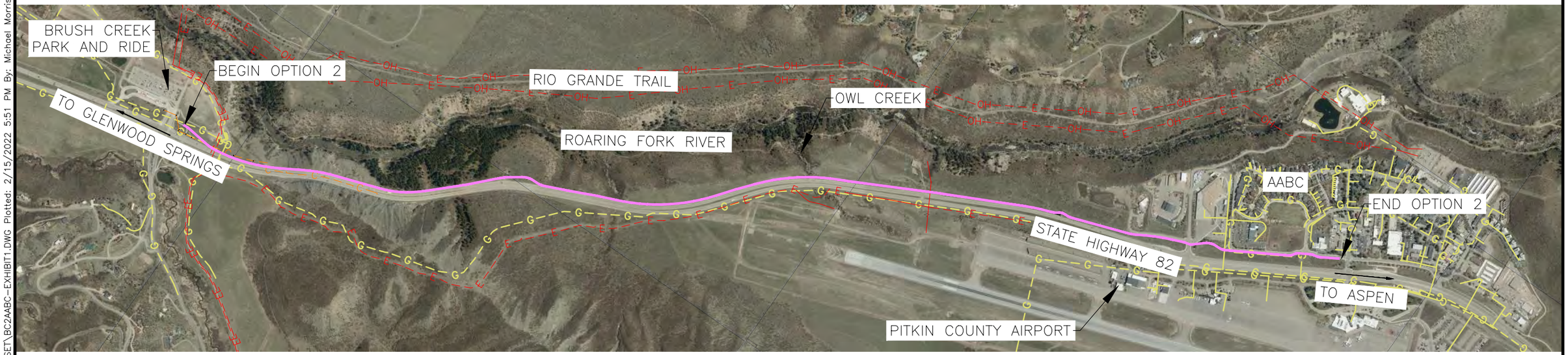
In Feet: 1" = 1000'



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SGM Project No.: 2021-405.001	Quality Control: AMC

Sheet Revisions			
Rev.	Date	Comments	Init.
1			

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BRUSH CREEK P&R TO AABC TRAIL
TRAIL OPTION 2 - UTILITIES

Engineer:	AMC	Structure Numbers	
Drawn By:	MWM		
Sheet Subset:	EXHIBIT	Subset Sheets:	8 of 9

Project No./Code	
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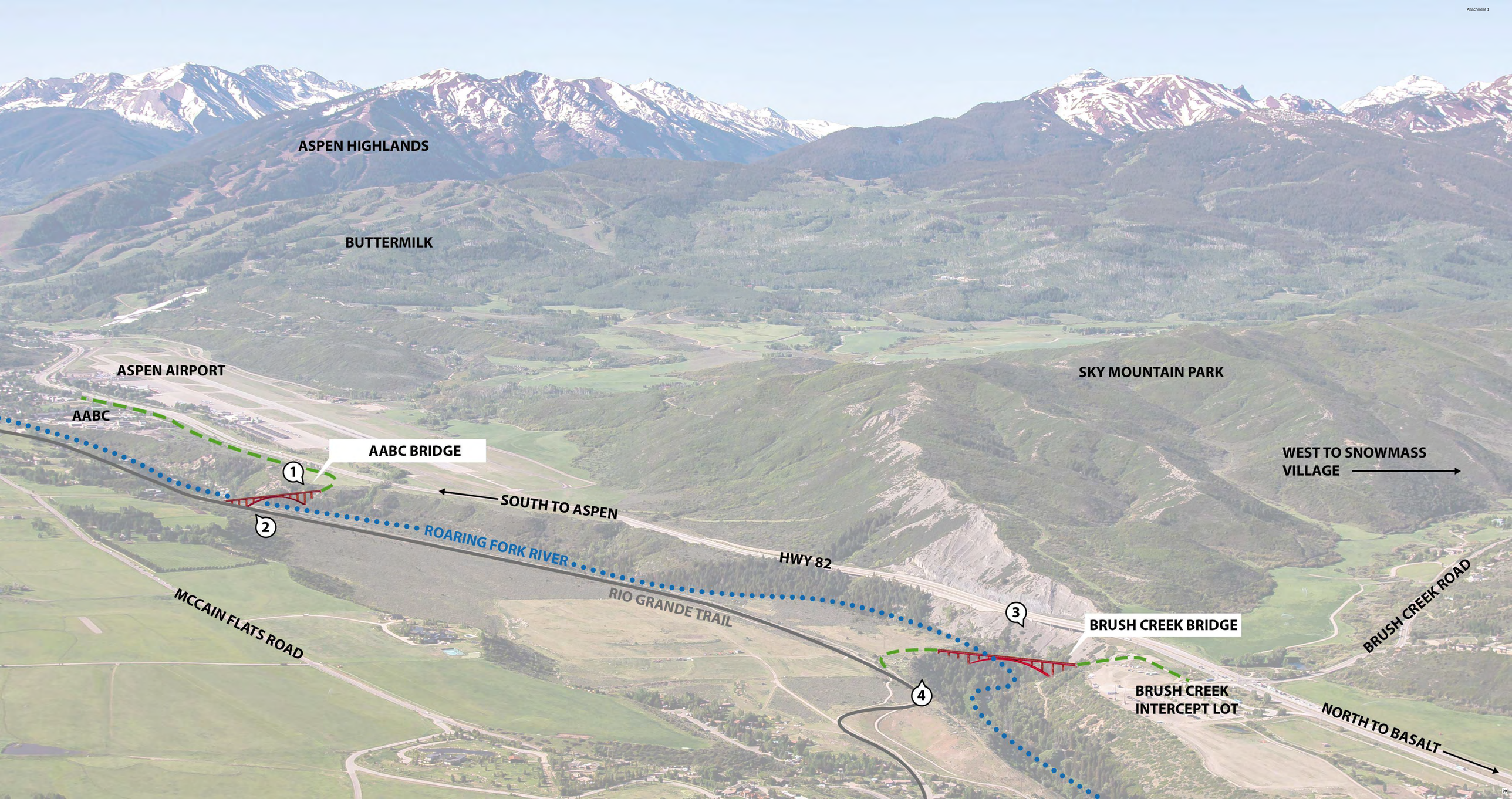
Sheet Number	8

Appendix B

01 –Aerial View

02 –Option 1 Alignment Renderings

03 –Option 2 Alignment Renderings


ASPEN HIGHLANDS
BUTTERMILK
ASPEN AIRPORT
AABC
AABC BRIDGE
1
2
SOUTH TO ASPEN
ROARING FORK RIVER
RIO GRANDE TRAIL
HWY 82
MCCAIN FLATS ROAD
SKY MOUNTAIN PARK
WEST TO SNOWMASS VILLAGE
3
BRUSH CREEK BRIDGE
BRUSH CREEK ROAD
4
BRUSH CREEK INTERCEPT LOT
NORTH TO BASALT

Aspen Airport Business Center (AABC) Bridge, Looking North (towards McClain Flats) from proposed trail on west side of the Roaring Fork River

Aspen Airport Business Center (AABC) Bridge, Looking South (towards Aspen) from existing Rio Grande Trail

Brush Creek Bridge, Looking Northeast (towards Woody Creek) from SH82

Brush Creek Bridge, Looking Southwest (towards Sky Mountain Park) from existing Rio Grande Trail

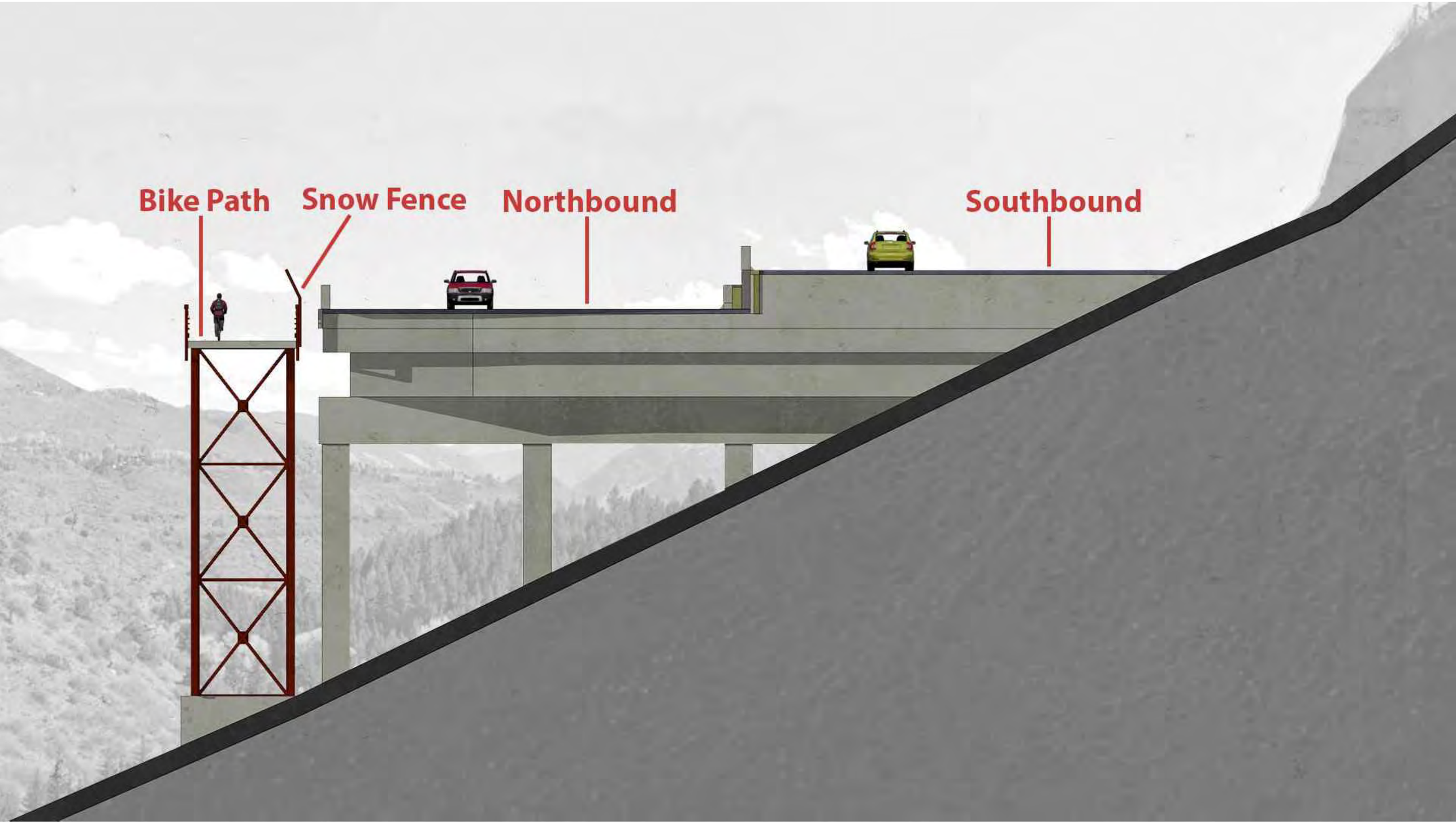
Alignment Option 2 - SH82 East Alignment, Looking Southeast (towards Aspen), near Brush Creek

Alignment Option 2 - SH82 East Alignment, Looking West (towards Sky Mountain Park), near Brush Creek

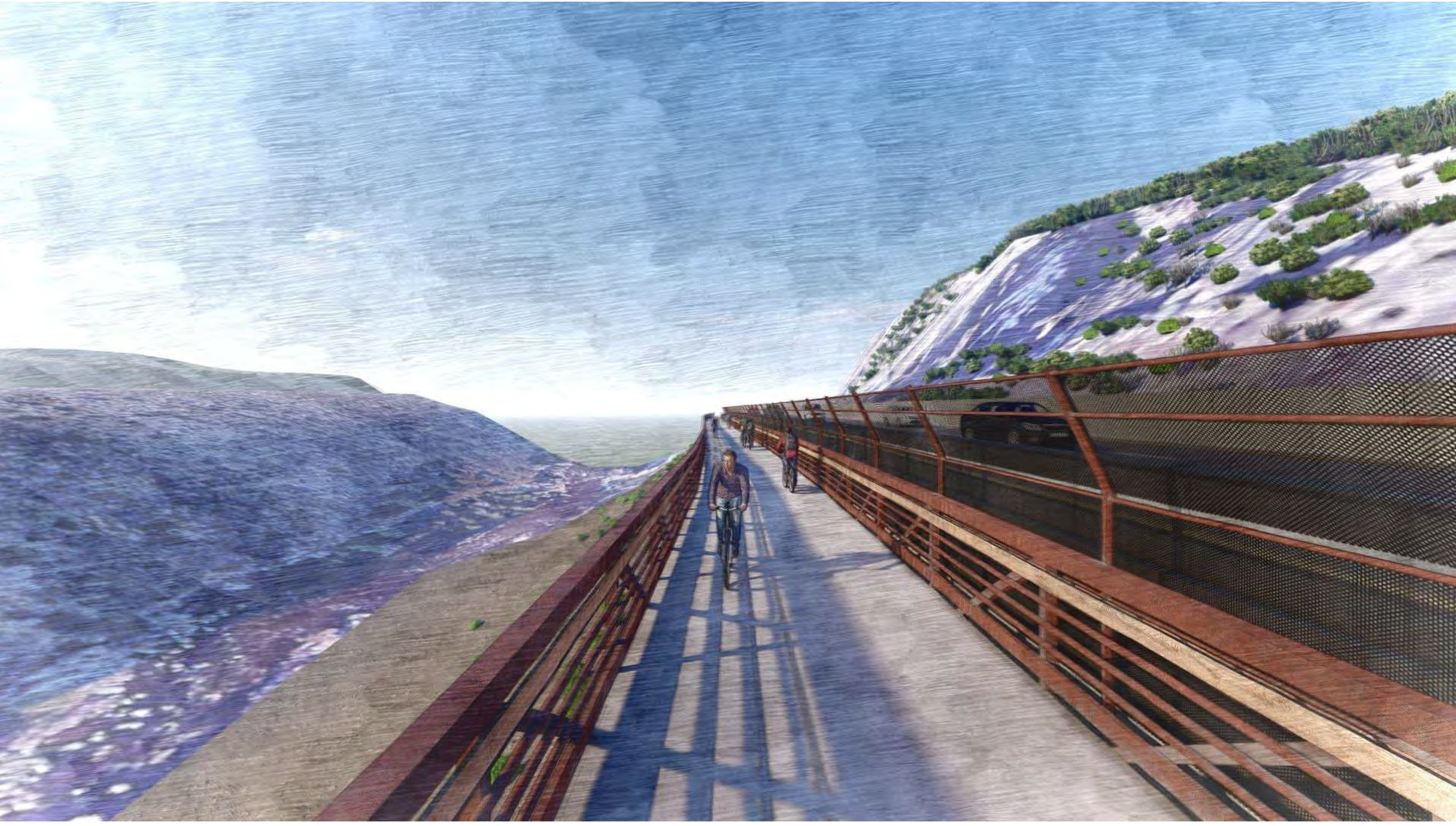
Alignment Option 2 - SH82 East Alignment, Looking Southeast (towards Aspen), near Brush Creek

Left Image: Existing Condition of SH82 and Shale Bluffs

Right Image: Proposed Trail Bridge



Alignment Option 2 - SH82 East Alignment, Looking Southeast (towards Aspen), Cross Section of Trail and SH82 at Shale Bluffs



Alignment Option 2 - SH82 East Alignment. Looking South (towards Aspen)

Alignment Option 2 - SH82 East Alignment. Aerial View. Looking West (towards Sky Mountain Park)

Appendix C

01 – Engineers Estimate of Probable Cost

Brush Creek Park and Ride to Aspen Airport Business Center Trail

Trail Unit Costs (per foot of trail/bridge and per squre foot of retaining wall)

Item	Unit	Cost	Unit Wt. (lb/ft^3)
HMA	TON	$ 155.00	146
ABC Class 6	TON	$ 40.00	136
Timber Railing	LF	$ 50.00	-
Snow Throw Fence	LF	$ 75.00	
Block Wall	SF	$ 100.00	-
Boulder Wall	SF	$ 60.00	-
Geotextile (weed barrier)	SF	$ 0.39	-

Easy Section Trail Segments

Typical Section	Asphalt (HMA) Trail				ABC Class 6						Railing		Geotextile (weed barrier)		Total Cost per foot of Trail
					Shoulder		Base Course		Combined						
	Width	Depth	Volume	Cost	Width	Depth	Width	Depth	Volume	Cost	Length	Cost	Area	Cost	
	ft	ft	ft3/ft	$/ft	ft	ft	ft	ft	ft3/ft	$/ft	ft	$/ft	SF/ft	$/ft	$/ft
1A	10	0.5	5.0	$ 56.58	2	1	10	0.5	7.0	$ 19.04	0	$ -	10	$ 3.89	$ 80
1B	10	0.5	5.0	$ 56.58	2	1	10	0.5	7.0	$ 19.04	1	$ 50.00	10	$ 3.89	$ 130

More Difficult Trail Segments

Typical Section	Uphill Wall		Downhill Wall		Railing	
	Block	Boulder	Block	Boulder	Length	Cost
	$/SF	$/SF	$/SF	$/SF	ft	$/ft
2A	$ -	$ -	$ 100	$ -	1	$ 50
2B	$ 100	$ -	$ -	$ -	0	$ -
2C	$ 100	$ -	$ 100	$ -	1	$ 50
2D	$ -	$ 60	$ 100	$ -	1	$ 50
2E	$ 100	$ -	$ 100	$ -	0	$ -
2F	$ 100	$ -	$ 100	$ -	1	$ 50

Note: Includes cost from Typical Section 1A for Trail

Most Difficult Trail Segments

Typical Section	Bridge/Structure Type	Width	Cost	Cost
		ft	$/SF	$/ft
3A	Steel Deck Arch	12	$ 700	$ 8,400
3B	Prefabricated Steel Pony Truss	12	$ 500	$ 6,000
3C	Reinforced Concrete Slab	12	$ 350	$ 4,200

Note: Structure costs include concrete deck and railing, snow throw fence is separate line item for SH82 East Alignment

Brush Creek Park and Ride to Aspen Airport Business Center Trail

Option 1 - Twin Bridges

		Station					Railing		Trail		Uphill Wall				Downhill Wall				Structure	
	Segment No.	Begin	End	Length (ft)	Difficulty	Typical Section	Cost/ft	Segment Cost	Cost/ft	Segment Cost	Area Left (SF)	Area Right (SF)	Cost/SF	Segment Cost	Area Left (SF)	Area Right (SF)	Cost/SF	Segment Cost	Cost/ft	Segment Cost
Brush Creek	1	00+00	04+36	436	Least Difficult	1 A	$ -	$ -	$ 80	$ 34,700			$ -	$ -			$ -	$ -	$ -	$ -
	2	04+36	04+57	21	More Difficult	2 C	$ 50	$ 2,080	$ 80	$ 1,654			$ -	$ -	197	197	$ 100	$ 39,400	$ -	$ -
	3	04+57	10+49	592	Most Difficult	3 A	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 8,400	$ 4,972,884
	4	10+49	10+64	15	More Difficult	2 C	$ 50	$ 1,517	$ 80	$ 1,206			$ -	$ -	112	112	$ 100	$ 22,400	$ -	$ -
	5	10+64	17+93	728	Least Difficult	1 A	$ -	$ -	$ 80	$ 57,913			$ -	$ -			$ -	$ -	$ -	$ -
Aspen ABC	6	00+00	00+47	47	Least Difficult	1 A	$ -	$ -	$ 80	$ 3,707			$ -	$ -			$ -	$ -	$ -	$ -
	7	00+46	00+66	20	More Difficult	2 A	$ 50	$ 2,044	$ 80	$ 1,625			$ -	$ -	154	154	$ 100	$ 30,800	$ -	$ -
	8	00+66	07+22	656	Most Difficult	3 A	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 8,400	$ 5,510,400
	9	07+22	07+36	14	More Difficult	2 A	$ 50	$ 1,350	$ 80	$ 1,073			$ -	$ -	125	125	$ 100	$ 25,000	$ -	$ -
	10	07+36	63+31	5,595	Least Difficult	1 A	$ -	$ -	$ 80	$ 444,824			$ -	$ -			$ -	$ -	$ -	$ -
			Total Length	8,124																

Summary of Costs*		
Itemized Construction Costs		
Railing		$ 6,991
Trail		$ 546,703
Downhill Wall		$ 117,600
Bridge		$ 10,483,284
Subtotal		$ 11,154,578
Mobilization	10%	$ 1,115,458
Contingency	30%	$ 3,681,011
2022 EOPC		$ 15,951,046
2025 Adjusted EOPC	3%	$ 17,430,139

Summary of Costs* - by Difficulty	
2025 Adjusted EOPC	
Least Difficult	$ 845,593
More Difficult	$ 203,371
Most Difficult	$ 16,381,175
Total Trail Cost	$ 17,430,139

*Construction Costs Only, Design Engineering and Construction Management not Included

Brush Creek Park and Ride to Aspen Airport Business Center Trail

Option 2 - SH 82 East Alignment

	Station					Railing		Trail		Uphill Wall				Downhill Wall				Structure	
Segment No.	Begin	End	Length (ft)	Difficulty	Typical Section	Cost/ft	Segment Cost	Cost/ft	Segment Cost	Area Left (SF)	Area Right (SF)	Cost/SF	Segment Cost	Area Left (SF)	Area Right (SF)	Cost/SF	Segment Cost	Cost/ft	Segment Cost
1	00+00	00+59	59	Least Difficult	1 A	$ -	$ -	$ 80	$ 4,653			$ -	$ -			$ -	$ -	$ -	$ -
2	00+59	00+92	33	More Difficult	2 B	$ -	$ -	$ 80	$ 2,662			$ 100	$ -			$ -	$ -	$ -	$ -
3	00+92	01+66	74	More Difficult	2 E	$ -	$ -	$ 80	$ 5,883	485	296	$ 100	$ 78,100			$ -	$ -	$ -	$ -
4	01+66	01+81	15	More Difficult	2 B	$ -	$ -	$ 80	$ 1,193			$ 100	$ -			$ -	$ -	$ -	$ -
5	01+81	09+11	730	Least Difficult	1 A	$ -	$ -	$ 80	$ 58,026			$ -	$ -			$ -	$ -	$ -	$ -
6	09+11	09+33	22	More Difficult	2 F	$ 50	$ 2,223	$ 80	$ 1,767			$ -	$ -	82	82	$ 100	$ 16,400	$ -	$ -
7	09+33	13+83	450	Most Difficult	3 B	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 6,000	$ 2,699,520
8	13+83	14+00	17	More Difficult	2 F	$ 50	$ 1,700	$ 80	$ 1,352			$ -	$ -	68	68	$ 100	$ 13,600	$ -	$ -
9	14+00	14+95	95	Least Difficult	1 A	$ -	$ -	$ 80	$ 7,553			$ -	$ -			$ -	$ -	$ -	$ -
10	14+95	15+06	11	More Difficult	2 F	$ 50	$ 1,100	$ 80	$ 875			$ -	$ -	46	46	$ 100	$ 9,200	$ -	$ -
11	15+06	25+55	1,049	Most Difficult	3 B	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 6,000	$ 6,294,000
12	25+55	25+65	10	More Difficult	2 F	$ 50	$ 1,000	$ 80	$ 795			$ -	$ -	38	38	$ 100	$ 7,600	$ -	$ -
13	25+65	25+80	15	Least Difficult	1 B	$ 50	$ 1,500	$ 80	$ 1,193			$ -	$ -			$ -	$ -	$ -	$ -
14	25+80	25+95	15	More Difficult	2 F	$ 50	$ 1,500	$ 80	$ 1,193			$ -	$ -	48	48	$ 100	$ 9,600	$ -	$ -
15	25+95	29+50	355	Most Difficult	3 B	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 6,000	$ 2,130,000
16	29+50	29+87	37	More Difficult	2 F	$ 50	$ 3,700	$ 80	$ 2,942			$ -	$ -	122	122	$ 100	$ 24,400	$ -	$ -
17	29+87	37+82	795	Least Difficult	1 A	$ -	$ -	$ 80	$ 63,206			$ -	$ -			$ -	$ -	$ -	$ -
18	37+82	38+12	30	More Difficult	2 D	$ 50	$ 1,500	$ 80	$ 2,385		17	$ 60	$ 1,020	140		$ 100	$ 14,000	$ -	$ -
19	38+12	40+50	238	Most Difficult	3 C	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 4,200	$ 999,600
20	40+50	40+71	21	More Difficult	2 F	$ 50	$ 2,100	$ 80	$ 1,670			$ -	$ -	75	75	$ 100	$ 15,000	$ -	$ -
21	40+71	43+81	310	Least Difficult	1 A	$ -	$ -	$ 80	$ 24,646			$ -	$ -			$ -	$ -	$ -	$ -
22	43+81	44+09	28	More Difficult	2 F	$ 50	$ 2,800	$ 80	$ 2,226			$ -	$ -	121	67	$ 100	$ 18,800	$ -	$ -
23	44+09	46+35	226	Most Difficult	3 C	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 4,200	$ 949,200
24	46+35	46+69	34	More Difficult	2 F	$ 50	$ 3,400	$ 80	$ 2,703			$ -	$ -	125	57	$ 100	$ 18,200	$ -	$ -
25	46+69	65+15	1,846	Least Difficult	1 A	$ -	$ -	$ 80	$ 146,764			$ -	$ -			$ -	$ -	$ -	$ -
26	65+15	65+60	45	More Difficult	2 F	$ 50	$ 4,500	$ 80	$ 3,578			$ -	$ -	262	176	$ 100	$ 43,800	$ -	$ -
27	65+60	66+20	60	Most Difficult	3 B	$ -	$ -	$ -	$ -			$ -	$ -			$ -	$ -	$ 6,000	$ 360,360
28	66+20	66+45	25	More Difficult	2 F	$ 50	$ 2,494	$ 80	$ 1,983			$ -	$ -	100	77	$ 100	$ 17,700	$ -	$ -
29	66+45	120+44	5,399	Least Difficult	1 A	$ -	$ -	$ 80	$ 429,238			$ -	$ -			$ -	$ -	$ -	$ -
	Total Length		12,044																

Brush Creek Park and Ride to Aspen Airport Business Center Trail

Option 2 - SH 82 East Alignment

Summary of Costs*		
Itemized Construction Costs		
Railing		$ 29,517
Trail		$ 768,482
Uphill Wall		$ 79,120
Downhill Wall		$ 208,300
Bridge		$ 13,432,680
Snow Fence		$ 178,350
Subtotal		$ 14,696,449
Mobilization	10%	$ 1,469,645
Contingency	30%	$ 4,849,828
2022 EOPC		$ 21,015,922
2025 Adjusted EOPC	3%	$ 22,964,666

Summary of Costs* - by Difficulty	
2025 Adjusted EOPC	
Least Difficult	$ 1,151,288
More Difficult	$ 544,788
Most Difficult	$ 21,268,590
Total Trail Cost	$ 22,964,666

*Construction Costs Only, Design Engineering and Construction Management not Included

Traffic Control Costs not included. Assuming the right lane of SH82 northbound used to construct bridge structures, an additional $600,000 is estimated for two construction seasons.

Appendix D

01 – Natural Resources Assessment

ERO

Consultants in Natural Resources and the Environment

Natural Resources Assessment
Brush Creek to AABC Trail Study
Pitkin County, Colorado

Prepared for—

SGM, Inc.
118 West Sixth Street, Suite 200
Glenwood Springs, Colorado 81601

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188
ERO Project #21-230

January 2022

Contents

Tables

Figures

Appendices

Executive Summary

SGM, Inc., on behalf of Pitkin County, retained ERO Resources Corporation (ERO) to provide a natural resources assessment for the proposed Brush Creek to Aspen Airport Business Center (AABC) Trail Study in Pitkin County, Colorado (project area). ERO assessed the project area for potential wetlands and waters of the U.S., threatened and endangered species, and general wildlife use (2021 site visit). Below is a summary of the resources found at the project area and recommendations or future actions necessary based on the current site conditions and federal, state, and local regulations.

The natural resources and associated regulations described in this report are valid as of the date of this report and may be relied upon for the specific use for which it was prepared by ERO under contract to SGM, Inc. Because of their dynamic natures, site conditions and regulations should be reconfirmed by a qualified consultant before relying on this report for a use other than that for which ERO was contracted.

Noxious Weeds – No List A species were found in the project area during the 2021 site visit. Three Colorado Department of Agriculture and Pitkin County noxious weed List B species and two List C species were documented.

Wetlands and Other Waters of the U.S. – ERO recommends conducting a formal wetland delineation once a final trail alignment has been determined. If any work is planned within the Roaring Fork River, Owl Creek, or their adjacent wetlands a Clean Water Act (CWA) Section 404 permit would be required for the placement of dredged or fill material below the ordinary high water mark (OHWM) or in wetlands. If any work is planned within the stormwater pond south of the Brush Creek and Highway 82 Park and Ride, ERO recommends requesting an approved jurisdictional determination to determine if the wetlands in the stormwater pond are jurisdictional.

Threatened and Endangered Species – The project area contains potential habitat for Monarch butterfly and Ute Ladies' Tresses Orchid (ULTO). There is potential for milkweed plants (*Asclepiadoideae*) to occur within the wetlands in the project area. There is potential for ULTO to occur within the wetlands along the Roaring Fork River and Owl Creek in the project area due to presence of commonly associated species, alluvial soils, and due to the presence of known ULTO populations downstream near Carbondale.

ERO recommends avoiding impacts to wetland areas in order to avoid impacts to potential Monarch butterfly or ULTO habitat. If impacts to wetland areas cannot be avoided consultation with the U.S. Fish and Wildlife Service (Service) may be required.

Migratory Birds – No bird nests were observed in the project area during the 2021 site visit. However, suitable nesting habitat is present within the project area for a variety of species. Additionally, the riparian community along the Roaring Fork River and Owl Creek provides suitable nesting habitat for raptor species.

The Denver Field Office of the U.S. Fish and Wildlife Service (2009) and Colorado Department of Transportation (CDOT)(2011) have identified the primary nesting season for migratory birds in Colorado as occurring between April 1 and mid to late August. However, some birds, such as the red-tailed hawk and great horned owl, can nest as early as February or March. Because of variability in the breeding seasons of various bird species, ***ERO recommends a nest survey be conducted within one week prior to***

construction to determine if any active nests are present in the project area so they can be avoided. If active nests are found, any work that would destroy the nests could not be conducted until the birds have vacated the nests.

Other Wildlife – The project area occurs in the winter range for the bald eagle, in the osprey foraging area, in the overall range of American elk, mule deer, and mountain lion, and in the human conflict area and fall concentration area of black bear. Additionally, the Roaring Fork River in the project area is designated as a wild trout water between Holum Lake and the Woody Creek bridge due to the presence of a wild trout population. The proposed trail alignments that immediately parallel Highway 82 or that would span the Roaring Fork River and utilize the Rio Grande Trail to the east would minimally impact these species. Trail alignments closer to the Roaring Fork River have more potential to disturb these species.

Summary of Potential Impacts

Three options are being considered for this trail study – Option 1: Bridges over the Roaring Fork River, Option 2: Along Highway 82, and Option 3: Along Roaring Fork River.

Option 1 would have the least potential resource impacts due to minimal ground disturbance and its location away from the Roaring Fork River and Owl Creek riparian corridors, and would have no impact to wetland and Threatened and Endangered Species. Option 2 would have moderate impacts due to ground disturbance and impacts to the Owl Creek riparian corridor, and has potential impacts to wetlands and Threatened and Endangered Species. Option 3 would have the greatest impact due to its location along the Roaring Fork River riparian corridor, and has potential impacts to wetlands and Threatened and Endangered Species.

Natural Resources Assessment
Brush Creek to AABC Trail Study
Pitkin County, Colorado

January 2022

Introduction

SGM, Inc, on behalf of Pitkin County, retained ERO Resources Corporation (ERO) to provide a natural resources assessment for the proposed Brush Creek to AABC Trail Study in Pitkin County, Colorado (project area; Figure 1). On September 8, 2021, Hidde Snieder with ERO assessed the project area for natural resources (2021 site visit). During this assessment, activities included a review of potential wetlands and other waters of the U.S., identification of potential federally listed threatened and endangered species habitat, and identification of other natural resources. This report provides information on existing site conditions and resources, as well as current regulatory guidelines related to those resources. ERO assumes the landowner is responsible for obtaining all federal, state, and local permits for construction of the project.

The natural resources and associated regulations described in this report are valid as of the date of this report and may be relied upon for the specific use for which it was prepared by ERO under contract to SGM, Inc. Because of their dynamic natures, site conditions and regulations should be reconfirmed by a qualified consultant before relying on this report for a use other than that for which ERO was contracted.

Project Area Description

The project area occurs between the Brush Creek and Highway 82 Park and Ride and the AABC along both sides of the Roaring Fork River north of Aspen. The project area is in Sections 21, 27, 28, and 34, Township 9 South, Range 85 West of the 6th Principal Meridian in Pitkin County, Colorado (Figure 1). The UTM coordinates for the approximate center of the project area are NAD 338518mE, 4344412mN, Zone 13 North. The longitude/latitude of the project area is 106.870982°W/39.234001°N. The elevation of the project area is approximately 7,500 feet above sea level. Photo points of the project area are shown on Figures 2 through 3 and the photo log is in Appendix A.

The project area is generally bounded by Highway 82 to the west, the Brush Creek and Highway 82 Park and Ride to the north, the Rio Grande Trail to the east, and the AABC to the south (Figure 1). The Project area consists of two potential trail alignments on the west side of the Roaring Fork River and three potential trail alignments on the east side of the Roaring Fork River which would utilize the existing Rio Grande Trail and would require crossing the Roaring Fork River. The Roaring Fork River occurs approximately 150 feet downhill in the valley bottom below Highway 82 to the west and the Rio Grande Trail to the east. Within the project area the Roaring Fork River generally flows from the southeast to northwest. Owl Creek occurs to the east of the Roaring Fork River and flows into the

project area from the southwest near the Aspen-Pitkin County Airport. Owl Creek is an intermittent drainage and is a tributary to the Roaring Fork River.

Vegetation Communities

During the 2021 site visits, vegetation community classifications were established based primarily on the dominant species occurring in the project area. The proportion of native and nonnative species, the degree of noxious weed and aggressive species infestations, the presence of riparian vegetation, and other parameters that influence vegetation were also considered. ERO identified eight communities in the project area – conifer forest, disturbed area, montane shrublands, riparian forest, sagebrush shrublands, shale hillslope, upland herbaceous, and wetland (Figure 2 to 3). Table 1 contains a list of the vegetation communities in the project area.

Table 1. Vegetation communities in the project area.

Vegetation Community	Abbreviation
Conifer forest	CF
Disturbed area	D
Montane shrubland	MS
Riparian forest	RF
Sagebrush shrubland	SBS
Shale hillslope	SH
Upland herbaceous	UH
Wetland	W

Conifer forest

The conifer forest community occurs in the project area along both sides of the Roaring Fork River on northwest to northeast facing hillslopes. The conifer forest community is dominated by an overstory of Douglas fir (*Pseudotsuga menziesii*) with a deeply shaded canopy (Photos 1 and 2). Understory cover is sparse within the conifer forest community and prevalent species include Utah service berry (*Amelanchier utahensis*), Gambel oak (*Quercus gambelii*), common chokecherry (*Prunus virginiana*), western snowberry (*Symphoricarpos occidentalis*), smooth brome (*Bromus inermis*), slender wheatgrass (*Elymus trachycaulus*), and Virginia strawberry (*Fragaria virginiana*).

Disturbed area

The disturbed area community occurs in the project area immediately to the south of the Brush Creek and Highway 82 Park and Ride. This area consists of a mixture of natural gas facilities, a temporary homeless encampment, and gravel access roads. Upland vegetation is sparse and consists of smooth brome, and western wheatgrass (*Pascopyrum smithii*), with scattered rubber rabbitbrush (*Ericameria nauseosa*), and mountain sagebrush (*Artemisia tridentata*). Due to the high level of disturbance this community provides little ecological function.

Montane shrubland

The montane shrubland is the most prevalent vegetation community in the project area and occurs on the majority of the valley side slopes above the Roaring Fork River. The montane shrubland community is dominated by shrub species including Gambel oak, Utah service berry, mountain mahogany (*Cercocarpus montanus*), woods rose (*Rosa woodsii*), antelope bitterbursh (*Purshia tridentata*), wax currant (*Ribes inerme*), and common juniper (*Juniperus communis*) (Photos 3 and 4). Understory vegetation in the montane shrubland community is dominated by smooth brome, western wheatgrass, slender wheatgrass, ricegrass (*Achnatherum hymenoides*), hairy false goldenaster (*Heterotheca villosa*), and mountain muhly (*Muhlenbergia montana*).

Riparian Forest

The riparian forest occurs in the project area in a narrow corridor along the Roaring Fork River and along Owl Creek. The riparian community is dominated by an overstory of narrowleaf cottonwood (*Populus angustifolia*) with a shrub understory of thinleaf alder (*Alnus incana*), river birch (*Betula occidentalis*), sandbar willow (*Salix exigua*), western snowberry, and redosier dogwood (*Cornus sericea*), and common chokecherry (Photos 5 and 6). Herbaceous species within the riparian forest community consist of a mixture of mesic and upland species including smooth brome, redtop (*Agrostis gigantea*), meadow foxtail (*Alopecurus pratensis*), timothy (*Phleum pratense*), field horsetail (*Equisetum arvense*), and slender wheatgrass.

Sagebrush shrubland

The sagebrush shrublands occur in the project area on terraces above the valley side slopes. Vegetation in the sagebrush shrublands is dominated by mountain sagebrush, rubber rabbitbrush, common juniper, fringed sage (*Artemisia frigida*), crested wheatgrass (*Agropyron cristatum*) smooth brome, ricegrass, and mountain muhly (Photo 7).

Shale hillslope

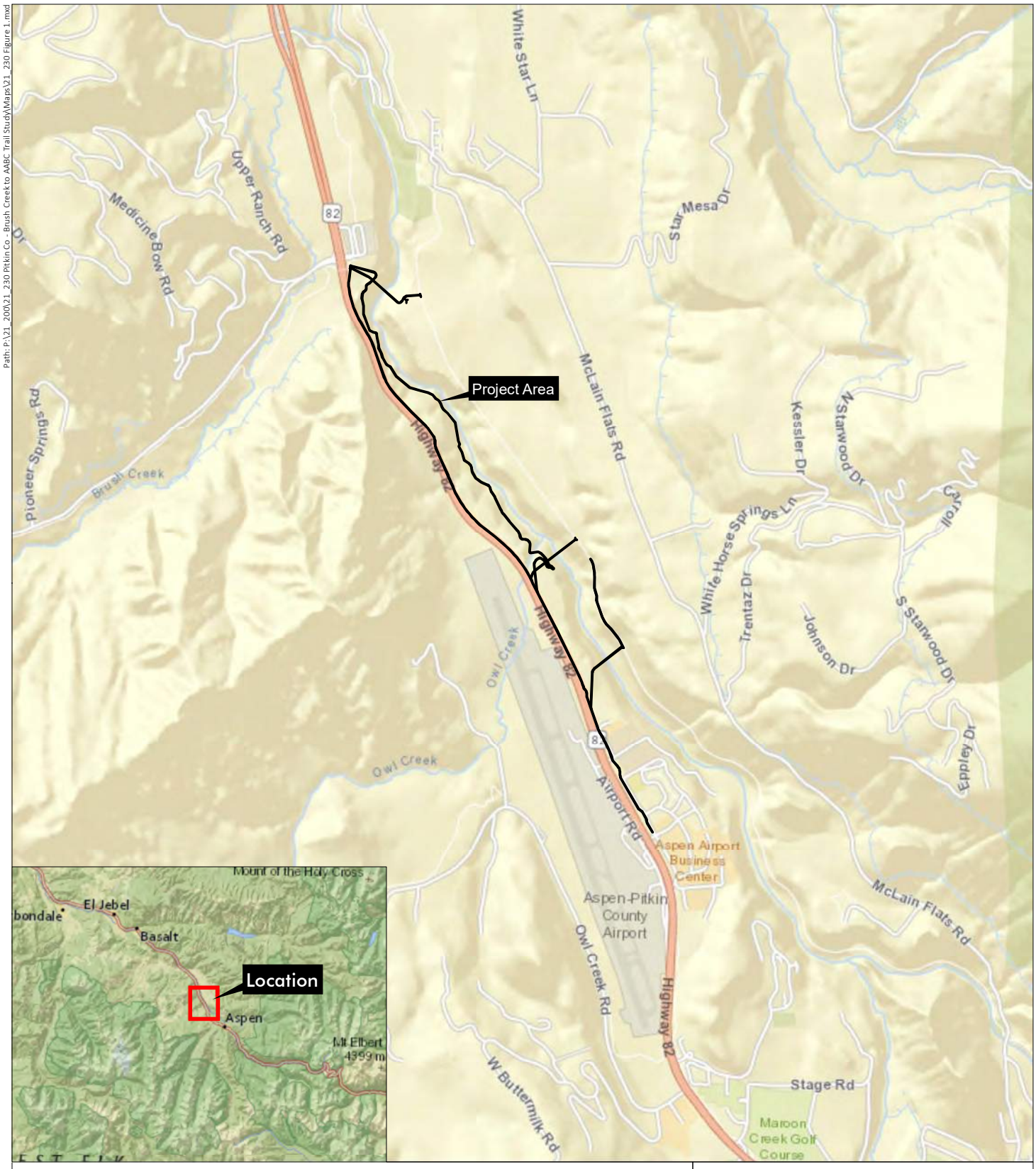
The shale hillslope community primarily occurs along Highway 82 along the western border of the project area. Due to steep topography and unstable soils, limited vegetation is present within this community (Photo 8). Where vegetation is present it consists of scattered patches of rubber rabbitbrush, mountain mahogany, antelope bitterbrush, ricegrass, smooth brome, and rocky mountain penstemon (*Penstemon strictus*).

Upland Herbaceous

The upland herbaceous community occurs in the project area along the Highway 82 and the Rio Grande Trail. The upland herbaceous community is dominated by a mixture of native and non-native pasture grasses and forbs including smooth brome, western wheatgrass, slender wheatgrass, prickly lettuce (*Lactuca serriola*), alfalfa (M*edicago sativa*), sweetclover (*Melilotus officinalis*), curly top gumweed (*Grindelia squarrosa*), fringed sage and crested wheatgrass (Photo 9).

Wetland

The wetland community occurs in the project area in a stormwater pond south of the Brush Creek and Highway 82 Park and Ride and in narrow fringes along the Roaring Fork River and Owl Creek. Wetlands in the stormwater pond are dominated by narrowleaf cattail (*Typha latifolia*), common threesquare (*Schoenoplectus pungens*), and Baltic rush (*Juncus arcticus*). Wetlands along the Roaring Fork River and Owl Creek are dominated by sandbar willow, narrowleaf cottonwood, redtop, meadow foxtail, Baltic rush, field horsetail, northwest territory sedge (*Carex utriculata*), common mint (*Mentha arvensis*), Canada golden rod (*Solidago canadensis*), and sword leaf rush (*Juncus ensifolius*) (Photo 10).



Brush Creek to AABC Trail Study

Sections 21, 27, 28, and 34, T9S, R85W; 6th PM
UTM NAD 83: Zone 13N; 338518mE, 4344412mN
Longitude 106.870982°W, Latitude 39.234001°N
USGS Highland Peak and Aspen, CO Quadrangles
Pitkin County, Colorado

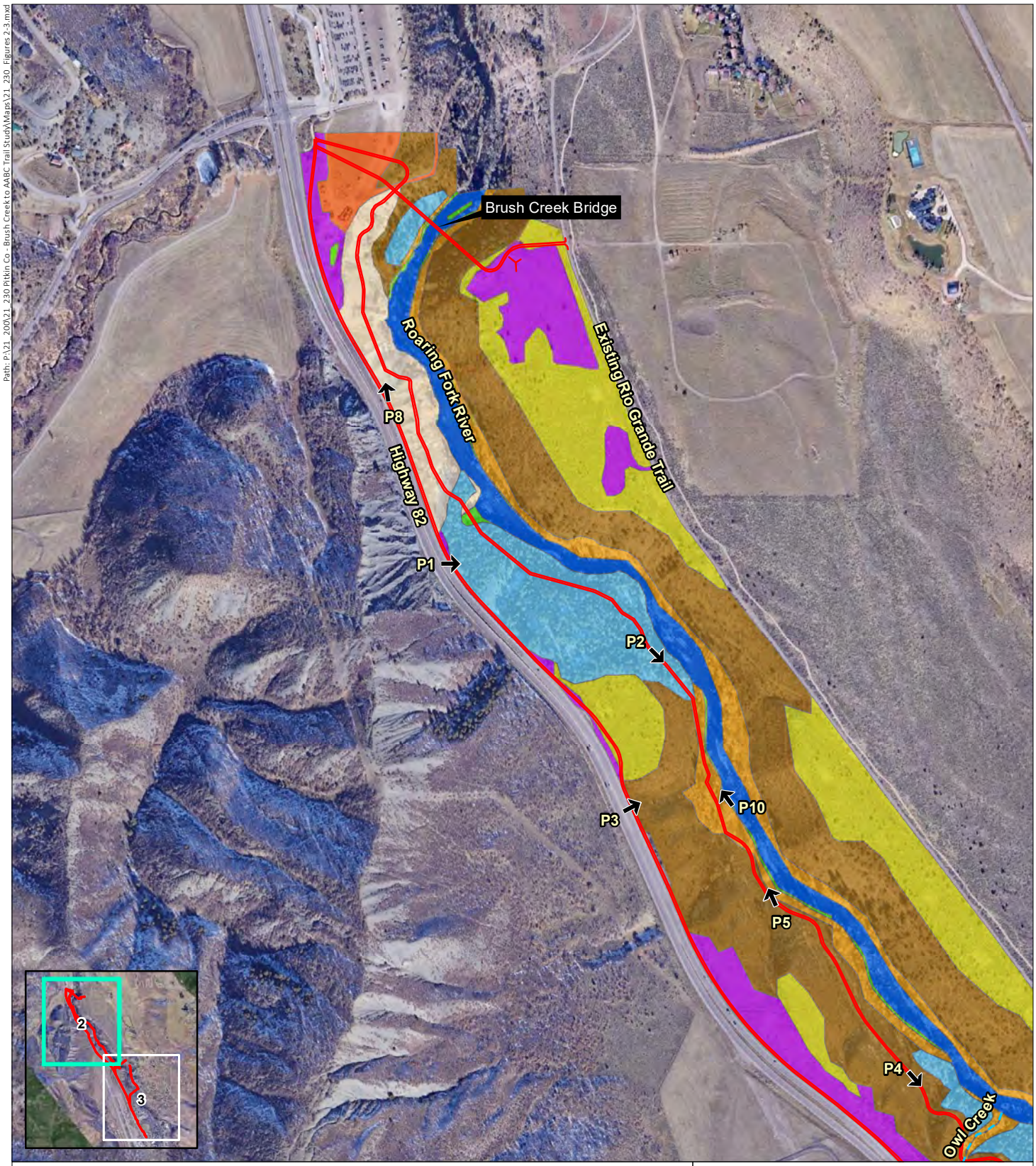
0 1,250 2,500 Feet

N

Figure 1
Vicinity Map

Prepared for: SGM
File: 21_230 Figure 1.mxd (GS)
January 18, 2022

ERO Resources Corp.



Brush Creek to AABC Trail Study

- Photo Point
- Potential Trail Alignment
- Conifer Forest
- Disturbed
- Montane Shrubland
- Riparian Forest
- Sagebrush Shrubland
- Shale Hillslope
- Upland Herbaceous
- Water
- Wetland

0 350 700 Feet

N

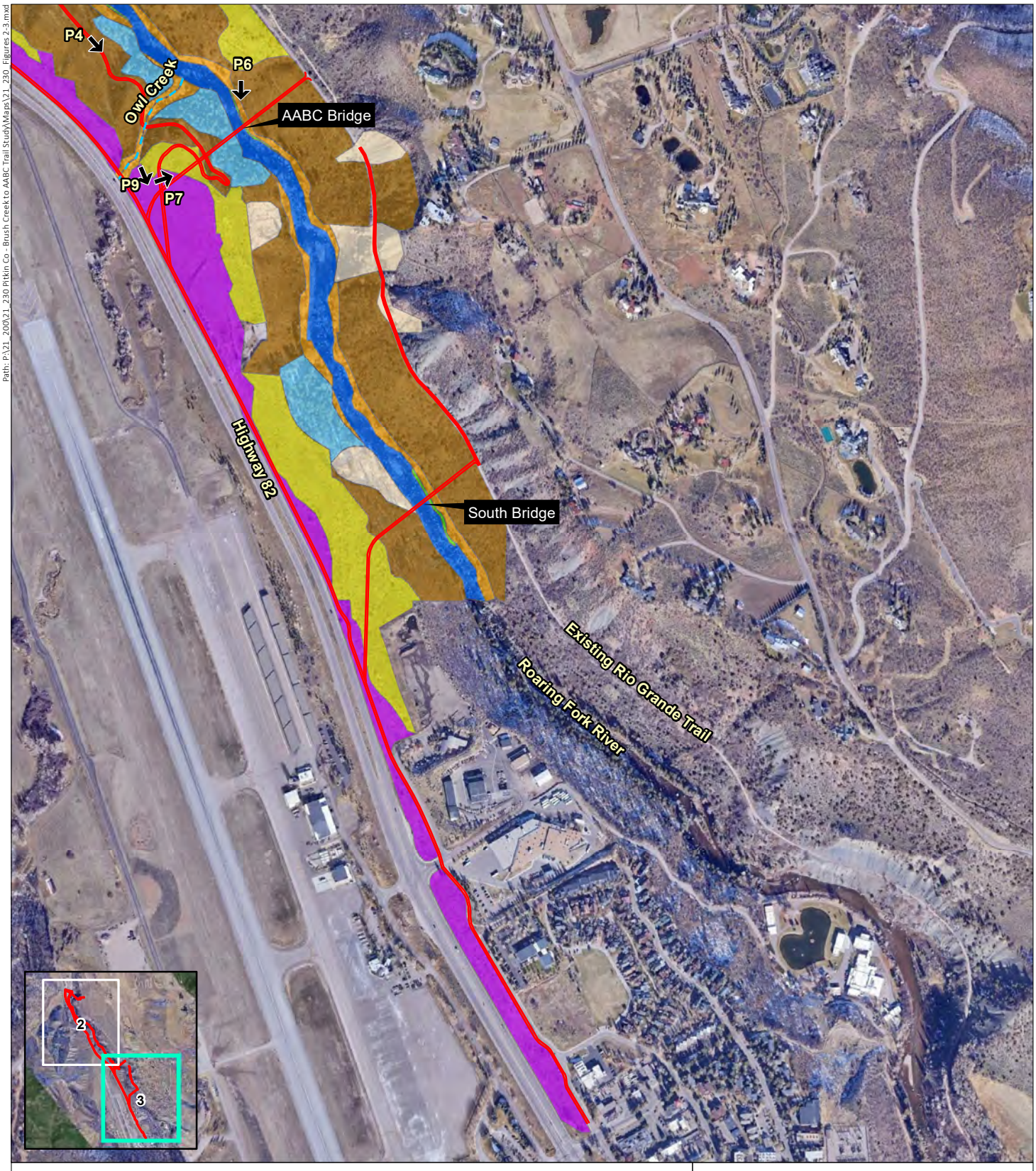
Figure 2
Vegetation

Image Source: Google Earth©, September 2020

Prepared for: SGM
File: 21_230_Figures 2-3.mxd (GS)
February 1, 2022

ERO Resources Corp.

Path: P:\21_200\21_230 Pitkin Co - Brush Creek to AABC Trail Study\Maps\21_230_Figures 2-3.mxd



Brush Creek to AABC Trail Study

- Photo Point
- Potential Trail Alignment
- Conifer Forest
- Disturbed
- Montane Shrubland
- Riparian Forest
- Sagebrush Shrubland
- Shale Hillslope
- Upland Herbaceous
- Water
- Wetland

0 350 700 Feet

N

Figure 3
Vegetation

Image Source: Google Earth©, September 2020

Prepared for: SGM
File: 21_230_Figures 2-3.mxd (GS)
February 1, 2022

ERO Resources Corp.

Noxious Weeds

ERO surveyed the project area for all noxious weeds on the Colorado Department of Agriculture (CDOA) A, B, and C lists (CDOA 2021) and the and the Pitkin County Noxious Weed List (Pitkin County Noxious Weed List 2021). No List A species were found in the project area during the 2021 site visit. Three CDOA noxious weed List B species and two List C species were documented.

List B Species

Three list B species – Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and diffuse knapweed (*Centaurea diffusa*) – were found adjacent to Highway 82 in the project area.

List C Species

Two list C species – cheatgrass (*Bromus tectorum*) and field bindweed (*Convolvulus arvensis*) – were found scattered throughout the project area during the 2021 site visit.

Wetlands and Waters of the U.S.

Background

The Clean Water Act (CWA) protects the chemical, physical, and biological quality of waters of the U.S. (WOTUS). The U.S Army Corps of Engineers' (Corps) Regulatory Program administers and enforces Section 404 of the CWA. Under Section 404, a Corps permit is required for the discharge of dredged or fill material into wetlands and other WOTUS (streams, ponds, and other waterbodies). On June 22, 2020, the Environmental Protection Agency (EPA) and Corps' Navigable Waters Protection Rule (NWPR) to define "waters of the United States" became effective in 49 states and in all U.S. territories. A preliminary injunction was granted for Colorado. On March 2, 2021, the United States Court of Appeals for the 10th Circuit vacated the stay on the NWPR in Colorado, thereby ruling the NWPR effective in Colorado. After April 23, 2021, jurisdiction of wetlands and other potential WOTUS in Colorado was to be determined using the NWPR. However, on August 30, 2021 the Arizona District Court remanded and vacated the NWPR. In response, the EPA and Corps have halted implementation of the NWPR and, until further notice, are interpreting WOTUS consistent with the pre-2015 regulatory regime (also referred to as the "Rapanos" guidelines). As such, the identification of WOTUS in this report follows the Rapanos guidelines. Potential rulings and guidance in the future could change the results of this report regarding the jurisdictional status of waters and wetlands in the project area. While ERO may provide its opinion on the likely jurisdictional status of wetlands and waters, the Corps will make the final determination of jurisdiction based on the current rulings.

Under the Rapanos guidelines, the Corps considers traditionally navigable waters (TNWs), wetlands adjacent to a TNW, and tributaries to TNWs that are relatively permanent waters (RPWs) and their abutting wetlands jurisdictional waters. Other wetlands and waters that are not TNWs or RPWs will require a significant nexus evaluation to determine their jurisdiction. A significant nexus evaluation assesses the flow characteristics and functions of a tributary and its adjacent wetlands to determine if they significantly affect the chemical, physical, or biological integrity of downstream TNWs.

Site Conditions and Regulations

During the 2021 site visit, ERO surveyed the project area for wetlands, streambeds, and open waters; however, a jurisdictional wetland delineation following Corps guidelines was not conducted during this assessment. Prior to the 2021 site visit, ERO reviewed U.S. Geological Survey (USGS) quadrangle topographic maps and aerial photography to identify mapped streams and areas of open water that could indicate wetlands or waters of the U.S. ERO also reviewed the proximity and potential surface water connection of wetlands to known jurisdictional waters of the U.S. using aerial photo interpretation, landowner information, and information from the 2021 site visit.

The Roaring Fork River and Owl Creek occur within the project area. The Roaring Fork River generally flows from the southeast to northwest, while Owl Creek occurs to the east of the Roaring Fork River and flows into the project area from the southwest near the Aspen-Pitkin County Airport. Owl Creek is an intermittent drainage and is a tributary to the Roaring Fork River. The Roaring Fork River is a tributary to the Colorado River, a TNW. Wetlands occur in a stormwater pond south of the Brush Creek and Highway 82 Park and Ride and in narrow fringes along the Roaring Fork River and Owl Creek. The wetlands in the stormwater pond are likely non-jurisdictional since they appear to be excavated in the uplands and do not appear to have direct surface connection to any potential waters of the U.S. The Roaring Fork River, Owl Creek, and adjacent wetlands to both drainages would be considered jurisdictional by the Corps due to their apparent surface connection to a TNW.

Recommendations

ERO recommends conducting a formal wetland delineation once a final trail alignment has been determined. If any work is planned within the Roaring Fork River, Owl Creek, or their adjacent wetlands a Section 404 permit would be required for the placement of dredged or fill material below the ordinary high water mark (OHWM) or wetlands. If any work is planned within the stormwater pond south of the Brush Creek and Highway 82 Park and Ride, ERO recommends requesting an approved jurisdictional determination to determine if the wetlands in the stormwater pond are jurisdictional.

Threatened, Endangered, and Candidate Species

ERO assessed the project area for potential habitat for threatened, endangered, and candidate species under the Endangered Species Act (ESA). Federally listed threatened and endangered species are protected under the ESA of 1973, as amended (16 United States Code 1531 et seq.). Significant adverse effects on a federally listed species or its habitat require consultation with the Service under Section 7 or 10 of the ESA. The Service lists several threatened and endangered species with potential habitat in Pitkin County, or that would be potentially affected by projects in Pitkin County (Table 2).

Table 2. Federally listed threatened, endangered, and candidate species potentially found in Pitkin County or potentially affected by projects in Pitkin County.

Common Name	Scientific Name	Status*	Habitat	Habitat Present
Mammals				
Canada lynx	*Lynx canadensis*	T	Climax boreal forest with a dense understory of thickets and windfalls	No
Birds				
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Yellow-billed cuckoo	*Coccyzus americanus*	T	Wooded habitat with dense cover and nearby water	No
Fish				
Bonytail chub	*Gila elegans*	E	Backwaters with rocky or muddy bottoms and flowing pools	No
Colorado pikeminnow	*Ptychocheilus Lucius*	E	Warm rivers that have large snowmelt runoff and lower, relatively stable base flows	No
Humpback chub	*Gila cypha*	E	Pools with substrates of silt, sand, boulder, or bedrock	No
Razorback sucker	*Xyrauchen texanus*	E	Large river species in areas with strong current and backwaters	No
Monarch butterfly	*D*anaus plexippus plexippus	C	Dependent on milkweeds (*Asclepiadoideae*) as host plants and forage on blooming flowers; a summer resident.	Potential
Uncompahgre fritillary butterfly	*Boloria acrocnema*	E	Cool, wet areas with large patches of snow willow above 12,000 feet in elevation	No
Plants				
Ute ladies'-tresses orchid (UTLO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	Yes

*T = Federally Threatened Species; E = Federally Endangered Species; Candidate Species
Source: Service 2021.

Site Conditions and Recommendations

The proposed project would not directly affect the Canada lynx, Mexican spotted owl, yellow-billed cuckoo, Monarch butterfly, or Uncompahgre fritillary butterfly because of the lack of habitat in the project area. The proposed project is not anticipated to result in depletions to the Roaring Fork River, a tributary of the Upper Colorado River Basin; therefore, the Colorado River fish (bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker) would not be affected by the proposed project.

There is potential for milkweed to occur within the wetlands in the project area. There is potential for ULTO to occur within the wetlands along the Roaring Fork River and Owl Creek in the project area due to presence of commonly associated species (Service 1992), alluvial soils, and due to the presence of known ULTO populations downstream near Carbondale.

ERO recommends avoiding impacts to wetland areas in order to avoid impacts to potential Monarch butterfly or ULTO habitat. If impacts to wetland areas can't be avoided consultation with the Service may be required.

Other Species of Concern

Raptors and Migratory Birds

Migratory birds, as well as their eggs and nests, are protected under the Migratory Bird Treaty Act (MBTA). The MBTA does not contain any prohibition that applies to the destruction of a bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. While destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs is illegal and fully prosecutable under the MBTA (Migratory Bird Permit Memorandum, Service (2003)). The regulatory definition of a take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

Under the MBTA, the Service may issue nest depredation permits, which allow a permittee to remove an active nest. The Service, however, issues few permits and only under specific circumstances, usually related to human health and safety. Obtaining a nest depredation permit is unlikely and involves a process that takes, at a minimum, 8 to 12 weeks. The best way to avoid a violation of the MBTA is to remove vegetation outside of the active breeding season, which typically falls from April 1 through August 31, depending on the species. Public awareness of the MBTA has grown in recent years, and most MBTA enforcement actions are the result of a concerned member of the community reporting a violation.

Potential Habitat and Effects

ERO surveyed the project area for nests during the 2021 site visit and did not find any nests. However, ground-nesting bird nests and nests in dense stands of shrubs are difficult to detect and may be present in the uplands and shrublands in the project area. Additionally, the riparian habitat along the Roaring Fork River and Brush Creek provides suitable raptor nesting habitat. The breeding season for most birds in Colorado is March through August, with the exception of a few species that begin breeding in February, such as great-horned owls.

Recommendations

To avoid destruction of potential migratory bird nests, vegetation removal should be conducted outside of the April 1 through August 31 breeding season. Both the Denver Field Office of the Service (2009) and the Colorado Department of Transportation (2011) have identified the primary nesting season for migratory birds in Colorado as occurring from April 1 through August 31. However, a few species such as bald eagles, great horned owls, and red-tailed hawks can nest as early as December (eagles) or late February (owls and red-tailed hawks). Because of variability in the breeding seasons, ERO recommends that a nest survey be conducted within one week prior to construction to determine if any other active nests are present in the project area so that they can be avoided. Additional nest surveys during the nesting season may also be warranted to identify active nesting species that may present additional development timing restrictions (e.g., eagles or red-tailed hawks).

If active nests are identified in or near the project area, activities that would directly affect the nests should be restricted. Habitat-disturbing activities (e.g., tree removal, grading, scraping, and grubbing) should be conducted during the nonbreeding season to avoid disturbing active nests, or to avoid a "take" of the migratory bird nests in the project area. Nests can be removed during the nonbreeding season to preclude future nesting and avoid violations of the MBTA. There is no process for removing nests during the nonbreeding season; however, nests may not be collected under MBTA regulations. If the construction schedule does not allow vegetation removal outside of the breeding season, a nest survey should be conducted immediately prior to vegetation removal to determine if the nests are active and by which species. If active nests are found, any work that would destroy the nests or cause the birds to abandon young in the nest could not be conducted until the birds have vacated the nests.

State-Listed Threatened and Endangered Species and Other Sensitive Wildlife

Colorado Parks and Wildlife (CPW) has mapped six wildlife species that are active in the project area as shown in Table 3. Only one species, the bald eagle, is listed in the State Special Concern category (CPW 2021a). The project area occurs in bald eagle winter range.

The other mapped wildlife species are tracked by CPW because of their economic importance, potential for human conflict, or other reasons.

Table 3. Wildlife species activity within the project area (CPW 2021).

Common Name	Scientific Name	State Status*	CPW Mapped Activities in Project Area
Bald eagle	*Haliaeetus leucocephalus*	SC	Within winter range
American elk	*Cervus canadensis*	None	Within overall range
Black bear	*Ursus americanus*	None	Within overall range, human conflict area, and fall concentration area
Mountain lion	*Puma concolor*	None	Within overall range
Mule deer	*Odocoileus hemionus*	None	Within overall range
Osprey	*Pandion haliaetus*	None	Within foraging area

*Status Codes: SC =State Special Concern (not a statutory category).

American Elk and Mule Deer – The project area occurs in the American elk and mule deer overall range. The project area does not occur in any other designated ranges for both American elk and mule deer. The proposed trail alignments that immediately parallel Highway 82 or that would span the Roaring Fork River and utilize the Rio Grande Trail to the east would minimally impact these species. Trail alignments close to the Roaring Fork River have more potential to disturb these species although impacts are anticipated to be minor due to existing recreational use along the Roaring Fork River.

Black Bear and Mountain Lion – The project area occurs in the mountain lion overall range. Additionally, the entire project area occurs in the human conflict area and fall concentration area for black bear. Black bear foraging habitat, such as large stands of chokecherry (*Prunus virginiana)* and other fruit-bearing shrubs, occur in the montane shrublands, riparian forest, and conifer forest communities in the project area. Similar to the American elk and mule deer, the proposed trail

alignments that immediately parallel Highway 82 or that would span the Roaring Fork River and utilize the Rio Grande Trail to the east would minimally impact these species. Trail alignments close to the Roaring Fork River have more potential to disturb these species although impacts are anticipated to be minor due to existing recreational use along the Roaring Fork River.

Osprey – The project area occurs in the foraging area of osprey. The Roaring Fork River provides a food source for osprey and the riparian trees along the Roaring Fork River provide hunting perches for osprey. ERO recommend avoiding impacts to riparian vegetation to extent practicable to minizine disturbance to the osprey foraging area.

Other Wildlife

Carnivores such as coyote (*Canis* sp.), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), grey fox (*Urocyon cinereoargenteus*), and striped skunk (*Mephitis mephitis*) are likely to occur in the project area. These species are typically observed in open grasslands and close to riparian corridors. Additionally, the Roaring Fork River in the project area is designated as a wild trout water between Holum Lake and the Woody Creek bridge due to the presence of a wild trout population. If any impacts to the Roaring Fork River are proposed, ERO recommends coordinating with the CPW regarding any construction activities in the Roaring Fork River that have the potential to impact trout spawning.

Summary of Impacts from the Proposed Project

For this trail study, SGM and the planning team identified three trail alignment options and three potential bridge locations in the study area. The alignment options include:

- **Option 1: Bridges over the Roaring Fork River** – Uses the proposed Brush Creek Bridge to access the existing Rio Grande Trail, before crossing back on the proposed AABC Bridge to access the Highway 82 corridor.
- **Option 2: Along Highway 82** – Follows the Highway 82 corridor for the entire length of the study area, using multiple short bridges and cut and fill benches to cross steep shale hillslope areas and Owl Creek.
- **Option 3: Along Roaring Fork River** – Follows old road beds and new trail construction into the canyon and along the west bank of the Roaring Fork River.

An additional option that uses a bridge further south, rather than the proposed AABC Bridge, has been removed from consideration due the poor feasibility of a bridge at that location.

Potential impacts from the proposed trail project, by alignment option, are summarized in Table 4.

Table 4. Potential Impacts from the Proposed Alignment Options

Resource	Option 1 – Bridges over the Roaring Fork River	Option 2 – Along Highway 82	Option 3 – Along Roaring Fork River
Vegetation	Lower impact due to minimal new ground disturbance	Moderate impact due to extensive new ground disturbance, including riparian habitat at Owl Creek	Greater impact due to extensive new ground disturbance, including wetland and riparian communities along the Roaring Fork River and Owl Creek
Wetlands	No impact	Potential impact to Owl Creek	Potential impact to Owl Creek and along the Roaring Fork River
Threatened and Endangered Species	No impact	Potential impacts at Owl Creek	Potential impacts at Owl Creek and along the Roaring Fork River
Migratory Birds	No known impact – bird nests may be found at bridge locations and along upland trail corridors	No known impact – bird nests may be found at AABC Bridge location and along upland trail corridors	No known impact – bird nests more likely to be found along Roaring Fork River and Owl Creek
Other Wildlife	Minimal impact	Minimal impact	Habitat disturbance and potential impact along Roaring Fork River
Noxious Weeds	Few weeds present; least impact due to least new ground disturbance	Some weeds present; potential impacts due to ground disturbance	Few weeds present; potential impacts due to ground disturbance

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Appendix A Photo Log

Photo Log
Brush Creek to AABC Trail Study
September 8, 2021

Photo 1 - Overview of the conifer forest community in the project area. View is to the east.

Photo 2 - Overview of the conifer forest community in the project area. View is to the southeast.

Photo Log
Brush Creek to AABC Trail Study
September 8, 2021

Photo 3 - Overview of the montane shrubland community in the project area. View is to the northeast.

Photo 4 - Overview of the montane shrubland community in the project area. View is to the southeast.

Photo Log
Brush Creek to AABC Trail Study
September 8, 2021

Photo 5 - Overview of the riparian forest community in the project area. View is to the northwest.

Photo 6 - Overview of the riparian forest community in the project area. View is to the south.

Photo 7 - Overview of the sagebrush shrubland community in the project area. View is to the northeast.

Photo 8 - Overview of the shale hillslope community in the project area. View is to the north.

Photo 9 - Overview of the herbaceous upland community in the project area. View is to the southeast.

Photo 10 - Overview of the wetland community in the project area. View is to the northwest.

Appendix E

01 –Cultural Resources Memorandum

ERO

Consultants in Natural Resources and the Environment

Technical Memorandum
File and Literature Review
Brush Creek to AABC Trail Study
Pitkin County, Colorado

Prepared for:
SGM, Inc.
January 19, 2022

SGM, Inc., on behalf of Pitkin County, retained ERO Resources Corporation (ERO) to provide a resource assessment for the proposed Brush Creek to Aspen Airport Business Center (AABC) Trail Study in Pitkin County, Colorado (project area; Figure 1). The results of the file and literature review will provide information on cultural resources in the project area to inform methodology for identifying potential historic properties if a cultural resource survey is required. If a federal nexus is identified for the project, the lead federal agency would consult with the Colorado State Historic Preservation Officer on project effects under Section 106 of the National Historic Preservation Act (NHPA) and per implementing regulations 36 Code of Federal Regulations (CFR) 800.

Project Area

The project area consists of two trail alternatives on the west side of the Roaring Fork River and three trail alternatives on the east side of the Roaring Fork River, which would use the existing Rio Grande Trail and would require crossing the Roaring Fork River (Figure 1). The Roaring Fork River occurs approximately 150 feet downhill of the project area in the valley bottom below State Highway (SH) 82 to the west and the Rio Grande Trail to the east.

The project area is generally bounded by SH 82 to the west, the Brush Creek and SH 82 Park and Ride to the north, the Rio Grande Trail to the east, and the AABC to the south. The project area's legal location is Sections 21, 27, 28, and 34, Township 9 South, Range 85 West of the 6th Principal Meridian in Pitkin County, Colorado (Figure 1).

Methodology

The purpose of the cultural resource file and literature review is to determine if any previously documented cultural resources listed in or eligible for listing in the National Register of Historic Places (NRHP) or State Register of Historic Places (SRHP) could be impacted by the proposed project. A

"cultural resource" is defined as an archaeological site, structure, or building constructed 50 or more years ago (Little et al. 2000). A cultural resource listed in or eligible for listing in the NRHP/SRHP is a "historic property." To assist with project planning and potential consultation obligations under Section 106 of the NHPA (36 CFR 800) and the State Register Act (Colorado Revised Statutes 34-80.1-104), ERO reviewed the previous cultural resource surveys and resource documentation completed in the project area by conducting a file review using the Office of Archaeology and Historic Preservation (OAHP) Compass online database on January 17, 2022. The file search area included the entirety of the project area as defined above.

Results

The file search identified eight previous cultural resource surveys that intersect the project area (Figures 2 and 3; Table 1). The previous surveys were conducted between 1993 and 2013 and covered about 17 percent of the project area. The surveys were mostly linear surveys associated with transportation and utilities projects including transmission, electric, and pipelines. The block surveys were conducted in association with the Aspen-Pitkin County Airport and with SH 82.

Table 1. Previous cultural resource surveys that intersect the project area.

State Project No.	Report Title (Date)	Institution
MC.LM.R122	*Holy Cross Basalt to Aspen 115 KV Rebuild Project Eagle and Pitkin Counties, Colorado Class III Cultural Resource Inventory² Limited Testing of 5PT596 Addendum to: Holy Cross Basalt to Aspen 11KV Rebuild Project Eagle and Pitkin Counties, Colorado Class III Cultural Resource Inventory* (1996)	Metcalf Archaeological Consultants, Inc. for Bureau of Land Management
MC.PA.R78	*Class III Cultural Resources Survey for the Roaring Fork Transportation Authority Bus Rapid Transit Project Along Colorado State Highway 82, Garfield, Eagle, and Pitkin Counties, Colorado* (2010)	Parsons
PT.CH.R2	*An Archaeological Inventory of the State Highway 82 - Brush Creek Road Intersection Between Basalt and Aspen, Pitkin County, Colorado (STR-FC(CX) 082-1(14))* (1993)	Centennial Archaeology, Inc. for Colorado Department of Transportation (CDOT)
PT.CH.R4	*An Intensive Cultural Resources Survey of Six Parcels Associated with State Highway 82 Improvements West of Aspen, Pitkin County, Colorado (Project STA 082A-008)* (1966)	CDOT
PT.CO.R1	*Kinder Morgan Retail Brush Creek 6 Inch Pipeline, Pitkin County, Colorado: Results of an Intensive Cultural Resource Inventory (URS 22238253.00003)* (2005)	URS Corporation for the Colorado Department of Public Health and Environment
PT.FA.R3	*Mead And Hunt, Inc. Airport Survey Project: Report of the Class III Cultural Resources Inventory, Pitkin County, Colorado* (2009)	Metcalf Archaeological Consultants for the Federal Aviation Administration
PT.LG.R24	*Class III Cultural Resources Inventory Report for the Proposed Aspen Valley 10 Inch Pipeline for SourceGas in Pitkin County, Colorado (GRI # 2013-69)* (2013)	Grand River Institute for Pitkin County
PT.RE.R1	*Holy Cross Energy Snowmass Buried Electric Line, Class III Cultural Resource Inventory, Pitkin County, Colorado* (2003)	Metcalf Archaeological Consultants for the Rural Electric Administration

OAHP records indicate one previously documented cultural resource, the Denver & Rio Grande Western (D&RGW) Railroad grade (5PT123) intersects the project area. The resource was initially documented in

1988 and was reevaluated in 1999 as officially eligible for listing in the NRHP. The railroad grade in the project area vicinity has been converted to the paved multiuse Rio Grande Trail. Evaluation of the segment that intersects the project area has not occurred; however, recent documentation of other similarly repurposed segments of railroad have resulted in determinations of supporting the eligibility of the entire resource as recently as 2020.

In addition to the OAHP file search, ERO reviewed the Colorado Historic Highway Inventory, which evaluated SH 82 as eligible for listing in the NRHP under Criteria A and C, and as an Aesthetic Route under the Multiple Property Submission (Mead & Hunt, Inc. and Dill Historians LLC. 2016). SH 82 has been documented in Pitkin County as Independence Pass Road under the Smithsonian number 5PT505 and was determined eligible in 2008. ERO also reviewed historical maps and aerial images to determine if historical buildings or structures may have been present in the project area. ERO reviewed historical maps that date from 1893 to 1964 to identify undocumented potential historical resources such as roads, ditches, and buildings (U.S. Geological Survey 1893, 1895, 1909, 1911, 1957, 1960a, 1960b, 1964).

In the project area vicinity, SH 82 is located on the former Colorado Midland (CM) Railroad grade (Mead & Hunt, Inc. and Dill Historians LLC. 2016), which predates the earliest map from 1893 (U.S. Geological Survey 1893). An unimproved road that follows Brush Creek and crosses the Roaring Fork River is first mapped in 1893 and, by 1909, is mapped as a maintained road that served to connect the community of Rathbone to the D&RGW Railroad, CM Railroad, and other roads in the Roaring Fork River valley. Buildings are mapped where the road crosses the Roaring Fork River along Brush Creek, near the project area's northern terminus (U.S. Geological Survey 1893, 1895, 1911). Lemond Ditch and Wiese Upper Ditch parallel the north and south sides of Brush Creek, respectively, and are mapped in 1960 (U.S. Geological Survey 1960a). A review of modern aerial images suggests neither the road nor the ditches intersect the project area. Unimproved roads are mapped in 1960 as intersecting the project area east of SH 82, following the construction of the Aspen-Pitkin County Airport after its construction in 1946 (Aspen/Pitkin County Airport 2022; U.S. Geological Survey 1960b). Unnamed, unimproved two-tracks are generally not documented as historical resources.

Summary

The project area intersects two linear cultural resources that have been evaluated as eligible for listing in the NRHP (5PT123 and 5PT505). A review of historical maps and aerial images indicates the project area intersects the abandoned grade of the CM Railroad, which has been repurposed in the vicinity as SH 82. Although historic-period structures are present in the vicinity, given the small size of the project area, it is unlikely the project area will intersect the structures. Unknown resources may be present in unsurveyed portions of the project area.

Certification of Results

Shayleen Ottman, Staff Archaeologist

Attachments

Figure 1. Project location (USGS 1:24,000 topographic quadrangle)

Figures 2-3. Previously conducted cultural resource surveys and documented cultural resources

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1960b Aspen, Colorado. Topographic Map. 1:24,000. U.S. Geological Survey, Denver, Colorado.
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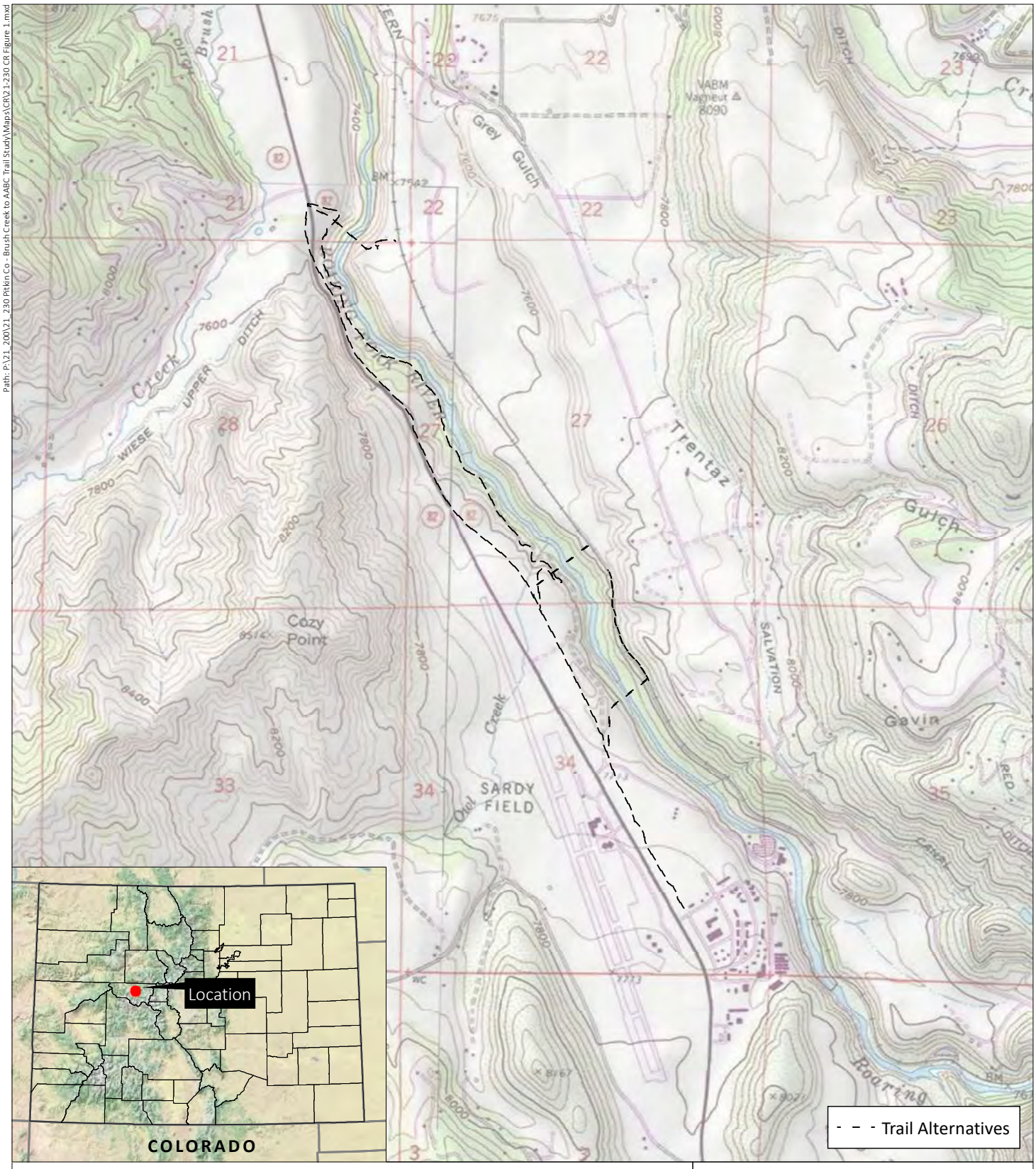


Technical Memorandum
File and Literature Review
Brush Creek to AABC Trail Study
Pitkin County, Colorado

Sections 21, 27, 28, and 34, T9S, R85W; 6th PM
USGS Aspen and USGS Highland Peak, CO Quadrangles (1:24,000; 1964)
Pitkin County, Colorado

N

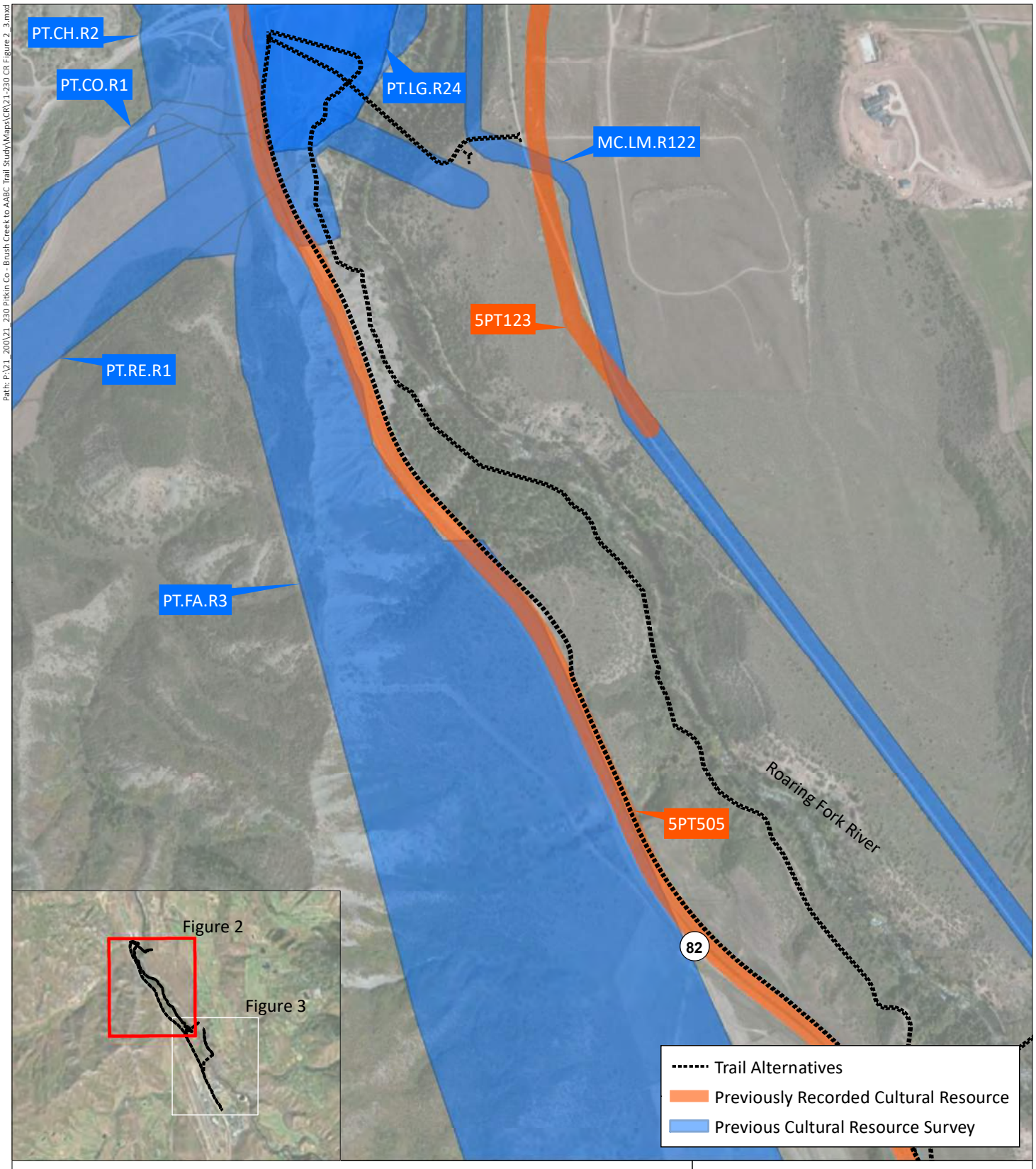
0 1,000 2,000 Feet

1:24,000

Figure 1
Project Location

Prepared for:
SGM, Inc.
File: 21-230 CR Figure 1.mxd (ME)
January 19, 2022

ERO Resources Corp.



Path: P:\21_200\21_230 Pitkin Co - Brush Creek to AABC Trail Study\Maps\CR\21-230 CR Figure 2_3.mxd

Technical Memorandum
File and Literature Review
Brush Creek to AABC Trail Study
Pitkin County, Colorado

Sections 21, 27, 28, and 34, T9S, R85W; 6th PM
USGS Aspen and USGS Highland Peak, CO Quadrangles (1:24,000; 1964)
Pitkin County, Colorado

N

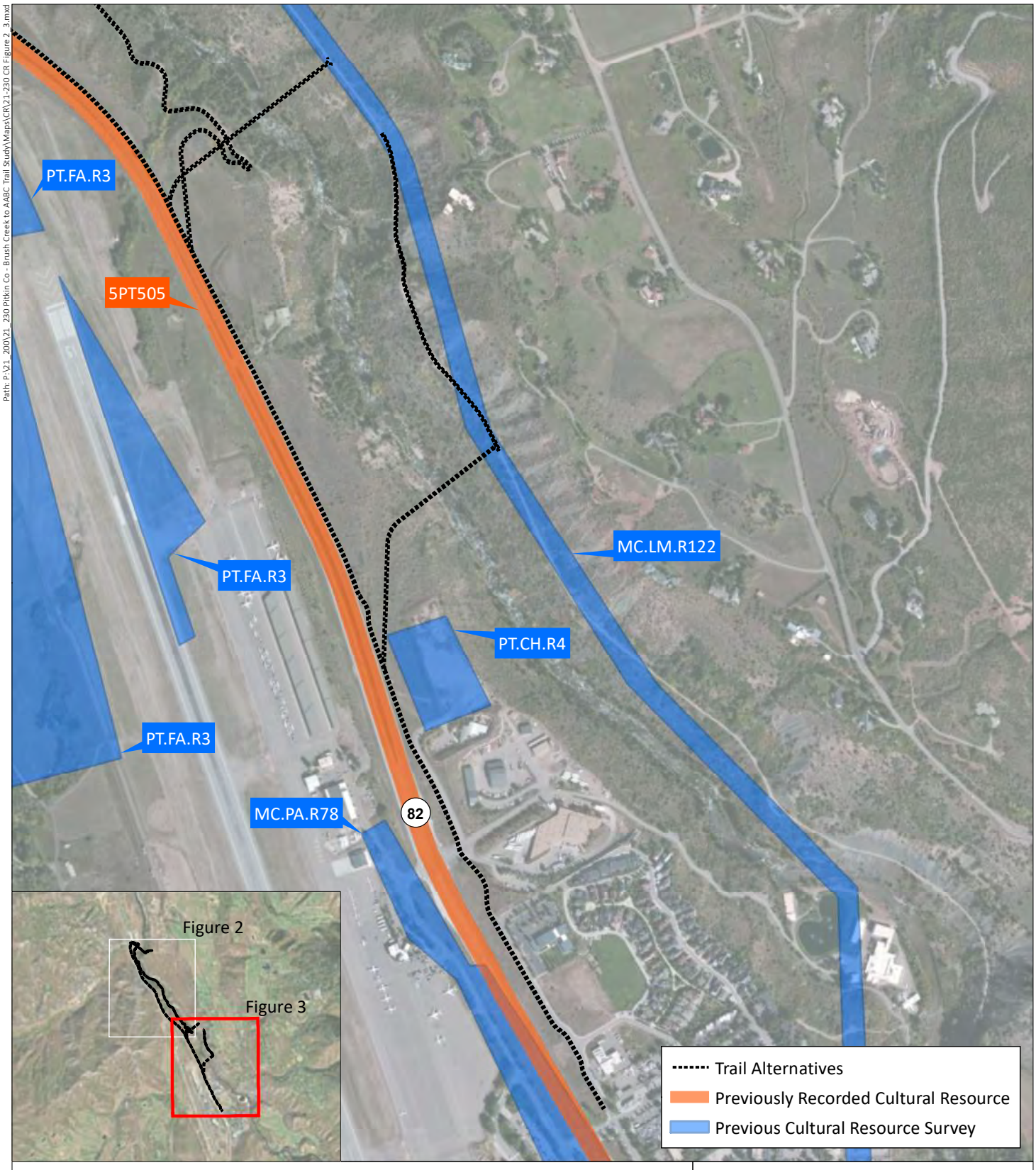
0 350 700 Feet

1:8,400

Figure 2
Previously Conducted
Cultural Resource Surveys and
Documented Cultural Resources

Prepared for:
SGM, Inc.
File: 21-230 CR Figure 2_3.mxd (ME)
January 19, 2022

ERO Resources Corp.



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Sections 21, 27, 28, and 34, T9S, R85W; 6th PM
USGS Aspen and USGS Highland Peak, CO Quadrangles (1:24,000; 1964)
Pitkin County, Colorado

N

0 350 700 Feet

1:8,400

Figure 3
Previously Conducted
Cultural Resource Surveys and
Documented Cultural Resources

Prepared for:
SGM, Inc.
File: 21-230 CR Figure 2_3.mxd (ME)
January 19, 2022

ERO Resources Corp.

LEVEL III TRAFFIC IMPACT STUDY

ASPEN JEWISH CENTER

Prepared by

SGM

DAN COKLEY, PE, PTOE
LICENSE NO. 29799
2/11/22

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

1.0 Executive Summary

SGM completed this Level III Traffic Impact Study to describe the traffic impacts and proposed mitigation for the proposed development of the Aspen Jewish Center (AJC) to be located near Aspen, Colorado. This study was prepared in accordance with section 2.3(5) of the State Highway Access Code and performs analysis to provide design parameters for a safe access with satisfactory operation for the development and continued acceptable operation of existing SH 82 and the adjacent Brush Creek Park and Ride and RFTA BRT station.

The proposed AJC development is in the conceptual stage and programming is envisioned as a single building, associated parking and the following use areas.

- 15,000 sf Worship / lobby / kitchen / restroom space
- 3,000 sf Hebrew school / restroom space
- 27,000 sf parking (75 spaces)
- *Potential Day Care Facility*

Access to the AJC site is proposed to be provided from the existing residential property access at 34951 SH 82 and the east leg of the Brush Creek Road signalized intersection serving the Roaring Fork Transit Authority (RFTA) BRT station and Brush Creek Park and Ride lot.

The study concludes that the development can be implemented, and the highway system will continue to operate at a similar Level of Service when considering the growth in background traffic over a 20-year planning horizon plus the proposed project traffic volumes. Specifically,

- The 2042 Total traffic scenario shows proposed AJC trip generation does not have a significant effect on either the LOS or the 95th percentile queue, the development will not degrade operation of the intersection nor the BRT / park and ride approach.
- New access permits for each access are required.

Proposed Mitigation Measures

- Access through Brush Creek Road traffic signal and Park and Ride leg is the safest solution for the traffic generated by the AJC. If access is possible, the AJC will continue to explore the access further into site planning and design potential.
- Access through the Park and Ride area to the AJC parcel in conformance with Brush Creek Park and Ride Expansion Plans
- Limit access at North access (residential) to right in and right out only.
- Provide downvalley egress at North access through the AJC parcel for park and ride vehicles during large events (X Games, Labor Day JAS and others) in the form of an easement and / or planned improvements within the AJC site plan.
- Provide the ability to access and use the AJC parking lot during large events.

2.0 Introduction

This study is prepared as a CDOT Level III Traffic Impact Study and provides an estimate for design hour traffic generation for the Aspen Jewish Center (AJC) development in Pitkin County, Colorado. The purpose of this traffic impact study is to document the existing traffic conditions in the vicinity of the AJC site, provide the trip generation and trip distribution of the proposed development, project traffic volumes to the 20-year planning horizon (2042), and to analyze the proposed access locations for operational impacts to SH 82 and the accesses.

Access to the AJC site is proposed to be provided from the existing residential property access at 34951 SH 82 on the east side of the highway (mile 34.99 left). Access is also proposed from the east leg of the Brush Creek Road signalized intersection where the Roaring Fork Transit Authority (RFTA) BRT station and Brush Creek Park and Ride lot are located (mile 35.29 left). The parcel containing the BRT and park and ride is owned by CDOT and leased to the City of Aspen (parking area) and RFTA (transit and access area). The lease is administered through an Intergovernmental Agreement (IGA) by the EOTC that is comprised of the elected officials from the City of Aspen, Town of Snowmass Village, and Pitkin County. The EOTC is financially responsible for the parking lease area while RFTA is financially responsible for the transit lease area. The access has a 2011 CDOT Access Permit for the combined use on the intersection leg. All future use beyond the limits of the Access Permit will require approval by CDOT, the EOTC and RFTA.

The Access Permit and IGA for the access is included in Appendix F.

This study will present access alternatives and assess the operational measures of effectiveness (MOE's) including Level of Service (LOS), Delay, and 95th percentile queue as well as discuss auxiliary lane warrants at the accesses. The study includes potential access configuration and discussion of improvements that may be needed to provide for safe and acceptably operating project intersections.

A Conceptual Access Plan is presented in Section 6.6 and provided in Appendix A.

The proposed AJC would be constructed on the two parcels shaded in blue that comprise approximately 10 acres total. The AJC parcels and immediate project area are shown in Figure 1.

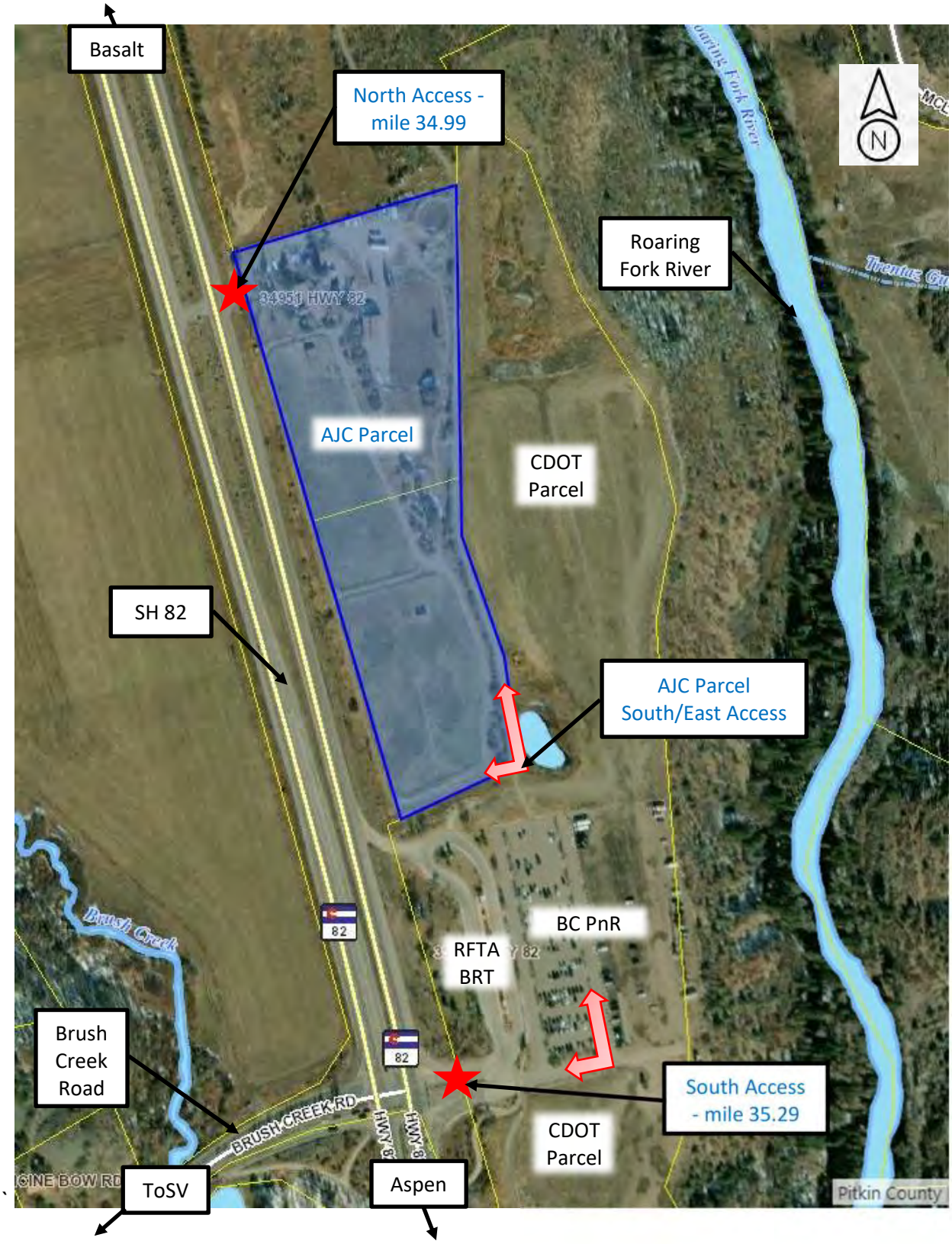


Figure 1 - Project Area

2.1 Project Description

The proposed AJC development is in the conceptual stage and does not currently include a Site Plan. The conceptual programming is envisioned as a single building, associated parking and the following use areas summarized in Table 1.

a) 15,000 sf Worship / lobby / kitchen / restroom space
b) 3,000 sf Hebrew school / restroom space
c) 27,000 sf parking (75 spaces)
d) Potential Day Care Facility

In terms of trip generation, the following ITE Trip Generation Manual, 10th Edition categories are anticipated.

TABLE 1 – PROPOSED DEVELOPMENT LAND USE

Use	Amount	Units
Synagogue / Church	15,000	SF
Hebrew School	60 to 100	Students
Day Care Center	*0-20*	*Students*

2.2 Location

The proposed AJC parcel is located with direct and indirect access to SH 82 on the east side of the highway. The Town of Snowmass Village is approximately 4.5 miles to the west and the City of Aspen is approximately 6 miles to the south. The parcel is bordered by SH 82 to the west, a City of Aspen parcel to the north and the CDOT parcel to the south and east. The current Aspen Jewish Center is currently based at the Aspen Chapel located on Meadowood Drive just outside the City of Aspen. The facility would be relocated to the 34951 SH 82 parcel(s), a residential property with an access driveway at mile 34.99 left. The access is full movement with a median crossover of the four-lane divided highway that exists at that location.

The parcel is also proposed to be accessed through the Brush Creek Park and Ride / RFTA east leg of the SH 82 and Brush Creek Road signalized intersection. The Brush Creek Park and Ride / RFTA approach is permitted by Access Permit #311106 assigned a DHV of 212.

3.0 Methodology and Assumptions

This traffic impact study has been prepared in accordance with section 2.3(5) of the State Highway Access Code (Code) and the methodology and assumptions have been vetted with the CDOT Region 3 access manager. The assumptions will provide a conservative analysis for the purposes of assessing traffic impacts resulting from the proposed AJC. Discussions with and concurrence from CDOT regarding methodology are documented in Appendix C.

The SH 82 and Brush Creek Road signalized intersection is analyzed using HCM 6th Edition methodology. Intersection analysis was performed using the Synchro 11 analysis package to estimate the capacity of the intersection. The MOE's that are compared for this study include LOS, delay and 95th percentile queue length. The MOE's will be reported for each analysis scenario to determine if the current intersections operate adequately. The queue length reported is based upon the average of ten 60-minute Simtraffic modeling runs.

The traffic modeling output is contained in Appendix D.

Baseline Traffic
The traffic data collection consisted of counting the SH 82 and Brush Creek Road intersection. Existing traffic data for the intersection was obtained from the traffic counts by SGM on May 19-20, 2021.

Peak hour factors (PHF), heavy vehicle percentages, directional distribution and other inputs are based upon the May 2021 or CDOT OTIS traffic data. The heavy vehicle percentage used in the modeling is conservatively input as 4% for the main line movements. Bus volumes are a relatively high percentage at the intersection, particularly the eastbound approach, the May 2021 percentages were used in the modeling.

Since 2013, the City of Aspen has operated a Carpool Permit program at the Brush Creek Park and Ride lot. Due to COVID-19, the program was in hiatus from March 2020 until June 2021. The program provides parking permits in City residential areas for vehicles with two or more occupants. Typically, downvalley commuters enter the lot, pull up to the carpool kiosk, receive a permit and then exit the lot bound for Aspen. Three-year (2017-2019) monthly records were averaged, then adjusted to daily and hourly volumes. The carpool kiosk operates from 6 am to 11 am on weekdays. For the traffic modeling, 59 vehicles per hour were added to May 2021 traffic count volumes at the SB left in and WB left out to account for the carpool permit program traffic during the AM design hour.

The traffic counts and carpool volumes were factored using seasonal and growth adjustments to July 2022 using the nearby CDOT Station 000236 calculated seasonal factor and 20-year factor.

The adjusted July 2022 traffic data is used as the Baseline Design Hour Volume (DHV), or the 30th highest hourly volume in the design year for the PM design hour.

May 2021 counts and CDOT OTIS traffic data are provided in Appendix E. Carpool Permit program data is provided in Appendix I.

Analysis Years
Operational analysis of Baseline traffic (2022), 20-year Background traffic (2042) and 20-year Total (background + project) traffic (2042) was performed. Baseline traffic volumes at study intersections are factored by CDOT's 20-year factor provided on the OTIS website for this segment of SH 82 to calculate 2042 Background traffic volumes for all intersection movements:

- Station #000236: 20-year factor of 1.13

Development Land Use Rates and Distribution
The analysis of the AJC was completed using trip generation rates from the ITE Trip Generation Manual, 10th Edition. The land use type and units provided in Table 1 were input into the ITE web-based Trip Generation Manual in conjunction with the design hour distribution from the same source resulting in the design hour trip generation rates shown in Table 2.

TABLE 2 – DESIGN HOUR TRIP GENERATION RATE BY LAND USE

				Design Hour Rates						
	Number	ITE	Weekday	AM	AM	AM	PM	PM	PM	Saturday
Land Use	of Units	Code	Rate	Rate	Entering	Exiting	Rate	Entering	Exiting	Rate
Hebrew (Elementary) School	100	520	1.00				0.67	0.32	0.17	
Synagogue (weekday)	12	560	6.95	0.33	0.20	0.13	0.49	0.22	0.27	2.78
				0.78			0.79			
			Friday							
Synagogue Service(s)	12	561	7.56	(5:30 - 7:30PM)			2.92	1.66	1.26	3.87
			Weekday							
Day Care Center	*20*	*565*	*4.09*	*0.78*	*0.41*	*0.37*	*0.79*	*0.37*	*0.42*	

The design hour distributions for the corresponding land uses are as shown in Table 3.

TABLE 3 – DESIGN HOUR DISTRIBUTION BY LAND USE

Land Use	ITE Code	Basis of Rate	Time Period Used Above	Weekday Design Hour Distribution				Saturday	
				AM IN	AM OUT	PM IN	PM OUT	IN	OUT
Hebrew (Elementary) School	520	Average	Peak Hour adjacent Street	54%	46%	48%	52%		
Church (Synagogue Weekday)	560	Average	Peak Hour adjacent Street	60%	40%	45%	55%	48%	52%
Synagogue (Friday Service)	561	Average	Peak Hour adjacent Street	63%	37%	57%	43%	48%	52%
Day Care Center	*565*	*Ave Rate*	*Peak Hour adjacent Street*	*53%*	*47%*	*47%*	*53%*		

The trip generation time period and calculation methods are noted in Table 3. The period and calculation methods use the peak hour of adjacent street period and average rate calculation with the background and justification provided below:

- Hebrew School
  - The Hebrew School will meet once a week during the educational school year (September to April) following a typical educational school day. The generally elementary to middle school-aged students will be both bused or shuttled from the educational school system and driven by parents. The ITE Land Use Code 520, Elementary School was used because it is anticipated the public / parental transportation mix will be similar. The higher intensity AM design hour trip rates were used in this calculation because those travels patterns best match the anticipated use that will occur during the PM design hour.

- Church
  - The ITE Land Use Code 560, Church code is used for weekday trip generation when services are not taking place as the ITE Land Use Code 561, Synagogue does not include weekday data.

- Synagogue
  - The ITE Land Use Code 561, Synagogue is used to provide trip generation for the 6 pm Friday service (weekly, 5:30-7:30 pm) and Saturday (~10 per year) service. Both occur outside the PM design hour (4:30 – 5:30 pm) analyzed.
  - Special events such as annual fundraisers and bar / bat mitzvahs will generate traffic at higher levels approximately 10 times per year. The larger events (up to 200-300 people) will occur on weekends and on the order of up to 5 times per year. This traffic is expected to consist of 60-125 vehicles and is not included in the analysis because it occurs outside the design hour.

- *Day Care Center*
  - *The ITE Land Use Code 565, Day Care Center is used to provide trip generation for the AM and PM design hours. The Day Care Center is a potential use that if implemented, its trip generation would be allocated against the total trip generation of the Hebrew School. Meaning the total trip generation of the Hebrew School plus the Day Care Center would be similar to the Hebrew School trip generation for 100 students as presented in this study. A potential mixed use would be 60 Hebrew School students and 20 Day Care Center students.*

Trip Reductions

Multi-modal

Multi-modal trips could consist of walking, biking, car-pooling and transit options. The development site near the BRT station makes transit a viable option for users.

The Roaring Fork valley is known for hiking and biking, along with that comes increased percentages of valley residents who use those modes of transportation for commuting and other that trips typically would have been taken with vehicles. The typical US average walking and biking distance for a commute or other trip is 0.25 miles and 3 miles, respectively. A trail system does not currently extend from Aspen to Brush Creek Road. There is a trail from Snowmass Village to SH 82 and crosswalks to the BRT station and the east side of the highway.

Given the nature of the valley and use of public transportation and other modes, it is likely some travelers may use multi-modal options. To be conservative, this study does not apply a reduction for multi-modal use.

3.1 Intersection Capacity Analysis

This study will assess the operational measures of effectiveness (MOE's) including Level of Service (LOS), Delay, and 95th percentile queue. The MOE analysis by approach and movement provides an overview of all intersection conflicting movements and provides a more realistic picture of operations as experienced and perceived by users. The MOE's also provide a valuable reference point for comparison of LOS, Delay and Queue between scenarios.

AM and PM level of service estimates were prepared in accordance with the Highway Capacity Manual 6th Edition (Transportation Research Board, 2016). For signalized intersections, the HCM measures level of service in terms of seconds of delay per vehicle. This is also a measure of driver discomfort, fuel consumption, and lost travel time. The table below relates the LOS to seconds of delay per vehicle at a signalized intersection.

TABLE 4 - LEVEL OF SERVICE (LOS) CRITERIA

Signalized Intersections

Level of Service	Delay (seconds)
A	< 10.0
B	10.1 to 20
C	20.1 to 35
D	35.1 to 55
E	55.1 to 80
F	> 80.0

Source: *Highway Capacity Manual*, 2016

In general, CDOT considers the overall intersection operation of LOS "D" or better acceptable during the peak hours. The goal is to also provide a similar LOS for each controlled intersection movement and/or approach. Although it is common in mountain corridor commuter areas for side-street approaches along principal arterials to operate with longer delays during a portion of the design hour, when the majority of the traffic using the mainline has free-flow conditions.

The MOE analysis by movement provides an overview of all intersection approach and conflicting movements and provides a more realistic picture of operations by controlled movement or approach as experienced and perceived by users. The MOE's also provide a valuable reference point for comparison of LOS, Delay and Queue between scenarios.

4.0 Baseline Traffic Conditions

4.1 Existing Roadways and Intersections

The scope of the study area consists of the following roadways and intersections.

SH 82 is the principal arterial that serves the Roaring Fork valley corridor. The segment of SH 82 within the study area is classified as an E-X: Expressway, Principal Arterial by the State Highway Access Category Assignment Schedule and extends from Glenwood Springs to Aspen and beyond to a connection to US 24, south of Leadville and north of Buena Vista. The project is located on the east side of and adjacent to SH 82 as shown in Figure 1.

SH 82 in the project area consists of four 12-foot travel lanes with native grass median, paved shoulders and auxiliary lanes at each access location as defined and shown in more detail in Table 11. The nearest existing access locations to the proposed AJC access are Smith Hill Way (1/2 mile north) and Service Center Road (> 2 mile south). A project area map is provided in Figure 2 showing the access locations (★), existing auxiliary lanes and posted speed limits in mph in both directions. Additional highway geometric information downloaded from OTIS is provided in Appendix G.

The SH 82 Brush Creek Road intersection serves Brush Creek Road to the west and the Park and Ride and RFTA BRT station to the east.

Brush Creek Road is a two-lane roadway with auxiliary lanes at the intersection that serves the Town of Snowmass Village. There is also a trail underpass south of Brush Creek Road that connects Snowmass Village to the Brush Creek park and ride.

Brush Creek Park and Ride / RFTA access is a two-lane divided roadway with auxiliary lanes at the intersection that serves the park and ride and RFTA BRT station. The RFTA BRT station is on the west side adjacent to SH 82, buses enter from the south and downvalley buses exit at the slip ramp north of the BRT station, upvalley buses exit at the westbound approach to the SH 82 intersection. The park and ride lot is on the east side of the BRT station, and is used by daily commuters, skiers and also for special events such as JAS Labor Day Music, X Games, Aspen Food and Wine that may fill the paved and unpaved areas of the parcel. There are existing FLAP grant design plans for a near-term park and ride expansion. A Brush Creek intersection area map is provided in Figure 3.

Figure 2 – Project area map and speed limits (mph)

Figure 3 – SH 82 and Brush Creek Road intersection

Baseline Traffic Volumes (2022)

The traffic data collection consisted of counting the SH 82 and Brush Creek Road intersection. Existing traffic data for the intersection was obtained from the traffic counts by SGM on May 19-20, 2021. City of Aspen carpool permit program volumes were added to the May 2021 traffic volumes. The May 2021 traffic volumes were factored to 2022 using CDOT 20-year factor. A seasonal factor was also applied to adjust volumes from May to the peak month of July. May 2021 counts and CDOT OTIS traffic data are provided in Appendix E.

4.2 Baseline Intersection Capacity Analysis

Using the baseline traffic volumes shown in Figure 6 and 7 in Appendix B, the capacity analysis was modeled in Synchro to estimate level of service and delay for each intersection.

Table 5 shows the overall results of the capacity analysis for the existing intersections in the study area. The study intersection operates at an overall LOS C in the AM and LOS F in the PM design hour under baseline conditions.

The MOE's; LOS, delay (seconds) and 95th percentile queue lengths (feet) by approach movement are also presented in Table 5 and provide a reference point of 2022 Baseline traffic conditions to understand the effect of growth unrelated to the proposed development provided in the 2042 Background traffic volumes. Several approach movements currently operate at LOS D or lower.

Queuing is reported for each approach movement at the study intersections to provide another indication of intersection performance. A queue length of 20 ft represents a single vehicle. Since the Brush Creek Road intersection are adequately spaced from the adjacent SH 82 intersections, queuing will not affect upstream mainline intersections in the baseline condition.

TABLE 5 - BASELINE INTERSECTION OVERALL LOS AND MOE BY MOVEMENT SUMMARY

SH 82 / BCR-P&R AJC TIS Operational Result Summary			**2022 BASELINE TRAFFIC**				
Approach Movement			*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)
SH 82 / BCR / P&R	EB	AM	*D*	*46.4*	D	40.5	171_32
		PM	*F*	*113.1*	F	108.7	421_1629
	WB	AM			E	79.8	186_122
		PM			E	62.9	90_71
	NB	AM			C	23.3	64_115_-
		PM			F	136.8	78_1654_467
	SB	AM			D	47.3	169_743_469
		PM			C	28	70_177_13

1 – Delay expressed as average delay per vehicle in seconds/vehicle

5.0 Background Traffic (2042)

The baseline SH 82 traffic volumes were used as a basis to develop the 20-year (2042) background traffic volumes. The 2022 Baseline volumes were adjusted with the 20-year growth factor of 1.13.

5.1 Background Intersection Capacity Analysis

Using the 2042 Background traffic volumes, the capacity analysis was modeled in Synchro to determine level of service and delay for the access. The background traffic volumes are provided in Figures 8 and 9 in Appendix B.

MOE analysis is also presented in Table 6 and provides an overview of intersection approach movements for 2042 Background traffic conditions for comparison to 2022 Baseline traffic conditions to understand the effect of background traffic volumes. Most approach movements currently operate at LOS D or lower. The intersection operates at an overall LOS F during the AM and PM design hour.
Overall, the approach movement queue lengths increase as expected. All auxiliary lanes provide adequate storage based on the queuing analysis., except for the AM hour SB and WB left, mainly due to the heavy carpool permit traffic volumes, an estimated total of 88 vph in 2042 (59 vph in 2021). Existing storage lengths are exceeded for each left turn lane.

TABLE 6 - BACKGROUND INTERSECTION OVERALL LOS AND MOE BY MOVEMENT SUMMARY

SH 82 / BCR-P&R AJC TIS Operational Result Summary			**2042 BACKGROUND TRAFFIC**				
Approach Movement			*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)
SH 82 / BCR / P&R	EB	AM	*F*	*91.4*	E	65.5	177_32_-
		PM	*F*	*167.2*	F	164.3	411_2765_42
	WB	AM			F	114.1	221_240_20
		PM			E	63.4	106_94_39
	NB	AM			C	25.9	71_126_-
		PM			F	205.4	78_5733_-
	SB	AM			F	104.7	1359_2081_-
		PM			C	29.4	84_182_-

1 – Delay expressed as average delay per vehicle in seconds/vehicle

6.0 Total Traffic (2042)

6.1 Project Trip Generation, Directional Distribution, and Trip Assignment

ITE's Trip Generation Manual (10th Edition) was used to provide trip generation rates and directional distribution for the proposed site development as described in 3.0 Methodology. The resulting trip generation is shown in Table 7.

TABLE 7 - ACCESS TRIP GENERATION

				Weekday Design Hour Traffic				Saturday	
	Number	ITE	Weekday	AM	AM	PM	PM		
Land Use	of Units	Code	Traffic	IN	OUT	IN	OUT	IN	OUT
Hebrew (Elementary) School	100	520	100	0	0	32	17		
Synagogue (weekday)	12	560	83	2	2	3	3	16	17
			183	2	2	35	20		
Synagogue Service(s)	12	561	91	0	0	20	15	22	24
					(Friday 5:30 - 7:30PM)				

The design hour volume used in the study consists of the combination of the Hebrew School, after-school program, coupled with "typical" weekday use of the facility. This traffic consists of a total DHV of 55. The weekly Friday 6 pm service is estimated to generate a DHV of 35, while occasional (10 per year) Saturday services are estimated to generate a DHV of 35-45. The services occur outside of the AM or PM weekday design hour and are not analyzed in this study.

The Aspen Jewish Center has a membership generally travelling from Basalt to Aspen. According to membership records, the origin of travel is distributed as shown in Table 8. The resulting volumes are presented in Table 9.

TABLE 8 - TRIP DISTRIBUTION BY PERCENTAGE

Directional Distribution	
Aspen	60%
Snowmass Village	25%
Downvalley	15%

TABLE 9 - TRIP DISTRIBUTION BY VOLUME

Directional Distribution		PM	
		IN	OUT
		35	20
Aspen	60%	21	12
Snowmass Village	25%	9	5
Downvalley	15%	5	3
Brush Cr Rd (m35.29)		35	17
Ex. (RI/RO only) (m34.99)		0	3

The proposed access location of the AJC parcel at 34951 SH 82, although currently a full movement access, is proposed as a right-in / right-out access. The increase in trip generation at the parcel warrants limiting access to right-in / right-out to preserve the safety of the AJC congregation and SH 82 users. The Brush Creek park and ride leg of the signal-controlled intersection is proposed to be used to provide access for left turns into and out of the parcel. The trip assignment at the Brush Creek intersection is show below.

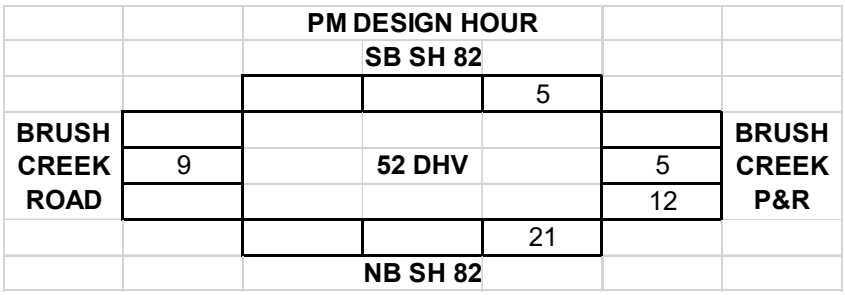


Figure 4 – SH 82 and Brush Creek Trip Assignment

The remaining 3 trips are assigned as WB right-outs at the mile 34.99 north access. Although some Aspen originated trips may bypass the signalized intersection and turn right in at the north access, the study assumes all Aspen originated trips turn right into the south AJC access and through the Brush Creek park and ride.

A full calculation directional distribution and trip assignment is provided in the Appendix I.

6.2 Total 2042 Traffic Volumes

The 2042 Total traffic volumes are the sum of the 2042 Background traffic volumes (Figure 9) plus the proposed site-generated access volumes, Figure 4.

Total traffic volumes are shown in Figure 10 in Appendix B for the study intersection as shown in the Synchro output.

6.3 Total Intersection Capacity Analysis

The overall results of the capacity analysis SH 82 and Brush Creek intersection and MOE analysis is presented in Table 10 and provides an overview of intersection approach movements for 2042 Total traffic conditions to understand the effect of project traffic volumes in addition to the 2042 Background traffic.

The PM design hour is analyzed with the proposed project traffic. Similar to the 2042 Background results, most approach movements currently operate lower than LOS D and the overall intersection operates at LOS F during the PM design hour. The addition of the AJC traffic has no significant effect on the MOE's, the overall operation of the Brush Creek intersection and specifically the WB park and ride approach.

TABLE 10 - TOTAL INTERSECTION OVERALL LOS AND MOE BY MOVEMENT SUMMARY

SH 82 / BCR-P&R AJC TIS Operational Result Summary			2042 TOTAL TRAFFIC				
Approach Movement			*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)
SH 82 / BCR / P&R	EB	AM					
		PM	*F*	*178.3*	F	164.9	404_3207_-
	WB	AM					
		PM			E	64	81_86_-
	NB	AM					
		PM			F	213.3	81_6934_-
	SB	AM					
		PM			C	30.3	67_202_-

1 – Delay expressed as average delay per vehicle in seconds/vehicle

The WB approach continues to operate with similar delay and 95th percentile queue length. The queue length continues to be within the available storage of the existing WB approach lanes.

6.4 State Highway Access Permit Evaluation

Access permits will be required for the development of the Aspen Jewish Center. One for the existing single family home access at mile 34.99 left, and another for the Brush Creek Road park and ride access at mile 35.29. The access permit DHV are calculated based upon the traffic volumes shown in the Appendix B.

TABLE 11 - DESIGN HOUR VOLUMES

Access / Scenario	AM DHV	PM DHV
M 35.29 – Brush Creek PnR Permit DHV 212		
2022 Baseline	274	128
2042 Background	309	152
AJC Project	6	52
2042 Total	315	204
M 34.99 - AJC Parcel		
AJC Project	1	3
PnR Right Out	0-19	0-64

- The existing access permit 311106 for the park and ride / RFTA land use has a permitted DHV of 212.

- The additional AJC PM DHV of 52 results in an increase of greater than 20% (based on a DHV of 212) which will require a new success permit at this location.
- The change in property land use requires a new access permit at the existing access (mile 34.99).
- The PnR right out range of DHV is based on volume of 2042 right out's using AJC egress in the future.

6.5 Total Traffic (2042) Auxiliary Turn Lane Analysis

Auxiliary turn lane requirements for access to Colorado State Highways are based on the projected DHVs, the speed limit and geometry of the highway adjacent to the access, and the classification of the highway. For design purposes, the posted speed limit of the highway in the project is shown on Figure 2. Auxiliary lane analysis is based upon 2042 Total traffic volumes including the AJC trip generation for the approach movements.

Based on the State Highway Access Code (Code) for a E-X Expressway; Auxiliary turn lanes, when allowed, shall be installed according to the criteria below:

- A left turn deceleration lane is required for any access with a projected average daily left turn ingress volume greater than 10. The transition taper length will be included within the required deceleration length. If the projected peak hour left ingress turning volume is greater than 10 vph, a left turn lane with deceleration, storage, and transition taper lengths is required for any access.
  - *SB left volume 34 vph PM* (49 vph AM) M 35.29
  - *WB left volume 42 vph PM* (43 vph AM) M 35.29
- A right turn lane with deceleration and taper lengths is required for any access with a projected peak hour right turn ingress turning volume greater than 10 vph.
  - *NB right volume 72 vph PM* (22 vph AM) M 35.29
  - *NB right volume 0-21** vph PM* M 34.99
- A right turn acceleration lane and taper length is required for any access with a projected peak hour right turning volume greater than 10 vph
  - *WB right volume 64 vph PM* (23 vph AM) M 35.29
  - *WB right volume 3 vph PM* M 34.99 - Not Warranted
- A left turn acceleration lane may be required if such a design would be a benefit to the safety and operation of the roadway or as determined by subsection 3.5. Left turn acceleration lanes are generally not required where; the posted speed is less than 45 mph, or the intersection is signalized, or the acceleration lane would interfere with the left turn ingress movements to any other access.
  - *Signalized intersection*

Based on the SHAC requirements, the following table presents the required lengths as compared to existing conditions based on Google Earth mapping.

TABLE 12 - AUXILIARY LANE REQUIREMENTS

Auxiliary Lane (12 ft width)	Standard Code Design Length + Storage + Taper (ft)	DHV (vph)	Ex. Length (taper) (ft)	Meet Code ?
M 35.29 -SB Left Turn Decel [2]	435 + 50 + 162	34	825 (300)	Yes
WB Left Turn Decel [1]	250 + 50 (96)	42	130 (70)	No
NB Right Turn Decel[2]	435 + 162	72	450 (150)	Yes
WB Right Turn Accel[2]	550 + 162	64	500	No*

WB Right Turn Accel[2] – Bus	550 + 162	64	1200	Yes*
M 34.99 - NB Right Turn Decel[2]	435 + 162	0-21**	500	Yes*
WB Right Turn Accel[3]	960 + 162	3***	75 (100)	No
SB Left Turn Decel[3]	960 + 162	-	335 (185)	No

[1] – 30 mph Posted Speed
[2] – 45 mph Posted Speed
[3] – 55 mph Posted Speed
* –Full width lane (PnR accel meets Bus loop exit at 500 ft; Bus accel calculated at 1200 ft requirement based on Bus acceleration; M34.99 decel is adequate w/ accel taper overlap)
** – Upvalley users could turn at Brush Creek signal
*** – DHV would increase to > 10 vph from downvalley park and ride "event" egress

The State Highway Access Code allows a design waiver process that could be initiated for Code deficient lanes:

- The WB left turn lane is constrained by the existing RFTA BRT station and the park and ride. Recent park and ride expansion plans did not address the entry design, an indication that the RFTA BRT station is a constraint for that design parameter. The 2042 Total traffic results in a queue length that is sored within its existing length.
- The WB right turn accel lane is constrained by the RFTA bus loop exit at 500 ft.

Additional information on lanes with asterisk in Table 12:

- The NB right turn deceleration lane at the existing residential access (M 34.99) is limited by the NB downvalley acceleration lane for exiting buses from the BRT station. The full width lane has a total length of 1700 ft from bus exit to M 34.99 access. The provides for a 1200 ft bus right turn acceleration lane and a 500 ft right turn deceleration lane. The design of pavement striping, and signage can be resolved in coordination with CDOT during the Access Permit process without additional surface construction.
- The existing WB right turn acceleration lane for the residential access (M 34.99) is inadequate and appears as shoulder striping. This lane is not warranted based upon AJC DHV's.

6.6 Access Conditions

The proposed access locations have been described above in terms of operations and auxiliary warrants. The conceptual access plan is presented in Figure 5.

- **North Access** – Right-in and Right-out only. Existing full movement access will be abandoned and or removed in coordination with CDOT. New access location to be determined in coordination with CDOT and site plan development. An access near the existing or slightly north will provide greatest length of acceleration lane for buses exiting the RFTA BRT station.

- **South Access** – Brush Creek signalized intersection. Access through park and ride / RFTA BRT leg of intersection. Figure 5 shows access along main road to rear (east side) of lot, following main road north through developed lot to the undeveloped portion of the park and ride parcel (green solid line). The remainder of access to the

parcel is to be determined. The greened dashed route as an option in addition to the FLAP design right out egress is preferred by both AJC and EOTC staff.

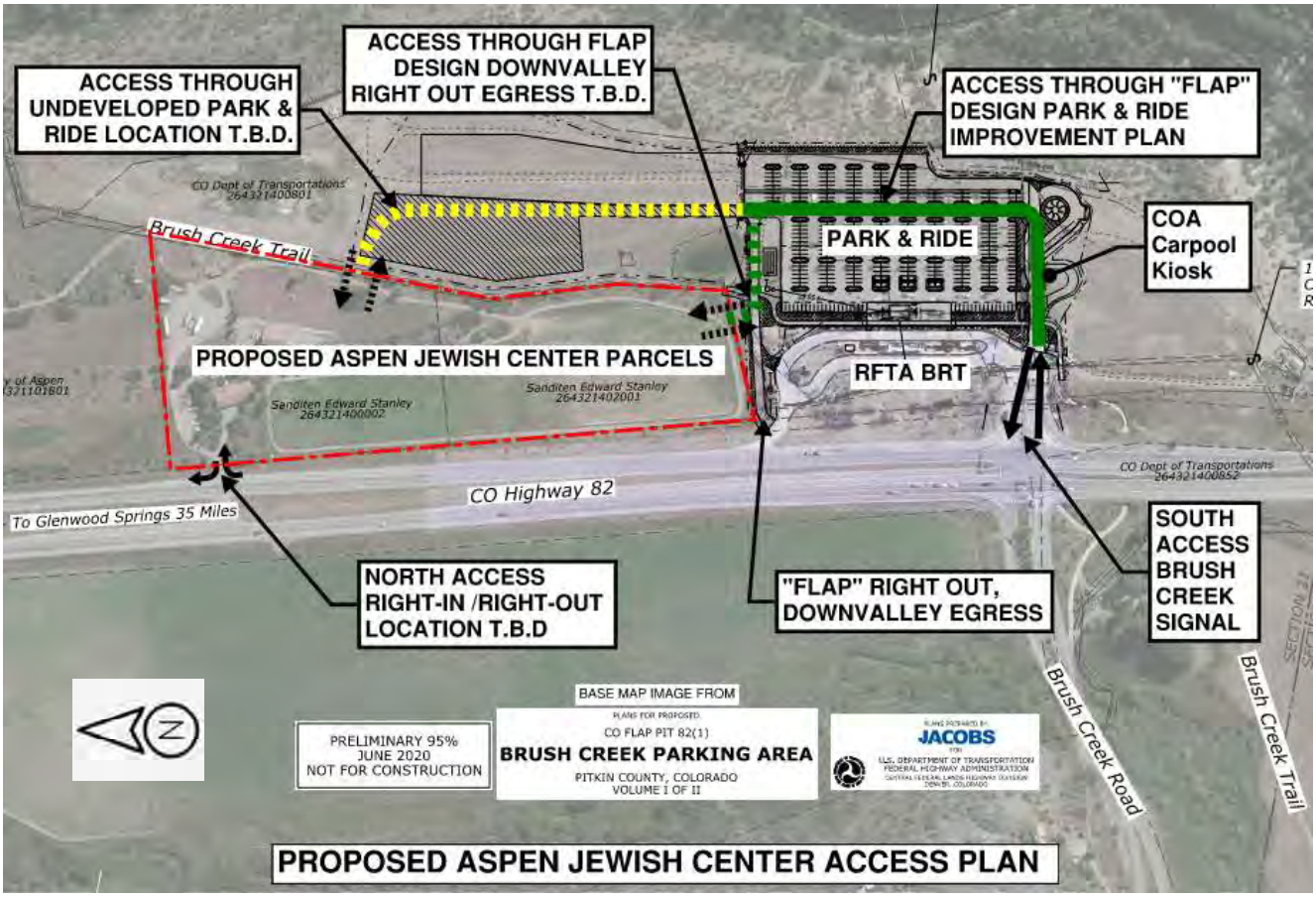


Figure 5 – Conceptual Access Plan

7.0 Conclusions and Proposed Mitigation Measures

7.1 Summary of Conclusions

- The existing roadway network and Brush Creek intersection currently operates at an unacceptable LOS in the 2042 Background traffic scenario.
- The 2042 Total traffic scenario shows proposed AJC trip generation does not have a significant effect on either the LOS or the 95th percentile queue, the development will not degrade operation of the intersection nor the east approach (BRT / park and ride).
- New access permits are required.
  - East approach (RFTA / park and ride) at a DHV of 264.
  - AJC right-in / right-out at a DHV of 3. (Pending negotiation with EOTC and through access for events)
- The analysis of existing auxiliary lanes at Brush Creek intersection (South M35.29)
  - The NB right turn deceleration lane is adequate length per SHAC

  - The WB left turn deceleration lane, although substandard per SHAC, provides adequate storage during the 2042 Total traffic scenario. The existing configuration is constrained by the layout of the BRT and park and ride.
  - The SB left turn is adequate length per SHAC
- The analysis of existing auxiliary lanes at the residential access (North M34.99)
  - The NB right turn deceleration lane is adequate length
  - The WB right turn acceleration lane is substandard length
  - The SB left turn deceleration lane is substandard length

7.2 Proposed Mitigation Measures

- Access through Brush Creek Road traffic signal and Park and Ride leg is the safest solution for the traffic generated by the AJC. If access is possible, the AJC will continue to explore the access further into site planning and design potential.

- Access through the Park and Ride area to the AJC parcel in conformance with Brush Creek Park and Ride Expansion Plans

- Based on preliminary discussion with CDOT, agreement by the AJC to limit access at North access (M 34.99) to right in and right out only, will relieve the AJC to any responsibility to upgrade the existing Brush Creek Road and SH 82 intersection to resolve existing path overlap issues with left turn movements (Split Phasing).
  - Remove SB left turn and crossover median as directed by the Access Permit.

- Provide downvalley egress at North access (right out M 34.99) through AJC parcel for park and ride customers during large events (X Games, Labor Day JAS and others) in the form of an easement and / or planned improvements within the AJC site plan.
  - Downvalley egress will result in > 10 vph and may warrant a WB right turn acceleration lane per the SHAC with dimensions per Table 11.

- Provide the ability to access and use the AJC parking lot during large events.

Appendix A

Conceptual Access Plan

STATE	PROJECT	SHEET NUMBER
CO	FLAP PIT 82(1)	A5

7516

Pitkin County
264321100851

Pitkin County
264322303802

Snowmass Water
& Sanitation Dist
264322300801

Rio Grande Trail

Roaring Fork River

150' Wide overhead electrical
transmission line esmt.
Holy Cross Elec. Assoc.
REC. NO. 530962

Pitkin County
264322303802

Stuylinger Jennifer O
264321103007

ACCESS THROUGH UNDEVELOPED PARK & RIDE LOCATION T.B.D.

ACCESS THROUGH FLAP DESIGN DOWNVALLEY RIGHT OUT EGRESS T.B.D.

ACCESS THROUGH "FLAP" DESIGN PARK & RIDE IMPROVEMENT PLAN

CO Dept of Transportations
264321400801

Brush Creek Trail

PARK & RIDE

COA Carpool Kiosk

10' Wide common use area
CDOT & Holy Cross Elec. Assoc.
REC. NO. 656310

PROPOSED ASPEN JEWISH CENTER PARCELS

City of Aspen
264321101801

Sanditen Edward Stanley
264321400002

Sanditen Edward Stanley
264321402001

RFTA BRT

To Aspen 6 Miles

CO Dept of Transportations
264321400852

CO Highway 82

CO Dept of Transportations
264321400852

To Glenwood Springs 35 Miles

NORTH ACCESS RIGHT-IN /RIGHT-OUT LOCATION T.B.D

"FLAP" RIGHT OUT, DOWNVALLEY EGRESS

SOUTH ACCESS BRUSH CREEK SIGNAL

SECTION 21
SECTION 28

Brush Creek Road

Brush Creek Trail

BASE MAP IMAGE FROM

PRELIMINARY 95%
JUNE 2020
NOT FOR CONSTRUCTION

PLANS FOR PROPOSED
CO FLAP PIT 82(1)
BRUSH CREEK PARKING AREA
PITKIN COUNTY, COLORADO
VOLUME I OF II

PLANS PREPARED BY
JACOBS
FOR
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
DENVER, COLORADO

PROPOSED ASPEN JEWISH CENTER ACCESS PLAN

N

0 300' 600'

Scale in Feet

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

SURVEY CONTROL

Sheet 2 of 2

95% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION

User: DENPWP02$
12:25:39 PM \\denpwp01\d$\pwicsworking\736616\849696_12\A03_suvBC-02.dgn
6/24/2020

Appendix B

Scenario Traffic Volume Figures 6-10

FIGURE 6
2022 BASELINE AM DHV

FIGURE 7
2022 BASELINE PM DHV

FIGURE 8
2042 BACKGROUND AM DHV

Attachment 2

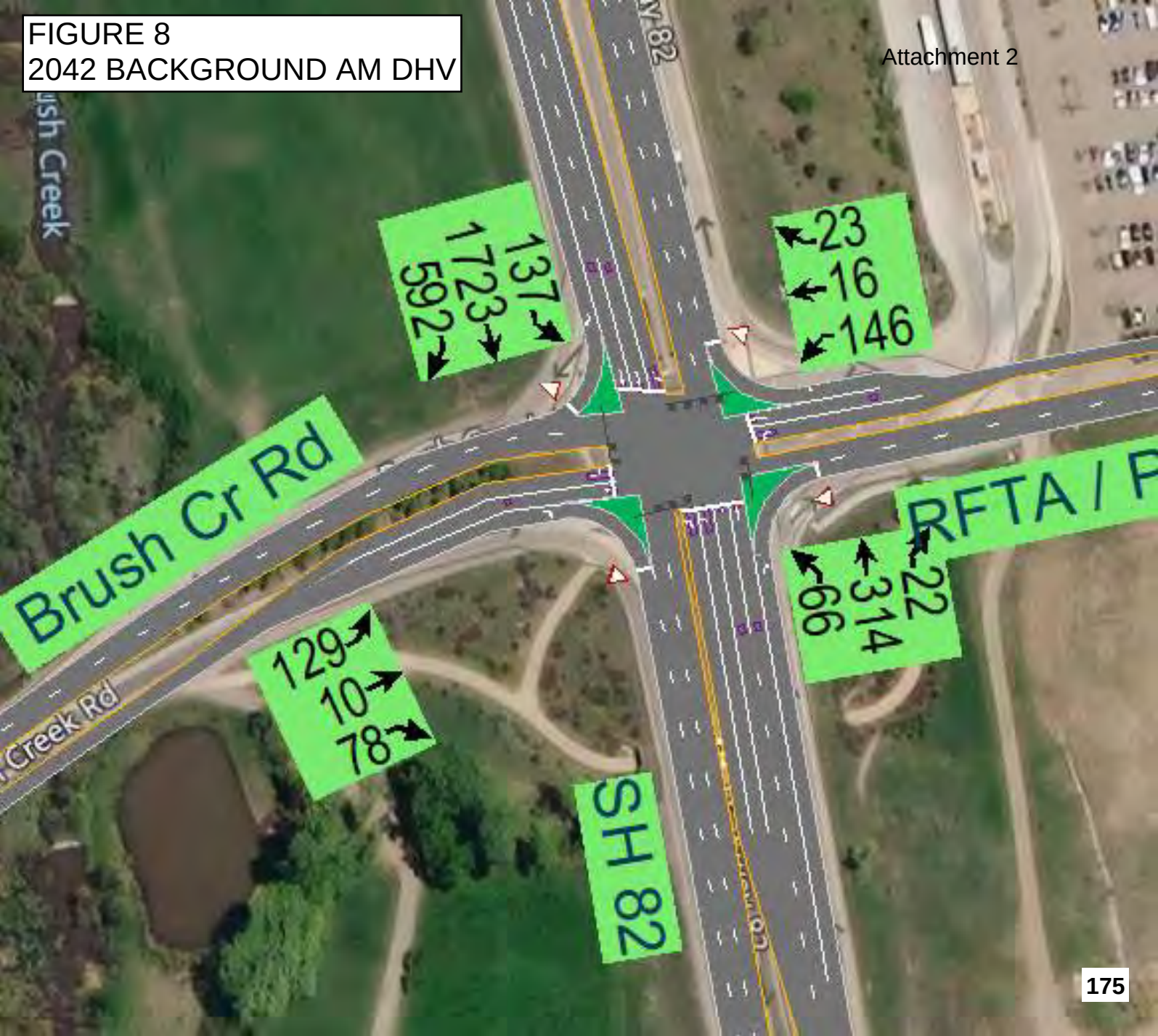


FIGURE 9
2042 BACKGROUND PM DHV

Attachment 2


FIGURE 10
2042 TOTAL PM DHV
Attachment 2
34
511
178
64
24
42
ush Cr Rd
RFTA / PnR
72
1989
126
498
33
79
SH 82
177

Appendix C

Methodology / Assumptions (Correspondence with CDOT)

Dan Cokley

From: Killian - CDOT, Brian <brian.killian@state.co.us>
Sent: Wednesday, December 8, 2021 12:43 PM
To: Dan Cokley
Subject: Re: Aspen Jewish Center - Access discussion

Dan,

CDOT is okay with your traffic study assumptions.

Thanks,

Brian Killian
Region 3 Access Program Manager
Traffic & Safety

COLORADO
Department of Transportation

P 970-683-6284 | C 970-210-1101 | F 970-683-6290
222 S. 6th St, Room 100 Grand Junction, CO 81501
brian.killian@state.co.us | www.codot.gov | www.cotrip.org

On Mon, Feb 15, 2021 at 2:21 PM Dan Cokley <DanC@sgm-inc.com> wrote:

> Brian
>
> This email is intended to serve as the start of a discussion regarding access for the conceptual relocation of the Aspen Jewish Center to a parcel located adjacent to and east of SH 82, just down valley (north) from the Brush Creek park and ride lot.
>
> I have attached an image that shows the location of the property, (blue) and potential access locations (red). The current property contains a single family residence with direct access to SH 82 (west access). To the south is the Brush Creek Park and Ride lot, the AJC project could potentially access from the signal at SH 82 through the “entry road” and parcel as shown. The intention of the discussion is to understand each alternative and provide a conceptual level cost estimate for the client to understand in order to make an informed decision on how to proceed with the access approach to the project, and subsequent traffic impact study.

A brief summary of each access below…

West Access - A CDOT Access Permit will be required from CDOT due to change in use. The highway contains two travel lanes in each direction, a crossover median and the following existing auxiliary turn lanes:

- NB acceleration lane from PnR / right turn deceleration lane into SF residence
- Short NB acceleration lane / taper from SF residence
- SB left turn deceleration lane to SF residence

The increased volumes from the project may warrant additional auxiliary lanes and / or length.

The Access Permit process requires a Traffic Impact Study (TIS) to be approved by CDOT that would set volumes and lane warrants and used as the basis for a new Access Permit. The TIS would recommend mitigation as determined.

South Access – The Brush Creek PnR parcel is shown as having ownership by CDOT. It is assumed that the upper valley Elected Officials Transportation Commission (EOTC) is also involved in the management of the parcel. Access may be granted through the parcel with agreement of the CDOT / EOTC to mitigate effects of an improved direct access to SH 82. This access could be through the “entry road” between the RFTA BRT station and parking area. The existing Brush Creek intersection is signalized and most likely contains all auxiliary lane improvements needed for the AJC traffic volume.

There are additional layers to discuss in terms of AJC activities in coordination with larger events such as Labor Day music fest and X Games that receive heavy usage of the lot; approval/sign-off by RFTA? EOTC?; additional volume and pedestrian safety from PnR to BRT; to name a few.

Please give me a call to talk and get your opinion on whether a group call or separate discussion with others (EOTC, RFTA) is the next step following our discussion. Hope to talk soon, thanks.

Thanks,

Dan Cokley, PE, PTOE

Principal

Dan Cokley

From: Dan Cokley
Sent: Wednesday, November 24, 2021 11:07 AM
To: Killian - CDOT, Brian
Cc: Mark Bunnell - CDOT
Subject: RE: Aspen Jewish Center - TripGen_10thEd_AJC
Attachments: TripGen_10thEd_AJC_R1.pdf

Brian / Mark

Please disregard the previous Trip Gen email…Just after I sent this I was finally able to touch base with the right client representative to discuss anticipated programming.

The "school" is a "Sunday" school that occurs on a weeknight other than Friday, 4-5:30pm peak hour traffic impact.

Synagogue has Friday services 6-730pm, so none of little peak hour traffic. Also on the order of 10 Saturday services per year.

See attached updated spreadsheet, much less impact. Not a straightforward ITE exercise. Let me know if assumptions are reasonable, need more info or would be easier to have a call to discuss.

Thanks
Dan

From: Dan Cokley
Sent: Wednesday, November 24, 2021 7:45 AM
To: Killian - CDOT, Brian <brian.killian@state.co.us>
Cc: Mark Bunnell - CDOT <mark.bunnell@state.co.us>
Subject: Aspen Jewish Center - TripGen_10thEd_AJC

Brian

See attached an initial draft of Trip Gen calcs using Elementary School and Synagogue. The Synagogue sample size is one, but is similar to Church volumes except for Friday use. I have used the number of students as the variable for the school use. Alternative land use and variables are shown, the highlighted are used. The Friday School and Synagogue use would coincide and result in the DHV used. I need to check in with AJC on their specific programming to confirm. If this scenario holds, there is probably some trip reduction to be applied to dual trips. This is a worst case scenario and place to start. Directional distribution is also shown.

Let me know if you have any comments.

Again, I am looking for review and comment to begin to finalize this TIS. Secondly, I am hoping for some direction on the "trigger" to require the AJC to improve the intersection split phasing and to what extent, side streets and main line.

Thanks
Dan

Trip Generation
ITE Trip Generation, 10th Edition

			Design Hour Rates								Weekday Design Hour Traffic					Saturday			Sunday	
Land Use	Number of Units	ITE Code	Weekday Rate	AM Rate	AM Entering	AM Exiting	PM Rate	PM Entering	PM Exiting	Weekday Traffic	AM IN	AM OUT	PM IN	PM OUT	Rate	IN	OUT	Rate	IN	OUT
Hebrew (Elementary) School (K-6)(Students	100	520	1.00				0.67	0.32	0.17	100	0	0	32	17						
Church	12	560	6.95	0.33	0.20	0.13	0.49	0.22	0.27	83	2	2	3	3	2.78	16	17	9.99	58	62
									TOTAL WEEKDAY SCHOOL AFTERNOON TRIPS:	100	0	0	32	17						
							Synagogue Friday Rate													
Elementary School (K-6) (SF)	4	520	19.52				6.97	3.14	3.83	78	0	0	13	15						
Synagogue	12	561	7.56				2.92	1.66	1.26	91	0	0	20	15	3.87	22	24		0	0
									TOTAL FRIDAY POST PM PEAK (5:30 - 7:30PM) TRIPS:	191	0	0	20	15						

		Basis of	Time Period Used	Weekday Design Hour Distribution					Saturday		Sunday	
ITE Ttrip Generation Manual, 10th Edition	ITE Code	Rate	Above	AM IN	AM OUT		PM IN	PM OUT	IN	OUT	IN	OUT
Elementary School (K-6)	520	Average	Peak Hour adjacent Street	54%	46%		48%	52%				
Church	560	Average	Peak Hour adjacent Street	60%	40%		45%	55%	48%	52%	48%	52%
Elementary School (K-6)	520	Average	Peak Hour adjacent Street	55%	45%		45%	55%				
Synagogue	561	Average	Peak Hour adjacent Street	63%	37%	Friday	57%	43%	48%	52%	49%	51%

		Students				Synagogue - Fri				Total			
		AM		PM		AM		PM		AM		PM	
Directional Distribution		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
		0	0	32	17	0	0	20	15	0	0	52	32
Aspen	60%	0	0	19	10	0	0	12	9	0	0	31	19
Snowmass Village	25%	0	0	8	4	0	0	5	4	0	0	13	8
Downvalley	15%	0	0	5	3	0	0	3	2	0	0	8	5
Brush Cr Rd		0	0	32	14	0	0	20	13	0	0	52	27
Existing (RI/RO)		0	0	0	3	0	0	0	2	0	0	0	5

SGM

MEMORANDUM

DATE: November 15, 2021

TO: Brian Killian, P.E., CDOT Region 3 Access Manager

FROM: Dan Cokley, PE, PTOE

RE: Aspen Jewish Center (AJC) - Level III TIS Methodology Proposal

---

This memo documents the initial methodology and assumptions that SGM intends to use for what is generally scoped as a Level III TIS for a parcel being considered as a site for a proposed Aspen Jewish Center. The parcel currently contains a single-family residence with full access to SH 82 at mile 34.99 left. SH 82 corridor in the vicinity of the AABC in Pitkin County, Colorado. The study is being completed for the AJC to understand existing and future traffic conditions and the effect of proposed development at the Brush Creek Road signal. It appears the developed traffic will trigger a new access permit. The study area is shown in Figure 1.

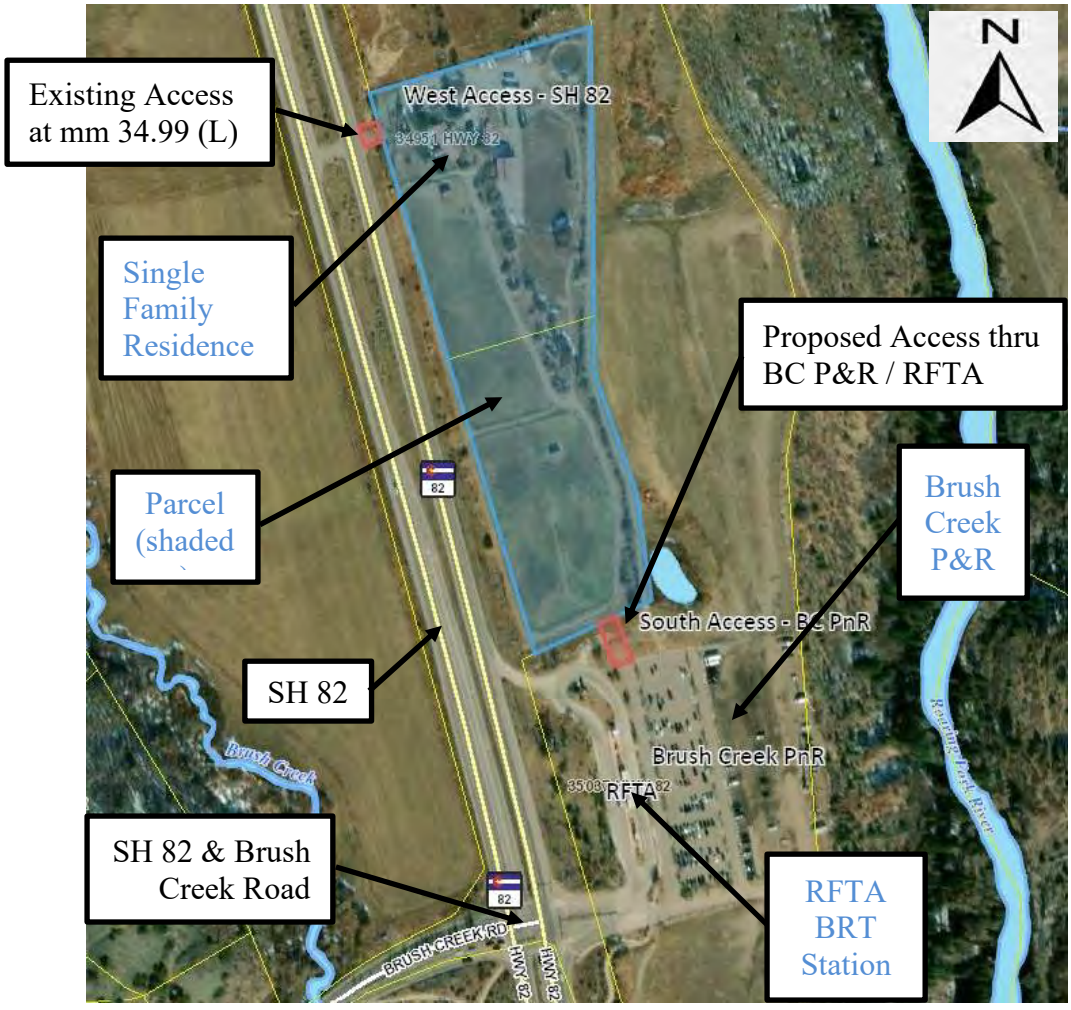


Figure 1 – Study Map

The proposed development consists of a 12,000 sf Synagogue and 125 student elementary school. The goal of this memo is to gain the CDOT's acceptance of the data intended for use in the analysis, assumptions proposed for the analysis (directional distribution, trip reduction factors, etc.) and the overall approach to the access process for this future land use application in Pitkin County. The project is expected to be presented to the EOTC at the March 2022 meeting to begin to navigate the access easement process. RFTA will be included in those discussions.

The scope of work includes the analysis of the Brush Creek intersection and examination of the existing access.

Brush Creek Road Intersection Traffic Counts

- Completed 3 hr. AM and PM peak hour counts on Wed and Thu May 19 and 20, 2021
- To include applying a seasonal factor May to July
- To include analysis of most recent 5-year monthly traffic at nearby CDOT continuous station 000236 near Old Snowmass Road

Traffic Impact and Operational Analysis

- Follow CDOT Level 3 analysis guidelines

Modeling required will be performed using the guidelines of the CDOT Traffic Analysis and Forecasting Guidelines_v01.072018.

Analysis Years

Operational analysis of the Brush Creek Road intersection using Baseline (2022), 20-year background traffic (2042) and 20-year total traffic (2042) will be completed. Baseline traffic volumes at study intersections will be factored by CDOT's 20-year factor (1.13) provided on the OTIS website for Station 103521 on this segment of SH 82.

Development Land Use Rates

The study will use trip generation rates from the ITE Trip Generation Manual, 10th Edition.

- To include a review of and use Church and Synagogue land use codes based on square footage.
- To include Elementary School land use code and review Students and Square Footage data.

Trip Reductions

Internal Capture

The internal capture rates will not be calculated.

Multi-modal

Multi-modal trips could consist of walking, biking and transit options. The development is adjacent to the SH 82 corridor, the RFTA BRT Station and multi-use trail system that provide a location that is convenient for all transportation modes.

A multi-modal trip reduction rate on the order of 5% applied to all external trips for all proposed developments.

Pass-By

Pass-by trips are drawn from the passing traffic stream and are included in the site driveway movements but are not included in the through-volumes passing the site access point on SH 82.

Since there are not commercial or retail land uses anticipated, a pass-by trip reduction will not be used in this analysis.

Project Traffic Distribution
The directional distribution for site traffic is developed based upon AJC membership and wil use the following distribution of trips

- Aspen 60%
- Snowmass Village 25%
- Down Valley 15%

Access Permit

- Brush Creek P&R / RFTA 2011 DHV = 212 (#311106)

Appendix D

Synchro Output

HCM 6th Signalized Intersection Summary
3: SH 82 & Brush Cr Rd/RFTA / PnR

01/26/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	9	69	111	12	17	58	278	20	122	1525	524
Future Volume (veh/h)	114	9	69	111	12	17	58	278	20	122	1525	524
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1841	1841	1841	1455	1307	1752	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	124	10	0	121	13	0	63	302	0	133	1658	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	30	40	10	4	4	4	4	4	4
Cap, veh/h	154	162		141	133		337	1716		159	1716	
Arrive On Green	0.09	0.09	0.00	0.10	0.10	0.00	0.10	0.49	0.00	0.09	0.49	0.00
Sat Flow, veh/h	1753	1841	1560	1386	1307	1485	3401	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	124	10	0	121	13	0	63	302	0	133	1658	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1386	1307	1485	1700	1749	1560	1753	1749	1560
Q Serve(g_s), s	8.5	0.6	0.0	10.5	1.1	0.0	2.1	5.9	0.0	9.1	56.2	0.0
Cycle Q Clear(g_c), s	8.5	0.6	0.0	10.5	1.1	0.0	2.1	5.9	0.0	9.1	56.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	162		141	133		337	1716		159	1716	
V/C Ratio(X)	0.81	0.06		0.86	0.10		0.19	0.18		0.84	0.97	
Avail Cap(c_a), veh/h	502	527		170	160		695	1716		215	1716	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.8	51.2	0.0	54.0	49.8	0.0	50.6	17.4	0.0	54.7	30.2	0.0
Incr Delay (d2), s/veh	9.4	0.2	0.0	28.9	0.3	0.0	0.3	0.2	0.0	18.5	15.1	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	4.2	0.3	0.0	4.8	0.4	0.0	0.9	2.3	0.0	4.7	24.5	0.0
Unsig. Movement Delay, s/veh			0.00									
LnGrp Delay(d),s/veh	64.2	51.3	0.0	83.0	50.1	0.0	50.8	17.6	0.0	73.2	45.3	0.0
LnGrp LOS	E	D	A	F	D		D	B		E	D	
Approach Vol, veh/h		209	A		134	A		365	A		1791	A
Approach Delay, s/veh		40.5			79.8			23.3			47.3	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.6	68.5		16.2	20.6	67.5		18.0				
Change Period (Y+Rc), s	8.5	* 8.5		5.5	8.5	7.5		5.5				
Max Green Setting (Gmax), s	15.0	* 60		35.0	25.0	60.0		15.0				
Max Q Clear Time (g_c+I1), s	11.1	7.9		10.5	4.1	58.2		12.5				
Green Ext Time (p_c), s	0.1	1.8		0.4	0.1	1.5		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		45.0	
HCM 6th LOS		D	

Notes

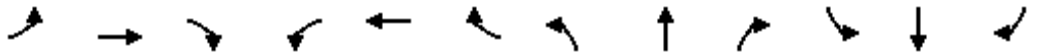
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is included in calculations of the approach delay and intersection delay.

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
3: SH 82 & Brush Cr Rd/RFTA / PnR

01/18/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	21	70	22	15	49	111	1760	45	25	452	157
Future Volume (veh/h)	440	21	70	22	15	49	111	1760	45	25	452	157
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1307	1159	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	478	23	0	24	16	0	121	1913	0	27	491	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	40	50	4	4	4	4	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	448	471		100	75		174	1573		58	1534	
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
Prop Arrive On Green	0.26	0.26	0.00	0.06	0.06	0.00	0.05	0.45	0.00	0.03	0.44	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	112.1	38.4	0.0	62.9	63.0	0.0	68.7	141.1	0.0	70.8	25.6	0.0
Ln Grp LOS	F	D		E	E		E	F		E	C	
Approach Vol, veh/h		501			40			2034			518	
Approach Delay, s/veh		108.7			62.9			136.8			28.0	
Approach LOS		F			E			F			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8	4	6	5		
Case No	2.0	3.0	9.0	9.0	3.0	2.0		
Phs Duration (G+Y+Rc), s	13.0	70.0	13.3	40.5	67.5	15.5		
Change Period (Y+Rc), s	8.5	* 8.5	5.5	5.5	7.5	8.5		
Max Green (Gmax), s	15.0	* 60	15.0	35.0	60.0	25.0		
Max Allow Headway (MAH), s	3.7	4.9	4.5	3.9	4.9	3.7		
Max Q Clear (g_c+I1), s	4.1	63.5	3.8	37.0	14.5	6.8		
Green Ext Time (g_e), s	0.0	0.0	0.1	0.0	3.3	0.3		
Prob of Phs Call (p_c)	0.64	1.00	0.78	1.00	1.00	0.99		
Prob of Max Out (p_x)	0.00	0.00	0.00	1.00	0.00	0.00		

Left-Turn Movement Data								
Assigned Mvmt	1		3	7		5		
Mvmt Sat Flow, veh/h	1753		1753	1753		3401		

Through Movement Data								
Assigned Mvmt		2	8	4	6			
Mvmt Sat Flow, veh/h		3497	1307	1841	3497			

Right-Turn Movement Data								
Assigned Mvmt		12	18	14	16			
Mvmt Sat Flow, veh/h		1560	982	1560	1560			

Left Lane Group Data								
Assigned Mvmt	1	0	3	7	0	5	0	0
Lane Assignment	L (Prot)		L	L		L (Prot)		

Lanes in Grp	1	0	1	1	0	2	0	0
Grp Vol (v), veh/h	27	0	24	478	0	121	0	0
Grp Sat Flow (s), veh/h/ln	1753	0	1753	1753	0	1700	0	0
Q Serve Time (g_s), s	2.1	0.0	1.8	35.0	0.0	4.8	0.0	0.0
Cycle Q Clear Time (g_c), s	2.1	0.0	1.8	35.0	0.0	4.8	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1753	1753	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	58	0	100	448	0	174	0	0
V/C Ratio (X)	0.47	0.00	0.24	1.07	0.00	0.69	0.00	0.00
Avail Cap (c_a), veh/h	192	0	192	448	0	621	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	65.0	0.0	61.7	50.9	0.0	63.8	0.0	0.0
Incr Delay (d2), s/veh	5.8	0.0	1.2	61.2	0.0	4.9	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
Control Delay (d), s/veh	70.8	0.0	62.9	112.1	0.0	68.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.9	0.0	0.8	15.3	0.0	2.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	7.6	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.0	0.0	0.8	22.9	0.0	2.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.03	0.00	0.17	2.63	0.00	0.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	7.4	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	6	0	0	0
Lane Assignment		T	T	T	T			
Lanes in Grp	0	2	1	1	2	0	0	0
Grp Vol (v), veh/h	0	1913	16	23	491	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	1307	1841	1749	0	0	0
Q Serve Time (g_s), s	0.0	61.5	1.6	1.3	12.5	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	61.5	1.6	1.3	12.5	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1573	75	471	1534	0	0	0
V/C Ratio (X)	0.00	1.22	0.21	0.05	0.32	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1573	143	471	1534	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	37.7	61.6	38.4	25.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	103.5	1.4	0.0	0.6	0.0	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
Control Delay (d), s/veh	0.0	141.1	63.0	38.4	25.6	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	24.8	0.5	0.6	5.1	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	22.6	0.0	0.0	0.1	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	47.4	0.6	0.6	5.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	2.37	0.04	0.00	0.08	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	85.1	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	16	0	0	0
Lane Assignment		R	R	R	R			
Lanes in Grp	0	1	1	1	1	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1560	982	1560	1560	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	701	56	399	684	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	701	108	399	684	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	113.1
HCM 6th LOS	F

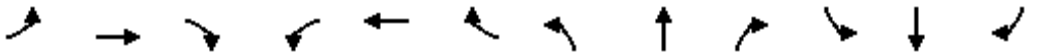
Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: SH 82 & Brush Cr Rd/RFTA / PnR

01/28/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	10	78	125	13	19	66	314	22	137	1723	592
Future Volume (veh/h)	129	10	78	125	13	19	66	314	22	137	1723	592
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1841	1841	1841	1455	1307	1752	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	140	11	0	136	14	0	72	341	0	149	1873	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	30	40	10	4	4	4	4	4	4
Cap, veh/h	170	178		155	146		365	1649		174	1649	
Arrive On Green	0.10	0.10	0.00	0.11	0.11	0.00	0.11	0.47	0.00	0.10	0.47	0.00
Sat Flow, veh/h	1753	1841	1560	1386	1307	1485	3401	3497	1560	1753	3497	1560
Grp Volume(v), veh/h	140	11	0	136	14	0	72	341	0	149	1873	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1386	1307	1485	1700	1749	1560	1753	1749	1560
Q Serve(g_s), s	10.0	0.7	0.0	12.3	1.2	0.0	2.5	7.3	0.0	10.6	60.0	0.0
Cycle Q Clear(g_c), s	10.0	0.7	0.0	12.3	1.2	0.0	2.5	7.3	0.0	10.6	60.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	170	178		155	146		365	1649		174	1649	
V/C Ratio(X)	0.82	0.06		0.88	0.10		0.20	0.21		0.85	1.14	
Avail Cap(c_a), veh/h	482	506		163	154		668	1649		207	1649	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.4	52.2	0.0	55.6	50.7	0.0	51.8	19.7	0.0	56.4	33.6	0.0
Incr Delay (d2), s/veh	9.6	0.1	0.0	36.5	0.3	0.0	0.3	0.3	0.0	24.8	69.1	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	4.9	0.3	0.0	5.9	0.4	0.0	1.0	2.8	0.0	5.7	38.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	52.3	0.0	92.1	51.0	0.0	52.1	20.0	0.0	81.2	102.7	0.0
LnGrp LOS	E	D		F	D		D	B		F	F	
Approach Vol, veh/h		151	A		150	A		413	A		2022	A
Approach Delay, s/veh		65.0			88.3			25.6			101.1	
Approach LOS		E			F			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.2	68.5		17.8	22.2	67.5		19.7				
Change Period (Y+Rc), s	8.5	* 8.5		5.5	8.5	7.5		5.5				
Max Green Setting (Gmax), s	15.0	* 60		35.0	25.0	60.0		15.0				
Max Q Clear Time (g_c+I1), s	12.6	9.3		12.0	4.5	62.0		14.3				
Green Ext Time (p_c), s	0.1	2.0		0.4	0.2	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		87.0	
HCM 6th LOS		F	

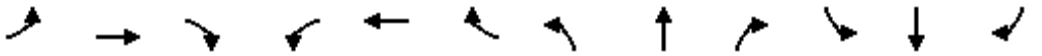
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
3: SH 82 & Brush Cr Rd/RFTA / PnR

01/18/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	498	24	79	30	19	64	126	1989	51	28	511	178
Future Volume (veh/h)	498	24	79	30	19	64	126	1989	51	28	511	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1307	1159	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	541	26	0	33	21	0	137	2162	0	30	555	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	40	50	4	4	4	4	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	443	465		111	83		191	1565		61	1515	
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
Prop Arrive On Green	0.25	0.25	0.00	0.06	0.06	0.00	0.06	0.45	0.00	0.03	0.43	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	170.3	39.3	0.0	63.4	63.4	0.0	69.2	214.0	0.0	71.8	27.1	0.0
Ln Grp LOS	F	D		E	E		E	F		E	C	
Approach Vol, veh/h		567			54			2299			585	
Approach Delay, s/veh		164.3			63.4			205.4			29.4	
Approach LOS		F			E			F			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8	4	6	5		
Case No	2.0	3.0	9.0	9.0	3.0	2.0		
Phs Duration (G+Y+Rc), s	13.3	70.5	14.2	40.5	67.5	16.3		
Change Period (Y+Rc), s	8.5	* 8.5	5.5	5.5	7.5	8.5		
Max Green (Gmax), s	15.0	* 60	15.0	35.0	60.0	25.0		
Max Allow Headway (MAH), s	3.7	4.7	4.4	3.9	4.7	3.7		
Max Q Clear (g_c+I1), s	4.3	64.0	4.5	37.0	16.8	7.5		
Green Ext Time (g_e), s	0.0	0.0	0.1	0.0	3.5	0.3		
Prob of Phs Call (p_c)	0.68	1.00	0.87	1.00	1.00	0.99		
Prob of Max Out (p_x)	0.00	0.00	0.00	1.00	0.00	0.00		

Left-Turn Movement Data								
Assigned Mvmt	1		3	7		5		
Mvmt Sat Flow, veh/h	1753		1753	1753		3401		

Through Movement Data								
Assigned Mvmt		2	8	4	6			
Mvmt Sat Flow, veh/h		3497	1307	1841	3497			

Right-Turn Movement Data								
Assigned Mvmt		12	18	14	16			
Mvmt Sat Flow, veh/h		1560	982	1560	1560			

Left Lane Group Data								
Assigned Mvmt	1	0	3	7	0	5	0	0
Lane Assignment	L (Prot)		L	L		L (Prot)		

Lanes in Grp	1	0	1	1	0	2	0	0
Grp Vol (v), veh/h	30	0	33	541	0	137	0	0
Grp Sat Flow (s), veh/h/ln	1753	0	1753	1753	0	1700	0	0
Q Serve Time (g_s), s	2.3	0.0	2.5	35.0	0.0	5.5	0.0	0.0
Cycle Q Clear Time (g_c), s	2.3	0.0	2.5	35.0	0.0	5.5	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1753	1753	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	61	0	111	443	0	191	0	0
V/C Ratio (X)	0.49	0.00	0.30	1.22	0.00	0.72	0.00	0.00
Avail Cap (c_a), veh/h	190	0	190	443	0	614	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	65.7	0.0	62.0	51.8	0.0	64.3	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.0	1.5	118.5	0.0	5.0	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
Control Delay (d), s/veh	71.8	0.0	63.4	170.3	0.0	69.2	0.0	0.0
1st-Term Q (Q1), veh/ln	1.0	0.0	1.1	15.3	0.0	2.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	14.6	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.1	0.0	1.2	29.9	0.0	2.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.03	0.00	0.23	3.43	0.00	0.25	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	24.5	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	6	0	0	0
Lane Assignment		T	T	T	T			
Lanes in Grp	0	2	1	1	2	0	0	0
Grp Vol (v), veh/h	0	2162	21	26	555	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	1307	1841	1749	0	0	0
Q Serve Time (g_s), s	0.0	62.0	2.1	1.5	14.8	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	62.0	2.1	1.5	14.8	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1565	83	465	1515	0	0	0
V/C Ratio (X)	0.00	1.38	0.25	0.06	0.37	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1565	142	465	1515	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	38.3	61.8	39.2	26.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	175.7	1.6	0.0	0.7	0.0	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
Control Delay (d), s/veh	0.0	214.0	63.4	39.3	27.1	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	24.4	0.7	0.7	5.9	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	38.2	0.0	0.0	0.1	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	62.6	0.7	0.7	6.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	3.13	0.05	0.00	0.09	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	149.2	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	16	0	0	0
Lane Assignment		R	R	R	R			
Lanes in Grp	0	1	1	1	1	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1560	982	1560	1560	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	698	62	394	676	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	698	106	394	676	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	167.2
HCM 6th LOS	F

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Capacity Analysis
3: SH 82 & Brush Cr Rd/RFTA / PnR

01/18/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	498	33	79	42	24	64	126	1989	72	34	511	178
Future Volume (veh/h)	498	33	79	42	24	64	126	1989	72	34	511	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1307	1159	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	541	36	0	46	26	0	137	2162	0	37	555	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	40	50	4	4	4	4	4	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	441	463		118	88		192	1545		67	1507	
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
Prop Arrive On Green	0.25	0.25	0.00	0.07	0.07	0.00	0.06	0.44	0.00	0.04	0.43	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	173.2	39.9	0.0	64.3	63.6	0.0	69.5	222.4	0.0	72.7	27.5	0.0
Ln Grp LOS	F	D		E	E		E	F		E	C	
Approach Vol, veh/h		577			72			2299			592	
Approach Delay, s/veh		164.9			64.0			213.3			30.3	
Approach LOS		F			E			F			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2	8	4	6	5		
Case No	2.0	3.0	9.0	9.0	3.0	2.0		
Phs Duration (G+Y+Rc), s	13.8	70.0	14.9	40.5	67.5	16.4		
Change Period (Y+Rc), s	8.5	* 8.5	5.5	5.5	7.5	8.5		
Max Green (Gmax), s	15.0	* 60	15.0	35.0	60.0	25.0		
Max Allow Headway (MAH), s	3.7	4.7	4.4	3.9	4.7	3.7		
Max Q Clear (g_c+I1), s	4.9	63.5	5.5	37.0	16.9	7.5		
Green Ext Time (g_e), s	0.0	0.0	0.1	0.0	3.5	0.3		
Prob of Phs Call (p_c)	0.76	1.00	0.94	1.00	1.00	1.00		
Prob of Max Out (p_x)	0.00	0.00	0.01	1.00	0.00	0.00		

Left-Turn Movement Data								
Assigned Mvmt	1		3	7		5		
Mvmt Sat Flow, veh/h	1753		1753	1753		3401		

Through Movement Data								
Assigned Mvmt		2	8	4	6			
Mvmt Sat Flow, veh/h		3497	1307	1841	3497			

Right-Turn Movement Data								
Assigned Mvmt		12	18	14	16			
Mvmt Sat Flow, veh/h		1560	982	1560	1560			

Left Lane Group Data								
Assigned Mvmt	1	0	3	7	0	5	0	0
Lane Assignment	L (Prot)		L	L		L (Prot)		

Lanes in Grp	1	0	1	1	0	2	0	0
Grp Vol (v), veh/h	37	0	46	541	0	137	0	0
Grp Sat Flow (s), veh/h/ln	1753	0	1753	1753	0	1700	0	0
Q Serve Time (g_s), s	2.9	0.0	3.5	35.0	0.0	5.5	0.0	0.0
Cycle Q Clear Time (g_c), s	2.9	0.0	3.5	35.0	0.0	5.5	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1753	1753	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	67	0	118	441	0	192	0	0
V/C Ratio (X)	0.55	0.00	0.39	1.23	0.00	0.71	0.00	0.00
Avail Cap (c_a), veh/h	189	0	189	441	0	611	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	65.8	0.0	62.2	52.1	0.0	64.6	0.0	0.0
Incr Delay (d2), s/veh	6.9	0.0	2.1	121.1	0.0	4.9	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
Control Delay (d), s/veh	72.7	0.0	64.3	173.2	0.0	69.5	0.0	0.0
1st-Term Q (Q1), veh/ln	1.3	0.0	1.6	15.4	0.0	2.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	14.8	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	1.4	0.0	1.6	30.2	0.0	2.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.04	0.00	0.32	3.46	0.00	0.25	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	25.1	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	6	0	0	0
Lane Assignment		T	T	T	T			
Lanes in Grp	0	2	1	1	2	0	0	0
Grp Vol (v), veh/h	0	2162	26	36	555	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	1307	1841	1749	0	0	0
Q Serve Time (g_s), s	0.0	61.5	2.6	2.1	14.9	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	61.5	2.6	2.1	14.9	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	1545	88	463	1507	0	0	0
V/C Ratio (X)	0.00	1.40	0.30	0.08	0.37	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1545	141	463	1507	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	38.9	61.8	39.8	26.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	183.5	1.8	0.1	0.7	0.0	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
Control Delay (d), s/veh	0.0	222.4	63.6	39.9	27.5	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	24.3	0.9	1.0	5.9	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	39.4	0.0	0.0	0.1	0.0	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	63.7	0.9	1.0	6.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	3.18	0.06	0.01	0.09	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	154.1	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	16	0	0	0
Lane Assignment		R	R	R	R			
Lanes in Grp	0	1	1	1	1	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1560	982	1560	1560	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	689	66	392	672	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	689	106	392	672	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	171.8
HCM 6th LOS	F

Notes

* HCM 6th Edition computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection: 3: SH 82 & Brush Cr Rd/RFTA / PnR

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	L	T	L	L	T	T	L	T	T	R
Maximum Queue (ft)	201	45	193	233	85	70	124	130	198	773	800	540
Average Queue (ft)	96	8	108	26	29	23	55	64	94	445	456	102
95th Queue (ft)	171	32	186	122	67	57	104	115	169	724	743	469
Link Distance (ft)		4359					517	517		1706	1706	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	225		130		250	250			825			450
Storage Blk Time (%)	0		11	0						1	12	
Queuing Penalty (veh)	0		3	0						1	61	

Intersection: 3: SH 82 & Brush Cr Rd/PNR

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	B2	B2
Directions Served	L	T	L	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	375	1486	115	84	15	96	450	613	620	514	1008	1017
Average Queue (ft)	362	800	32	25	0	36	191	540	549	115	373	388
95th Queue (ft)	421	1629	90	71	14	78	506	695	691	467	1128	1140
Link Distance (ft)		2212						514	514		3022	3022
Upstream Blk Time (%)		0						95thQ = 514+1140 = 1654				
Queuing Penalty (veh)		0						0	0	0		
Storage Bay Dist (ft)	225		130		100	250	250			450		
Storage Blk Time (%)	66	0	1	1				41	36	0		
Queuing Penalty (veh)	60	1	0	0				45	16	0		

Intersection: 3: SH 82 & Brush Cr Rd/PNR

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	97	200	207	17
Average Queue (ft)	25	101	106	1
95th Queue (ft)	70	170	177	13
Link Distance (ft)		1709	1709	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	825			450
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SH 82 & Brush Cr Rd/RFTA / PnR

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	L	T	R	L	L	T	T	L	T	T
Maximum Queue (ft)	203	48	198	240	30	88	84	128	142	1125	1722	1729
Average Queue (ft)	101	9	120	36	1	33	28	63	74	580	1309	1330
95th Queue (ft)	174	33	205	155	21	73	67	113	124	1426	2049	2065
Link Distance (ft)		4359						517	517		1706	1706
Upstream Blk Time (%)											2	2
Queuing Penalty (veh)											18	27
Storage Bay Dist (ft)	225		130		100	250	250			825		
Storage Blk Time (%)	0		17	0							34	47
Queuing Penalty (veh)	0		6	0							47	276

Intersection: 3: SH 82 & Brush Cr Rd/RFTA / PnR

Movement	SB
Directions Served	R
Maximum Queue (ft)	600
Average Queue (ft)	526
95th Queue (ft)	851
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	450
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: SH 82 & Brush Cr Rd/PNR

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	B2	B2
Directions Served	L	T	L	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	375	3065	135	118	15	93	450	614	621	514	5822	5793
Average Queue (ft)	370	1808	41	28	0	37	210	577	581	123	2766	2785
95th Queue (ft)	410	3382	99	86	15	80	538	658	659	485	5886	5889
Link Distance (ft)		3228						514	514		6374	6374
Upstream Blk Time (%)		11						46	50	0	1	1
Queuing Penalty (veh)		0						0	0	0	0	0
Storage Bay Dist (ft)	225		130		100	250	250			450		
Storage Blk Time (%)	73		1	1				49	51	0		
Queuing Penalty (veh)	76		1	1				61	26	0		

Intersection: 3: SH 82 & Brush Cr Rd/PNR

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	107	212	225	27
Average Queue (ft)	32	113	120	1
95th Queue (ft)	84	184	196	14
Link Distance (ft)		1709	1709	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	825			450
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SH 82 & Brush Cr Rd/RFTA / PnR

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	B2	B2
Directions Served	L	T	L	T	R	L	L	T	T	R	T	T
Maximum Queue (ft)	375	2998	95	103	43	93	450	628	622	517	5750	5734
Average Queue (ft)	370	1643	38	33	1	37	195	585	586	251	3051	3068
95th Queue (ft)	404	3207	81	86	25	81	517	659	652	677	6415	6417
Link Distance (ft)		4359						517	517		6374	6374
Upstream Blk Time (%)								45	48	1	6	6
Queuing Penalty (veh)								0	0	0	0	0
Storage Bay Dist (ft)	225		130		100	250	250			450		
Storage Blk Time (%)	73	0		1	0			49	50			
Queuing Penalty (veh)	82	0		1	0			62	36			

Intersection: 3: SH 82 & Brush Cr Rd/RFTA / PnR

Movement	SB	SB	SB
Directions Served	L	T	T
Maximum Queue (ft)	88	213	223
Average Queue (ft)	26	115	128
95th Queue (ft)	67	188	202
Link Distance (ft)		1706	1706
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	825		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Appendix E

May 2021 Traffic Counts / CDOT OTIS Traffic Data

Study Name Aspen Jewish Center
Start Date Wednesday, May 19, 2021 7:00 AM
End Date Thursday, May 20, 2021 6:15 PM
Site Code

Report Summary

		Southbound							Westbound							Northbound							Eastbound								Crosswalk		
Time Period	Class.	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	Total		s on Cr	ossestria	Total
Peak 1	Lights	253	119	1090	22	0	1484	278	0	7	5	16	0	28	31	6	0	194	39	0	239	1152	14	32	3	77	0	126	416	1877	N	0	0	0
Specified Period	%	94%	93%	95%	67%	0%	94%	90%	0%	58%	56%	64%	0%	60%	56%	67%	0%	92%	89%	0%	89%	94%	88%	89%	43%	90%	0%	87%	93%	92%		0%	0%	
7:00 AM - 10:00 AM	Buses	0	1	4	8	0	13	6	0	1	4	8	0	13	19	3	4	5	4	0	16	17	2	3	4	0	0	9	9	51	E	0	0	0
One Hour Peak	%	0%	1%	0%	24%	0%	1%	2%	0%	8%	44%	32%	0%	28%	35%	33%	67%	2%	9%	0%	6%	1%	13%	8%	57%	0%	0%	6%	2%	2%		0%	0%	
7:15 AM - 8:15 AM	Trucks	15	8	59	3	0	85	25	1	4	0	1	0	6	5	0	2	11	1	0	14	61	0	1	0	9	0	10	24	115	S	0	0	0
	%	6%	6%	5%	9%	0%	5%	8%	100%	33%	0%	4%	0%	13%	9%	0%	33%	5%	2%	0%	5%	5%	0%	3%	0%	10%	0%	7%	5%	6%		0%	0%	
	Total	**268**	**128**	**1153**	**33**	**0**	**1582**	**309**	**1**	**12**	**9**	**25**	**0**	**47**	**55**	**9**	**6**	**210**	**44**	**0**	**269**	**1230**	**16**	**36**	**7**	**86**	**0**	**145**	**449**	**2043**	W	0	0	0
	PHF	0.84	0.58	0.94	0.82	0	0.95	0.74	0.25	0.6	0.75	0.69	0	0.84	0.92	0.56	0.38	0.74	0.65	0	0.72	0.95	0.57	0.82	0.44	0.55	0	0.71	0.85	0.97		0%	0%	
	Approach %						77%	15%						2%	3%						13%	60%						7%	22%			**0**	**0**	**0**
Peak 2	Lights	64	54	337	11	0	466	1658	10	27	6	8	0	51	44	11	10	1295	83	1	1400	397	12	39	12	326	0	389	207	2306	N	0	0	0
Specified Period	%	98%	100%	99%	58%	0%	97%	97%	100%	100%	55%	47%	0%	78%	64%	61%	63%	97%	99%	100%	97%	96%	100%	95%	75%	98%	0%	97%	97%	96%		0%	0%	
3:00 PM - 6:15 PM	Buses	0	0	1	8	0	9	0	0	0	5	9	0	14	24	6	6	0	1	0	13	11	0	1	4	0	0	5	6	41	E	1	0	1
One Hour Peak	%	0%	0%	0%	42%	0%	2%	0%	0%	0%	45%	53%	0%	22%	35%	33%	38%	0%	1%	0%	1%	3%	0%	2%	25%	0%	0%	1%	3%	2%		100%	0%	
4:30 PM - 5:30 PM	Trucks	1	0	4	0	0	5	43	0	0	0	0	0	0	1	1	0	36	0	0	37	5	0	1	0	7	0	8	1	50	S	0	0	0
	%	2%	0%	1%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%	1%	6%	0%	3%	0%	0%	3%	1%	0%	2%	0%	2%	0%	2%	0%	2%		0%	0%	
	Total	**65**	**54**	**342**	**19**	**0**	**480**	**1701**	**10**	**27**	**11**	**17**	**0**	**65**	**69**	**18**	**16**	**1331**	**84**	**1**	**1450**	**413**	**12**	**41**	**16**	**333**	**0**	**402**	**214**	**2397**	W	1	0	1
	PHF	0.9	0.64	0.92	0.68	0	0.9	0.96	0.5	0.61	0.92	0.71	0	0.77	0.62	0.64	0.67	0.96	0.72	0.25	0.95	0.88	0.75	0.64	0.5	0.86	0	0.91	0.88	0.96		100%	0%	
	Approach %						20%	71%						3%	3%						60%	17%						17%	9%			**2**	**0**	**2**

Study Name Aspen Jewish Center
Start Date Wednesday, May 19, 2021 7:00 AM
End Date Thursday, May 20, 2021 6:15 PM
Site Code

Report Summary

		Southbound							Westbound							Northbound							Eastbound									Crosswalk		
Time Period	Class.	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	R	RoR	T	L	U	I	O	Total		s on Cr	edestria	Total
Peak 1	Lights	248	135	1056	26	0	1465	265	2	3	12	16	0	33	39	6	0	177	54	1	238	1118	9	36	7	83	0	135	449	1871	N	0	0	0
Specified Period	%	94%	98%	94%	79%	0%	94%	90%	67%	75%	75%	67%	0%	70%	67%	46%	0%	90%	84%	100%	87%	93%	82%	88%	64%	89%	0%	87%	93%	92%		0%	0%	
7:00 AM - 10:00 AM	Buses	0	1	5	7	0	13	5	1	1	3	8	0	13	18	6	1	3	4	0	14	18	1	4	4	0	0	9	8	49	E	0	0	0
One Hour Peak	%	0%	1%	0%	21%	0%	1%	2%	33%	25%	19%	33%	0%	28%	31%	46%	100%	2%	6%	0%	5%	1%	9%	10%	36%	0%	0%	6%	2%	2%		0%	0%	
7:15 AM - 8:15 AM	Trucks	15	2	64	0	0	81	26	0	0	1	0	0	1	1	1	0	16	6	0	23	66	1	1	0	10	0	12	24	117	S	0	0	0
	%	6%	1%	6%	0%	0%	5%	9%	0%	0%	6%	0%	0%	2%	2%	8%	0%	8%	9%	0%	8%	5%	9%	2%	0%	11%	0%	8%	5%	6%		0%	0%	
	Total	**263**	**138**	**1125**	**33**	**0**	**1559**	**296**	**3**	**4**	**16**	**24**	**0**	**47**	**58**	**13**	**1**	**196**	**64**	**1**	**275**	**1202**	**11**	**41**	**11**	**93**	**0**	**156**	**481**	**2037**	W	0	0	0
	PHF	0.77	0.75	0.96	0.69	0	0.91	0.8	0.38	0.5	0.57	0.5	0	0.62	0.85	0.65	0.25	0.79	0.73	0.25	0.79	0.94	0.55	0.54	0.69	0.86	0	0.78	0.81	0.92		0%	0%	
	Approach %						77%	15%						2%	3%						14%	59%						8%	24%			**0**	**0**	**0**
Peak 2	Lights	65	40	352	7	0	464	1597	6	18	8	5	0	37	46	24	8	1179	71	1	1283	415	16	41	7	394	0	458	184	2242	N	1	0	1
Specified Period	%	97%	100%	96%	37%	0%	95%	97%	86%	82%	62%	36%	0%	66%	61%	77%	57%	97%	96%	100%	96%	94%	89%	95%	64%	99%	0%	97%	95%	95%		100%	0%	
3:00 PM - 6:15 PM	Buses	0	0	3	9	0	12	3	1	0	4	9	0	14	24	6	5	2	1	0	14	14	1	1	4	0	0	6	5	46	E	0	0	0
One Hour Peak	%	0%	0%	1%	47%	0%	2%	0%	14%	0%	31%	64%	0%	25%	32%	19%	36%	0%	1%	0%	1%	3%	6%	2%	36%	0%	0%	1%	3%	2%		0%	0%	
4:00 PM - 5:00 PM	Trucks	2	0	10	3	0	15	41	0	4	1	0	0	5	5	1	1	33	2	0	37	12	1	1	0	4	0	6	5	63	S	0	1	1
	%	3%	0%	3%	16%	0%	3%	2%	0%	18%	8%	0%	0%	9%	7%	3%	7%	3%	3%	0%	3%	3%	6%	2%	0%	1%	0%	1%	3%	3%		0%	100%	
	Total	**67**	**40**	**365**	**19**	**0**	**491**	**1641**	**7**	**22**	**13**	**14**	**0**	**56**	**75**	**31**	**14**	**1214**	**74**	**1**	**1334**	**441**	**18**	**43**	**11**	**398**	**0**	**470**	**194**	**2351**	W	0	0	0
	PHF	0.84	0.77	0.77	0.68	0	0.82	0.91	0.58	0.61	0.81	0.7	0	0.78	0.89	0.7	0.88	0.94	0.71	0.25	0.95	0.8	0.64	0.77	0.69	0.83	0	0.88	0.87	0.97		0%	0%	
	Approach %						21%	70%						2%	3%						57%	19%						20%	8%			**1**	**1**	**2**

CDOT Sta 000236 Total Traffic

2021 Through 10/31 6308744
2020 Through 10/31 5646792
2019 Through 10/31 6159996

CDOT Sta 000236 Monthly Traff

COUNTSTATI	CALYR	JANCOUN	FEBCOUN	MARCOUI	APRCOUN	**MAYCOUI**	JUNCOUN	**JULCOUNT**	AUGCOUN	SEPCOUN	OCTCOUN	NOVCOUN	DECCOUN	YEARAVG
236	2019	20116	19966	19984	18414	17804	22109	23152	22780	21201	19369	17424	20402	
236	2018	19621	19180	19680	18304	17765	21602	22512	21946	20849	18397	17199	19720	
236	2017	18550	18921	19443	16987	16943	21253	22324	21086	19821	18048	16873	19575	
236	2016	18612	18613	18878	16828	17254	21393	22397	20902	20479	18174	16340	18813	
236	2015	17908	17741	18317	16451	15838	20486	22141	20765	20084	18002	16160	18790	Average
5 yr monthly average		18961	18884	19260	17397	17121	21369	22505	21496	20487	18398	16799	19460	19345
% of average		98.0%	97.6%	99.6%	89.9%	88.5%	110.5%	116.3%	111.1%	105.9%	95.1%	86.8%	100.6%	
						May ---> July		131.4%						

Appendix F

Access Permit 311106; Brush Creek Park and Ride IGA

COLORADO DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ACCESS PERMIT

CDOT Permit No. **311106**

State Highway No/Mp/Side 082 A / 35.260 / R

Permit fee	Date of transmittal	Region/Section/Patrol	Local Jurisdiction
$0.00	9/15/2011	3 / 02 / 16-2 Floyd Strader	Pitkin County

The Permittee(s);

Roaring Fork Transportation Authority
Michael Hermes
1340 Main Street
Carbondale, CO 81623
970-384-4973

Applicant:
Brett Meredith
1340 Main Street
Carbondale, CO 81623
970-384-4861

Ref No.:

is hereby granted permission to have an access to the state highway at the location noted below. The access shall be constructed, maintained and used in accordance with this permit, including the State Highway Access Code and any attachments, terms, conditions and exhibits. This permit may be revoked by the issuing authority if at any time the permitted access and its use violate any parts of this permit. The issuing authority, the Department and their duly appointed agents and employees shall be held harmless against any action for personal injury or property damage sustained by reason of the exercise of the permit.

Location: 1977 feet west of mile post 35 also know as Brush Creek Road

Access to Provide Service to:	(Land Use Code:)	(Size or Count)	(Units)
	090 - Park-and Ride Lot With Bus Service	212	DHV

Additional Information:

MUNICIPALITY OR COUNTY APPROVAL
Required only when the appropriate local authority retains issuing authority.

Signature	Print Name	Title	Date

Upon the signing of this permit the permittee agrees to the terms and conditions and referenced attachments contained herein. All construction shall be completed in an expeditious and safe manner and shall be finished within 45 days from Initiation. The permitted access shall be completed in accordance with the terms and conditions of the permit prior to being used.

The permittee shall notify Don Poole with the Colorado Department of Transportation in Grand Junction, Colorado at (970) 384-3366, at least 48 hours prior to commencing construction within the State Highway right-of-way.

The person signing as the permittee must be the owner or legal representative of the property served by the permitted access and have full authority to accept the permit and its terms and conditions.

Permittee Signature	Print Name	Date
Michael Hermes	Michael Hermes	10/17/11

This permit is not valid until signed by a duly authorized representative of the Department.
COLORADO DEPARTMENT OF TRANSPORTATION

Signature	Print Name	Title	Date (of issue)
	Daniel Rowson	Permit Manager	10-25-2011

Copy Distribution: Required: 1.Region 2.Applicant 3.Staff Access Section 4.Central Files. Make copies as necessary for: Local Authority MTCE Patrol Inspector Traffic Engineer

Previous editions are obsolete and may not be used

COLORADO DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ACCESS PERMIT

CDOT Permit No. **311106**

State Highway No/Mp/Side: 082 A / 35.260 / R

Permit fee	Date of transmittal	Region/Section/Patrol	Local Jurisdiction
$0.00	9/15/2011	3 / 02 / 16-2 Floyd Strader	Pitkin County

The Permittee(s):

Roaring Fork Transportation Authority
Michael Hermes
1340 Main Street
Carbondale, CO 81623
970-384-4973

Applicant:
Brett Meredith
1340 Main Street
Carbondale, CO 81623
970-384-4861

Ref No.:

is hereby granted permission to have an access to the state highway at the location noted below. The access shall be constructed, maintained and used in accordance with this permit, including the State Highway Access Code and any attachments, terms, conditions and exhibits. This permit may be revoked by the issuing authority if at any time the permitted access and its use violate any parts of this permit. The issuing authority, the Department and their duly appointed agents and employees shall be held harmless against any action for personal injury or property damage sustained by reason of the exercise of the permit.

Location: 1977 feet west of mile post 35 also know as Brush Creek Road

Access to Provide Service to:	(Land Use Code:)	(Size or Count)	(Units)
	090 - Park-and Ride Lot With Bus Service	212	DHV

Additional Information:

MUNICIPALITY OR COUNTY APPROVAL
Required only when the appropriate local authority retains issuing authority.

Signature	Print Name	Title	Date
	G R Fielding	County Engineer	3/1/2012

Upon the signing of this permit the permittee agrees to the terms and conditions and referenced attachments contained herein. All construction shall be completed in an expeditious and safe manner and shall be finished within 45 days from Initiation. The permitted access shall be completed in accordance with the terms and conditions of the permit prior to being used.

The permittee shall notify Don Poole with the Colorado Department of Transportation in Grand Junction, Colorado at (970) 384-3366, at least 48 hours prior to commencing construction within the State Highway right-of-way.

The person signing as the permittee must be the owner or legal representative of the property served by the permitted access and have full authority to accept the permit and its terms and conditions.

Permittee Signature	Print Name	Date
	Michael Hermes	10/17/11

This permit is not valid until signed by a duly authorized representative of the Department.
COLORADO DEPARTMENT OF TRANSPORTATION

Signature	Print Name	Title	Date (of issue)
	Daniel Rousson	Permit Manager	10-25-2011

Copy Distribution: Required: 1.Region 2.Applicant 3.Staff Access Section 4.Central Files
Make copies as necessary for: Local Authority MTCE Patrol Inspector Traffic Engineer

Previous editions are obsolete and may not be used

The following paragraphs are excerpts of the State Highway Access Code. These are provided for your convenience but do not alleviate compliance with all sections of the Access Code. A copy of the State Highway Access Code is available from your local issuing authority (local government) or the Colorado Department of Transportation (Department). When this permit was issued, the issuing authority made its decision based in part on information submitted by the applicant, on the access category which is assigned to the highway, what alternative access to other public roads and streets is available, and safety and design standards. Changes in use or design not approved by the permit or the issuing authority may cause the revocation or suspension of the permit.

APPEALS

1. Should the permittee or applicant object to the denial of a permit application by the Department or object to any of the terms or conditions of a permit placed there by the Department, the applicant and permittee (appellant) have a right to appeal the decision to the [Transportation] Commission [of Colorado]. To appeal a decision, submit a request for administrative hearing to the Transportation Commission of Colorado within 60 days of transmittal of notice of denial or transmittal of the permit for signature. Submit the request to the Transportation Commission of Colorado, 4201 East Arkansas Avenue, Denver, Colorado 80222-3400. The request shall include reasons for the appeal and may include changes, revisions, or conditions that would be acceptable to the permittee or applicant.

2. Any appeal by the applicant or permittee of action by a local issuing authority shall be filed with the local authority and be consistent with the appeal procedures of the local authority.

3. In submitting the request for administrative hearing, the appellant has the option of including within the appeal a request for a review by the Department's internal administrative review committee pursuant to [Code] subsection 2.10. When such committee review is requested, processing of the appeal for formal administrative hearing, 2.9(5) and (6), shall be suspended until the appellant notifies the Commission to proceed with the administrative hearing, or the appellant submits a request to the Commission or the administrative law judge to withdraw the appeal. The two administrative processes, the internal administrative review committee, and the administrative hearing, may not run concurrently.

4. Regardless of any communications, meetings, administrative reviews or negotiations with the Department or the internal administrative review Committee regarding revisions or objections to the permit or a denial, if the permittee or applicant wishes to appeal the Department's decision to the Commission for a hearing, the appeal must be brought to the Commission within 60 days of transmittal of notice of denial or transmittal of the permit.

PERMIT EXPIRATION

1. A permit shall be considered expired if the access is not under construction within one year of the permit issue date or before the expiration of any authorized extension. When the permittee is unable to commence construction within one year after the permit issue date, the permittee may request a one year extension from the issuing authority. No more than two one-year extensions may be granted under any circumstances. If the access is not under construction within three years from date of issue the permit will be considered expired. Any request for an extension must be in writing and submitted to the issuing authority before the permit expires. The request should state the reasons why the extension is necessary, when construction is anticipated, and include a copy of page 1 (face of permit) of the access permit. Extension approvals shall be in writing. The local issuing authority shall obtain the concurrence of the Department prior to the approval of an extension, and shall notify the Department of all denied extensions within ten days. Any person wishing to reestablish an access permit that has expired may begin again with the application procedures. An approved Notice to Proceed, automatically renews the access permit for the period of the Notice to Proceed.

CONSTRUCTION

1. Construction may not begin until a Notice to Proceed is approved. (Code subsection 2.4]

2. The construction of the access and its appurtenances as required by the terms and conditions of the permit shall be completed at the expense of the permittee except as provided in subsection 2.14. All materials used in the construction of the access within the highway right-of-way or on permanent easements, become public property. Any materials removed from the highway right-of-way will be disposed of only as directed by the Department. All fencing, guard rail, traffic control devices and other equipment and materials removed in the course of access construction shall be given to the Department unless otherwise instructed by the permit or the Department inspector.

3. The permittee shall notify the individual or the office specified on the permit or Notice to Proceed at least two working days prior to any construction within state highway right-of-way. Construction of the access shall not proceed until both the access permit and the Notice to Proceed are issued. The access shall be completed in an expeditious and safe manner and shall be finished within 45 days from initiation of construction within the highway right-of-way. A construction time extension not to exceed 30 working days may be requested from the individual or office specified on the permit.

4. The issuing authority and the Department may inspect the access during construction and upon completion of the access to ensure that all terms and conditions of the permit are met. Inspectors are authorized to enforce the conditions of the permit during construction and to halt any activities within state right-of-way that do not comply with the provisions of the permit, that conflict with concurrent highway construction or maintenance work, that endanger

highway property, natural or cultural resources protected by law, or the health and safety of workers or the public.

5. Prior to using the access, the permittee is required to complete the construction according to the terms and conditions of the permit. Failure by the permittee to abide by all permit terms and conditions shall be sufficient cause for the Department or issuing authority to initiate action to suspend or revoke the permit and close the access. If in the determination of the Department or issuing authority the failure to comply with or complete the construction requirements of the permit create a highway safety hazard, such shall be sufficient cause for the summary suspension of the permit. If the permittee wishes to use the access prior to completion, arrangements must be approved by the issuing authority and Department and included in the permit. The Department or issuing authority may order a halt to any unauthorized use of the access pursuant to statutory and regulatory powers. Reconstruction or improvement of the access may be required when the permittee has failed to meet required specifications of design or materials. If any construction element fails within two years due to improper construction or material specifications, the permittee shall be responsible for all repairs. Failure to make such repairs may result in suspension of the permit and closure of the access.

6. The permittee shall provide construction traffic control devices at all times during access construction, in conformance with the M.U.T.C.D. as required by section 42-4-104, C.R.S., as amended.

7. A utility permit shall be obtained for any utility work within highway right-of-way. Where necessary to remove, relocate, or repair a traffic control device or public or private utilities for the construction of a permitted access, the relocation, removal or repair shall be accomplished by the permittee without cost to the Department or issuing authority, and at the direction of the Department or utility company. Any damage to the state highway or other public right-of-way beyond that which is allowed in the permit shall be repaired immediately. The permittee is responsible for the repair of any utility damaged in the course of access construction, reconstruction or repair.

8. In the event it becomes necessary to remove any right-of-way fence, the posts on either side of the access shall be securely braced with an approved end post before the fence is cut to prevent any slacking of the remaining fence. All posts and wire removed are Department property and shall be turned over to a representative of the Department.

9. The permittee shall ensure that a copy of the permit is available for review at the construction site at all times. The permit may require the contractor to notify the individual or office specified on the permit at any specified phases in construction to allow the field inspector to inspect various aspects of construction such as concrete forms, subbase, base course compaction, and materials specifications. Minor changes and additions may be ordered by the Department or local authority field inspector to meet unanticipated site conditions.

10. Each access shall be constructed in a manner that shall not cause water to enter onto the roadway or shoulder, and shall not interfere with the existing drainage system on the right-of-way or any adopted municipal system and drainage plan.

11. The Permittee is responsible for obtaining any necessary additional Federal, State and/or City/County permits or clearances required for construction of the access. Issuance of this access permit does not constitute verification of the above required actions by the Permittee.

By accepting the permit, the permittee stipulates and agrees to fully protect, save, defend, indemnify, and hold harmless, to the extent allowed by law, the issuing Authority, and each of the Authority's directors, officers, employees, agents and representatives, from and against any and all claims, costs (including but not limited to all reasonable fees and charges of engineers, architects, attorneys, and other professionals or expert witnesses and all court or other dispute resolution costs directly incurred by reason of claims directly brought against the Authority), losses, damages, pre- or post-judgment interest, causes of action, suits, or liability of any nature whatsoever by reason of liability imposed due to Permittee's failure to obtain, or disregard of, any applicable federal, state or local environmental permits, approvals, authorizations, or clearances, or in meeting or complying with any applicable federal, state or local environmental law, regulation, condition or requirements in connection with any activities authorized by this Access Permit.

CHANGES IN ACCESS USE AND PERMIT VIOLATIONS

1. It is the responsibility of the property owner and permittee to ensure that the use of the access to the property is not in violation of the Code, permit terms and conditions or the Act. The terms and conditions of any permit are binding upon all assigns, successors-in-interest, heirs and occupants. If any significant changes are made or will be made in the use of the property which will affect access operation, traffic volume and or vehicle type, the permittee or property owner shall contact the local issuing authority or the Department to determine if a new access permit and modifications to the access are required.

2. When an access is constructed or used in violation of the Code, section 43-2-147(5)(c), C.R.S., of the Act applies. The Department or issuing authority may summarily suspend an access permit and immediately order closure of the access when its continued use presents an immediate threat to public health, welfare or safety. Summary suspension shall comply with article 4 of title 24, C.R.S.

MAINTENANCE

1. The permittee, his or her heirs, successors-in-interest, assigns, and occupants of the property serviced by the access shall be responsible for meeting the terms and conditions of the permit, the repair and maintenance of the access beyond the edge of the roadway including any cattle guard and gate, and the removal or clearance of snow or ice upon the access even though deposited on the access in the course of Department snow removal operations. Within unincorporated areas the Department will keep access culverts clean as part of maintenance of the highway drainage system. However, the permittee is responsible for the repair and replacement of any access-related culverts within the right-of-way. Within incorporated areas, drainage responsibilities for municipalities are determined by statute and local ordinance. The Department will maintain the roadway including auxiliary lanes and shoulders, except in those cases where the access installation has failed due to improper access construction and/or failure to follow permit requirements and specifications in which case the permittee shall be responsible for such repair. Any significant repairs such as culvert replacement, resurfacing, or changes in design or specifications, requires authorization from the Department.

STATE HIGHWAY ACCESS PERMIT 311106 **September 15, 2011**

Located on Highway 82A near MP 35.26 Left
Issued to Roaring Fork Transportation Authority

TERMS AND CONDITIONS

1. This permitted access is only for the use and purpose stated in the Application and Permit. This Permit is issued in accordance with the State Highway Access Code (2 CCR 601-1), and is based in part upon the information submitted by the Permittee. Any subsequent relocation, reconstruction, or modifications to the access or changes in the traffic volume or traffic nature using the access shall be requested for by means of a new application. Any changes causing non-compliance with the Access Code may render this permit void, requiring a new permit.
2. The Permittee shall design and install a right turn deceleration lane in accordance with Section 4 of the Access Code.
3. The traffic volume shall be 212 DHV. The traffic volume includes Passenger Car Equivalents (PCE).
4. An additional bus only, left turn lane will be constructed and shall be 855 feet with a 445 foot taper.
5. The Park ‘n Ride access shall be constructed to accommodate the dual left turning movement.
6. The crosswalk will be removed from the north leg of the intersection and pedestrian movements shall be accommodated within the park ‘n ride facility.
7. This access shall be constructed 25-40 feet wide. This access shall be constructed with turning radii to accommodate an AASHTO WB-50 turning radius. The turning radius shall be measured from the white line on the Hwy to the edge of the driveway. A drawing of the design vehicle turning template for the largest vehicle entering/exiting site will be required to ensure proper radius and lane widths.
8. The access shall be constructed perpendicular to the travel lanes of the State Highway for a minimum distance of 40 feet from the edge of roadway. Side slopes shall be at a 4:1 slope on the roadway and at 6:1 to the approach. The driveway shall slope away from the highway at a -2% grade for the first 20 feet of driveway. This design shall be in conformance with section 4 of the State Highway Access Code, 2CCR 601-1.
9. The access shall be surfaced in accordance with Section 4.7 of the Access Code immediately upon completion of earthwork construction and prior to use. This access shall be hard surfaced in accordance with Section 4.7 of the Access Code a minimum distance of 50 feet from the traveled way or to the CDOT Right-of-Way. Where the hard surface is to abut existing pavement, the existing pavement shall be saw cut and removed a minimum of one foot back from the existing edge for bituminous, or until an acceptable existing cross slope is achieved. Surfacing shall meet the Department’s specifications with minimum surfacing to be equal to or greater than existing highway conditions.
10. This permit replaces permit any and all additional access permits that may be in existence for this access.
11. A pre-design meeting is required prior to construction design. Required personnel for this meeting are: Professional Engineer of Record (i.e., the person who shall sign and seal the plan set), Design Engineer, and Permittee. Please contact Devin Drayton 970-683-6286 for scheduling this pre-design meeting.

12. A Notice to Proceed, CDOT Form 1265 is required before beginning the construction of the access or any activity within the highway right-of-way. To receive the Notice to Proceed the applicant shall submit a complete packet to CDOT with the following items:
    (a) A cover letter requesting a Notice to Proceed.
    (b) Certificate of Insurance Liability as per Section 2.3(11)(i) of the State Highway Access Code.
    (c) A certified Traffic Control Plan in accordance with Section 2.4(6) of the Access Code. The Traffic Control Plan shall provide accessibility features to accommodate all pedestrians including persons with disabilities for all pathways during construction.
    (d) Ten copies of Construction Plans Stamped (11"x 17" with a minimum scale of 1" = 50') by a Colorado Registered Professional Engineer in full compliance with the State Highway Access Code.
    (e) Signed and sealed Notice to Proceed Checklist.
    (f) Signed and sealed Drainage Report or narrative.
    (g) Prior to the issuance of any Notice to Proceed, the applicant shall schedule a pre-construction meeting including but not limited to applicant, Engineer of Record, Construction Inspector, construction personnel, Permittee (if other than applicant), CDOT representative and Traffic Control Supervisor.
    (h) A construction schedule will be required at the pre-construction meeting.
13. No drainage from this site shall enter onto the State Highway travel lanes. The Permittee is required to maintain all drainage in excess of historical flows and time of concentration on site. All existing drainage structures shall be extended, modified or upgraded, as applicable, to accommodate all new construction and safety standards, in accordance with the Department's standard specifications.

14. All materials, equipment, installation and construction within the State Highway ROW shall be in accordance with the latest edition of the following standard references as applicable:
    A. CDOT Materials Manual
    B. CDOT Construction Manual
    C. CDOT Standard Specifications for Road and Bridge Construction, latest edition
    D. CDOT Standard Special Provisions, as applicable to project
    E. CDOT Standard Plans (M&S Standards)
    FHWA Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways and the Colorado Supplement thereto
    F. AASHTO Roadside Design Guide
15. A new culvert may be required for this access. The drainage study will be used to size all culverts. As a minimum, an 18-inch culvert with protective end treatments will be required. The culvert shall be kept free of blockage to maintain proper flow and drainage.
16. Open cuts, which are at least 4 inches in depth, within 30 feet of the edge of the State Highway traveled way, will not be left open at night, on weekends, or on holidays, or shall be protected with a suitable barrier per State and Federal Standards.
17. The Permittee is responsible for obtaining any necessary additional Federal, State and/or City/County permits or clearances required for construction of the access. Approval of this

access permit does not constitute verification of this action by the Permittee. Permittee is also responsible for obtaining all necessary utility permits in addition to this access permit.

18. All workers within the State Highway right of way shall comply with their employer's safety and health policies/procedures, and all applicable U.S. Occupational Safety and Health Administration (OSHA) regulations - including, but not limited to the applicable sections of 29 CFR Part 1910 - Occupational Safety and Health Standards and 29 CFR Part 1926 - Safety and Health Regulations for Construction. Personal protective equipment (e.g. head protection, footwear, high visibility apparel, safety glasses, hearing protection, respirators, gloves, etc.) shall be worn as appropriate for the work being performed, and as specified in regulation.
19. The Permittee is required to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) that have been adopted by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board), and incorporated by the U.S. Attorney General as a federal standard. These guidelines provide requirements for design and construction. The current Standards Plans and can be found on the Design and Construction Project Support web page at: http://www.dot.state.co.us/DesignSupport/, then click on *Design Bulletins*.
20. CDOT requires submission of SWMP plans on any projects where the area of CDOT ROW impacted exceeds one acre.
21. On all CDOT access permit projects where the developers are required to apply and obtain a CSP (Construction Storm Water Permit) from the respective regulatory agency, "The Permittee/Applicant is required to include the portion of CDOT Rights of Way to be impacted by the construction of the access within their Construction Storm Water Permit (CSP). A notice to proceed will not be issued until the Permittee/applicant provides CDOT region permit office with the proof of such inclusion on the developer's CSP.
22. It is the responsibility of the Permittee/applicant to determine which environmental clearances and/or regulations apply to the project, and to obtain any clearances that are required directly from the appropriate agency. Please refer to or request a copy of the "CDOT Environmental Clearance Information Summary" for details. FAILURE TO COMPLY WITH REGULATORY REQUIREMENTS MAY RESULT IN SUSPENSION OR REVOCATION OF YOUR CDOT PERMIT, OR ENFORCEMENT ACTIONS BY OTHER AGENCIES.
    - ALL discharges are subject to the provisions of the Colorado Water Quality Control Act and the Colorado Discharge Permit Regulations. Prohibited discharges include substances such as: wash water, paint, automotive fluids, solvents, oils or soaps.
    - Unless otherwise identified by CDOT or the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) as significant sources of pollutants to the waters of the State, the following discharges to storm water systems are allowed without a Colorado Discharge Permit System permit: landscape irrigation, diverted stream flows, uncontaminated ground water infiltration to separate storm sewers, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, footing drains; water line flushing, flows from riparian habitats and wetlands, and flow from fire fighting activities. However, construction activities may require a Construction Stormwater Permit. Contact the CDOT Water Quality Program Manager at 303-757-9343.
    - ANY OTHER DISCHARGES may require Colorado Discharge Permit(s) or separate permits from CDPHE or the appropriate agency before work begins. For additional information and forms, go to the CDPHE website at: http://www.cdphe.state.co.us/wq/PermitsUnits/wqcdpmt.html.

23. Nothing in this permit shall prohibit the chief engineer from exercising the right granted in CRS 43-3-102 Including but not limited to restricting left hand turns by construction of physical medial separations.
24. A signed and approved temporary lease agreement is required if construction trailers are to be located on CDOT ROW during construction.
25. The Permittee shall provide accessibility features to accommodate all pedestrians including persons with disabilities for all pathways during and after construction.
26. During access construction no construction personal vehicles will be permitted to park in the state highway right-of-way.
27. The access shall be completed in an expeditious and safe manner and shall be completed within 45 days from initiation of construction within State Highway right-of-way or in accordance with written concurrence of the Access Manager. All construction shall be completed in a single season.
28. All costs associated with any type of utility work will be at the sole responsibility and cost of the Permittee and at no cost to CDOT.
29. Any damage to present highway facilities including traffic control devices shall be repaired immediately at no cost to the Department and prior to continuing other work.
30. Any mud or other material tracked or otherwise deposited on the roadway shall be removed daily or as ordered by the Department inspector. If mud is obvious condition during site construction, it is recommended that the contractor build a Stabilized Construction Entrance or Scrubber Pad at the intended construction access to aid in the removal of mud and debris from vehicle tires. The details of the Stabilized Construction Entrance are found in the M & S Standards Plan No. M-208-1.
31. A fully executed complete copy of this permit and the Notice to Proceed must be on the job site with the contractor at all times during the construction. Failure to comply with this or any other construction requirement may result in the immediate suspension of work by order of the Department inspector or the issuing authority.
32. All construction and inspection work must be under the direction of a Colorado Registered Professional Engineer. The PE's responsibilities include, but are not limited to:
    (a) The PE shall evaluate compliance with plans and specifications with regard to the roadway improvements within the State right-of-way. The PE shall carefully monitor the contractor's compliance on all aspects of construction, including construction zone traffic control.
    (b) Engineering Certification: After inspection and before final acceptance, the Engineer shall certify to CDOT in writing that all inspections, materials, materials testing, and construction methods conform to the plans, specifications and purpose of design. Upon completion of the work, that responsible Engineer shall submit an "As Built" plans, showing in detail all approved construction changes, modification.
33. No work will be allowed at night, Saturdays, Sundays and legal holidays without prior authorization from the Department. The Department may also restrict work within the State Highway right-of-way during adverse weather conditions.
34. Areas of roadway and/or right-of-way disturbed during this installation shall be restored to their original conditions to insure proper strength and stability, drainage and erosion control. Restoration shall meet the Department's standard specifications for topsoil, fertilization, mulching, and re-seeding.

Construction Completion & Final Acceptance

35. The Permittee shall construct all improvements stated on this permit prior to any use as allowed by this permit. The Permittee shall notify the Permit Manager by certified mail within 10 working days to request a final inspection. This request shall include signed and sealed certification that all materials and construction have been completed in accordance with all applicable Department Standards and Specifications; and that the access is constructed in conformance with the State Highway Access Code, 2 CCR 601-1, and the terms and conditions included in this permit. The engineer of record shall be present for this inspection. The access serviced by this permit may not be opened to traffic until the CDOT Access Manager provides written initial approval.
36. Following the final inspection, CDOT will prepare an Access Construction Inspection Summary Letter and send it to the applicant, Permittee, and engineer of record. If additional items are required to complete the access construction, a list of these items will be part of the access construction inspection summary letter. All required items and final as-built survey shall be completed within 30 days from receiving the Access Construction Summary Letter. The access serviced by this permit may not be opened to traffic until written approval has been given from the CDOT Access Manager. If all work appears to have been done in general close conformity with the above named permit, an initial acceptance letter will be sent to the Permittee and this access may be opened for traffic.
37. The 2 year warrantee period will begin when the initial acceptance letter is issued. In accordance with section 2.5(6) of the State Highway Access Code, if any construction element fails within two-years due to improper construction or material specifications, the Permittee shall be responsible for all repairs. Failure to make such repairs may result in suspension of the permit and closure of the access. The letter of final acceptance will be issued once the access has been inspected and is found to comply with all material and construction in accordance with all applicable Department Standards and Specifications approx. 2 years after initial acceptance.

INTERGOVERNMENTAL AGREEMENT
BRUSH CREEK PARK-N-RIDE MANAGEMENT, MAINTENANCE AND USE PLAN

THIS INTERGOVERNMENTAL AGREEMENT ("Agreement"), is made and entered into as of this 23rd day of May of 2005, by and among the CITY OF ASPEN, Colorado, a home-rule municipal corporation ("Aspen"), THE TOWN OF SNOWMASS VILLAGE, Colorado, a home-rule municipal corporation ("TOSV") and the BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF PITKIN, Colorado, a body corporate and politic ("County"), THE ROARING FORK TRANSPORTATION AUTHORITY, a political subdivision of the State of Colorado.

RECITALS

WHEREAS, the parties to this Agreement have the authority pursuant to Article XIV, Section 18, of the Colorado and Section 29-1-20. *et seq.*, of the Colorado revised Statutes, to enter into intergovernmental agreements for the purpose of providing any service or performing any function which they can perform individually; and

WHEREAS, the Aspen City Council, the Pitkin County Board of County Commissioners, and the Town Council of Snowmass Village, have adopted Joint Resolution # 61-1993, approving a comprehensive valley transportation plan and endorsing a one-half (1/2) cent sales tax and one-half cent use tax to fund the general elements of the transportation plan and the formation of the Elected Officials Transportation Committee (EOTC); and

WHERAS, the members of the EOTC agree that the amount of all expenditures and all projects to be funded with revenues derived from the one-half (1/2) cent sales and one-half (1/2) cent use tax shall be agreed upon by all three members of the EOTC in advance of any such expenditure and/or project as evidenced by a resolution duly adopted by the governing bodies of each party; and

WHEREAS, the Aspen City Council, the Pitkin County Board of County Commissioners, and the Town Council of Snowmass Village, as members of the Elected Officials Transportation Committee known as the EOTC, are working together to solve common transportation problems; and

WHEREAS, the Brush Creek Park-N-Ride parking lot owned by the Colorado Department of Transportation (CDOT) located on 27.2 acres, in Pitkin County, on the east side of State Highway 82 across from Brush Creek Road is currently used for transit and parking purposes; and

WHEREAS, The entire area identified on the attached Exhibit A commonly referred to as the Brush Creek Park-and-ride Lot ("Park-and-ride Lot") is jointly leased by the City of Aspen (Aspen) and the Roaring Fork Transportation Authority (RFTA) from the Colorado Department of Transportation (CDOT) for transit and parking use; and

WHEREAS, the EOTC has agreed to design and fund the construction of additional unpaved parking spaces at the Brush Creek Park-N-Ride parking lot owned by the Colorado Department

of Transportation (CDOT) located on 27.2 acres, in Pitkin County, on the east side of State Highway 82 across from Brush Creek Road; and

WHEREAS, the City of Aspen and the Roaring Fork Transportation Authority (RFTA) have been required to enter into a joint lease agreement with CDOT, the owner of the site, to permit the construction of site improvements, management, maintenance and use of the site for transit and parking purposes; and

WHEREAS, the City of Aspen, on behalf of the EOTC has submitted a State Highway Access Permit Application to CDOT for approval in order to make access changes and site improvements to the Brush Creek Park-N-Ride parking lot; and

WHEREAS, the RFTA shall continue to operate in and out of the transit area and maintain the transit facilities in the Brush Creek Park-N-Ride; and

WHEREAS, the Brush Creek Park-N-Ride Management, Maintenance, and Use Plan will regulate and assign responsibilities for the management, maintenance and use of the Brush Creek Park-N-Ride lot; and

WHEREAS, the EOTC wishes to further define and clarify the method and process by which the Brush Creek Management, Maintenance and Use Plan will be implemented and funded; and

NOW, THERFORE, for and in consideration of the mutual covenants and agreement of the parties, and other good and valuable consideration, the adequacy and sufficiency of which is hereby acknowledged, the parties agree as follows:

I.
PURPOSE

This Intergovernmental Agreement is designed and intended to assign, define and clarify the management, maintenance and use of the Brush Creek Park-N-Ride Lot through the Brush Creek Park-N-Ride Lot Management, Maintenance and Use Plan.

II.
BRUSH CREEK PARK-N-RIDE MANAGEMENT, MAINTENANCE AND USE PLAN

The purpose of the Park-and-ride Lot is to provide parking and shuttle service for commuters, visitors, day skiers, special event attendees and others traveling to the Town of Snowmass Village, Pitkin County and/or the City of Aspen.

Exhibit A, appended hereto and made a part hereof, designates three areas of responsibility: the "City of Aspen Maintenance Area," the "RFTA Maintenance Area," and the "CDOT Maintenance Area." The responsibility for the management, maintenance and use of those respective areas of the Park-and-ride Lot shall be as indicated on Exhibit A.

The EOTC shall budget for and fund the annual operating and capital costs associated with the portion of the Park-and-ride Lot area to be maintained by the City of Aspen for the EOTC. An annual operating and capital budget shall be presented to the EOTC for review and approval during the annual EOTC budget process.

The budget approval process shall be consistent with the EOTC budget approval process and require unanimous approval by all member jurisdictions, provided that the individual jurisdictions do not have to have a unanimous vote but simple majority vote.

The EOTC shall review the current transit, parking operations, and special event use of the facility annually and must unanimously approve any proposed major changes in use of the lot in conjunction with CDOT.

RFTA at its own expense shall maintain the portion of the Park-and-ride Lot associated facilities designated as the "RFTA Maintenance Area" on Exhibit A with the exception of the landscaping, irrigation and irrigation pond in the RFTA Maintenance Area, which will be maintained by the City of Aspen.

CHANGE OR FUTURE USE OF THE PARKING LOT

Any proposed change or special event use of the Park-and-ride Lot shall require the unanimous approval of the member jurisdictions of the EOTC consistent with existing IGAs governing the EOTC, providing that the individual jurisdictions do not have to have a unanimous vote, rather a simple majority vote, and in coordination with CDOT.

CITY OF ASPEN RESPONSIBILITES

The Director of Parking for the City of Aspen shall be responsible for developing an operational plan for the daily and minor special use, management, maintenance, and enforcement of the portion of the Park-and-ride Lot designated as the City of Aspen Maintenance Area on Exhibit A.

The City of Aspen shall maintain and repair the parking area and facilities including but not limited to the paved asphalt lot, striping, parking islands, landscaping, existing lighting, signage, curb and gutter, the gravel RAP or green engineered parking surface, pedestrian trail, drainage pond, drainage piping and system, irrigation systems and any other facilities in the parking area. The City of Aspen shall also maintain and repair the drainage pond and fence, drainage piping and system and the irrigation systems in the RFTA Maintenance Area.

Specifically, maintenance shall include:

1. Snow Removal. Snow shall be removed from the parking lot, the parking lot access road, the sidewalk and the concrete pads by private contractor. Plowing shall be required after every snowfall of 3 inches or more, and shall be complete by 5:30 a.m. If necessary, snow shall be hauled from the site.

2. Lot Sweeping and Flushing. Sanding shall be limited to critical areas, and sand shall only be applied during extremely icy conditions. The City shall, within four days of the sanded areas becoming dry, flush and/or sweep with water. After the snow and ice have melted and

the parking lot has cured next spring, the City shall sweep and/or flush the lot and access lanes (depending on the condition of the recycled asphalt surface) on a monthly basis.

3. Daily Maintenance. A part-time day maintenance worker shall pick up trash and empty trash bins, sweep and/or remove snow and ice from pedestrian walkways, clean and stock the portable rest rooms, perform weed management, repair and replace irrigation system as needed, and replace lights.

4. Preventative Maintenance. The Aspen Director of Parking shall conduct monthly inspections of parking lot and road surfaces, checking for enlarged cracks, potholes or other surface problems. Problems shall be corrected within three days of discovery, with assistance from County Road and Bridge Department, City Streets Department, or CDOT, as appropriate. The existing signs, lighting, striping, irrigation and landscaping shall be repaired or replaced as needed.

5. Enforcement. Enforcement of parking restrictions, rules and regulation shall be performed by the City of Aspen.

RFTA RESPONSIBILITIES

RFTA shall be responsible for the maintenance of all facilities in the RFTA maintenance area including, but not limited to bus shelters, benches, lights, bike racks, portable toilets, trash cans, signage, roadway striping, asphalt roadway, islands, curb and gutter and passenger plaza.

RFTA shall also provide the following services: trash removal, cleaning of bus shelters, snow removal of roadways and pedestrian plaza

RFTA shall continue to operate its services in and out of the Park-and-ride Lot.

SPECIAL AND FUTURE USES

Any requests to use the Park-and-Ride Lot outside of commuter parking shall be submitted in writing to the City of Aspen's Director of Parking, the manager of the lot, and will require unanimous approval of the EOTC, provided that the individual jurisdictions do not have to have a unanimous vote but simple majority vote. These other uses include special event parking, construction staging and long-term parking.

Any special event request shall require a written transportation and parking plan detailing the proposed use of the transit facilities, parking areas, traffic control and impacts to the intersection or access roads to or from the parking lot. The entity requesting the special use shall be responsible for acquiring the necessary permits and may be charged a fee. Any fees assessed shall be used to recoup costs associated with management and maintenance of the Park-and-ride Lot.

Nothing contained within this Agreement shall foreclose any member of the EOTC to suggest changes in the future uses of the Park-and-ride Lot. Any such future changes in use shall require the unanimous approval of the EOTC member jurisdictions, provided that the individual jurisdictions do not have to have a unanimous vote but simple majority vote.

III.
ANNUAL RENEWAL AND TERMINATION

This Agreement shall be perpetual unless one or more parties to this agreement shall provide written notice that it desires to terminate the Agreement. Any party to this Agreement may terminate the Agreement upon 90 days prior written notice to the other parties. Upon termination of this Agreement, this Agreement shall become null and void.

IV.
MISCELLANEOUS

This Agreement may be modified only by written amendment approved by all parties acting separately.

Nothing contained in this Agreement shall mean or be construed to mean that an individual party to this Agreement may not independently fund or implement a specific element of the Plan or some other transportation related project without the consent of the other parties.

If any provision of this Agreement or the application thereof to any person, entity or circumstance is held invalid, illegal, or unenforceable for any reason, such invalidity shall not affect other provisions or applications of the Agreement which can be given effect without the invalid provisions or application, and to this end the provisions of the Agreement are declared to be severable.

This Intergovernmental Agreement is not intended to create any right in or for the public, or any member of the public, including any contractor, supplier or any other third party, or to authorize anyone not a party to this Agreement to maintain a suit to enforce or take advantage of its terms. The duties, obligations and responsibilities of the parties with respect to third parties shall remain as imposed by law.

Each party represents that it has the specific power and authority to enter into and consummate this Agreement according to law and that it has followed the proper legal procedures to authorize those persons whose names are subscribed below to execute this Agreement and obligates that party to perform this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

CITY OF ASPEN, COLORADO

BY: _____

ATTEST: _____

APPROVED AS TO FORM _____

BOARD OF COUNTY COMMISIONERS OF THE COUNTY OF PITKIN

BY: Patti Kay-Clapper

ATTEST: _____

APPROVED AS TO FORM: _____

TOWN OF SNOWMASS VILLAGE, COLORADO

BY: _____

ATTEST: _____

APPROVED AS TO FORM: _____

ROARING FORK TRANSPORTATION AUTHORITY

BY: _____
Chairperson

ATTEST: _____

APPROVED AS TO FORM: See Next Page

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

CITY OF ASPEN, COLORADO

BY: _____

ATTEST:

_____

APPROVED AS TO FORM

_____

BOARD OF COUNTY COMMISIONERS OF THE COUNTY OF PITKIN

BY: _____

ATTEST:

_____

APPROVED AS TO FORM:

_____

TOWN OF SNOWMASS VILLAGE, COLORADO

BY: _____

ATTEST:

_____

APPROVED AS TO FORM:

_____

ROARING FORK TRANSPORTATION AUTHORITY

BY: _____

ATTEST:

_____

APPROVED AS TO FORM:

Renee Allen Black

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

CITY OF ASPEN, COLORADO

BY: _____

ATTEST: APPROVED AS TO FORM

_____ _____

BOARD OF COUNTY COMMISIONERS OF THE COUNTY OF PITKIN

BY: _____

ATTEST: APPROVED AS TO FORM:

_____ _____

TOWN OF SNOWMASS VILLAGE, COLORADO

BY: _____

ATTEST: APPROVED AS TO FORM:

Donna J. Spaulding _____

ROARING FORK TRANSPORTATION AUTHORITY

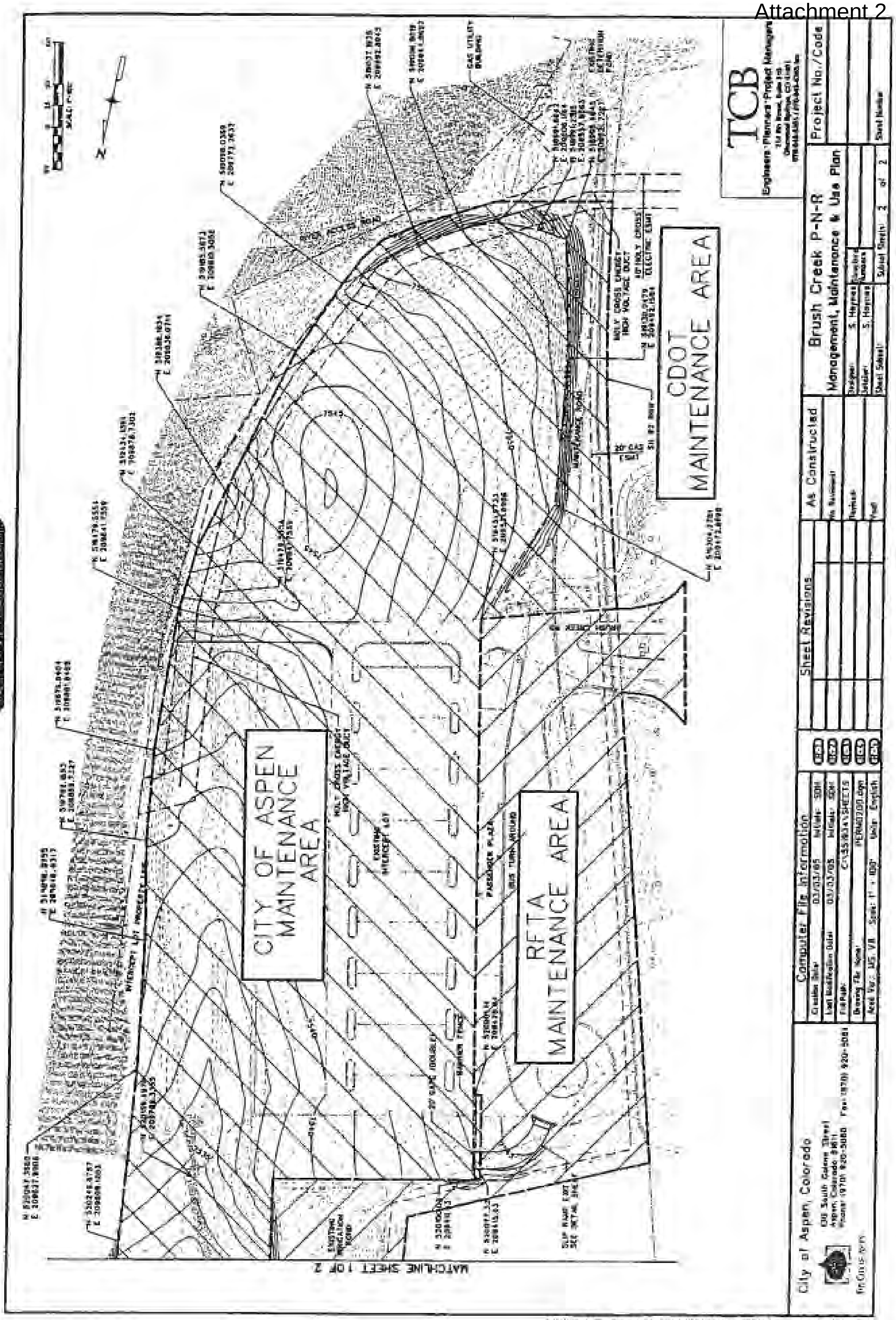
BY: _____

ATTEST: APPROVED AS TO FORM:

10

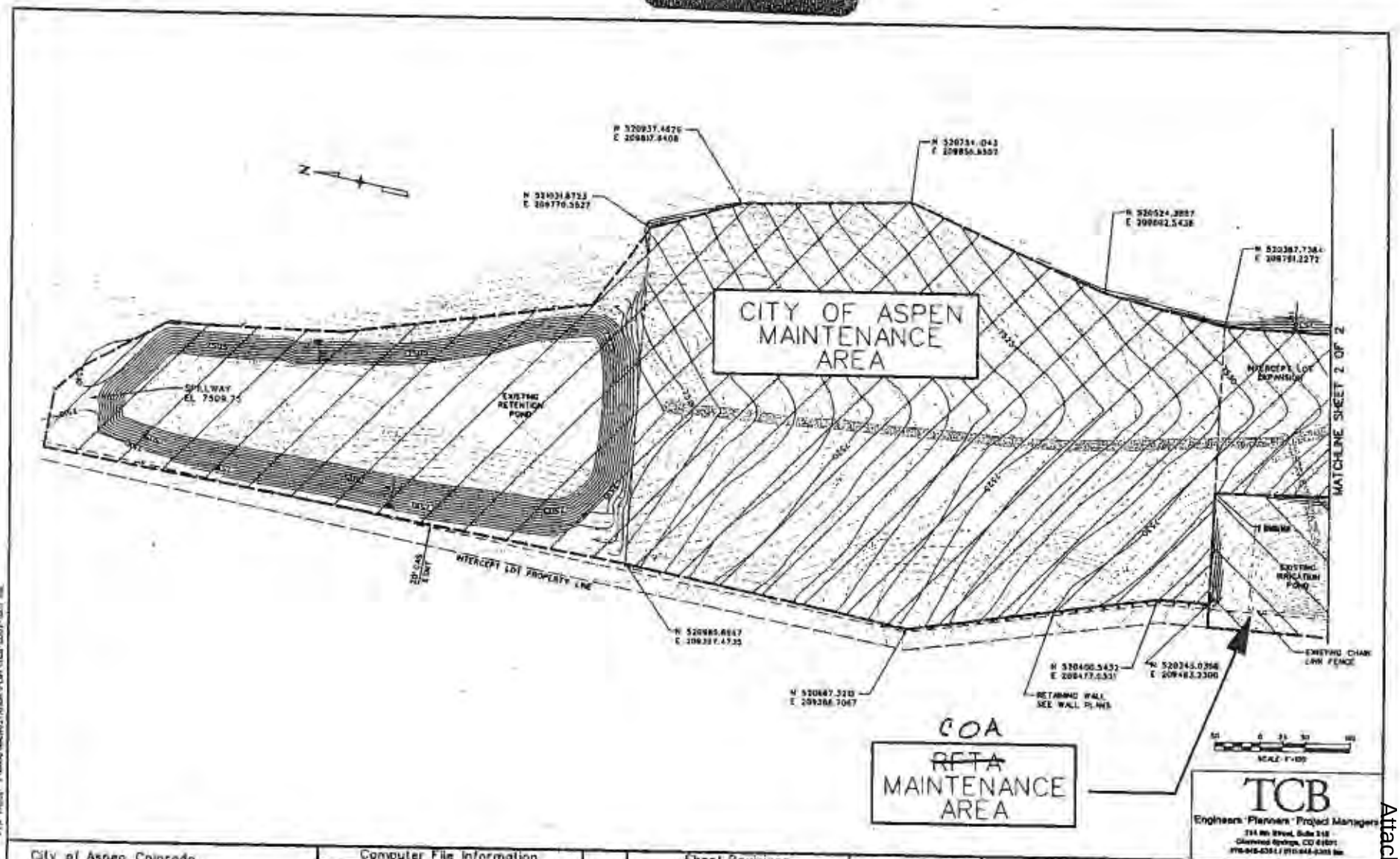
Attachment 2

Exhibit A, p.1



Exhibit

A, p. 2



TCB
Engineers · Planners · Project Managers

City of Aspen, Colorado
130 South Galena Street
Aspen, Colorado 81611
Phone: (970) 920-5080 Fax: (970) 920-5081

Computer File Information		
Creation Date:	03/03/05	Initials: SDH
Last Modification Date:	03/03/05	Initials: SDH
Full Path:	C:\55934\SHEETS	
Drawing File Name:	PCRW0100.dgn	
Acad Ver.: MS VIII	Scale: 1" = 100'	Units: English

Sheet Revisions

As Constructed

Brush Creek P-N-R
Management Maintenance & Use Plan

Project No./Code

Designer: S. Haynes
Detailer: S. Haynes
Structure Numbers
Sheet Subset:
Subset Sheets: 1 of 2
Sheet Number

Attachment 2

APPROVED AS TO FORM:

John Ely
County Attorney

MANAGER APPROVAL:

Hilary Fletcher Smith, County Manager

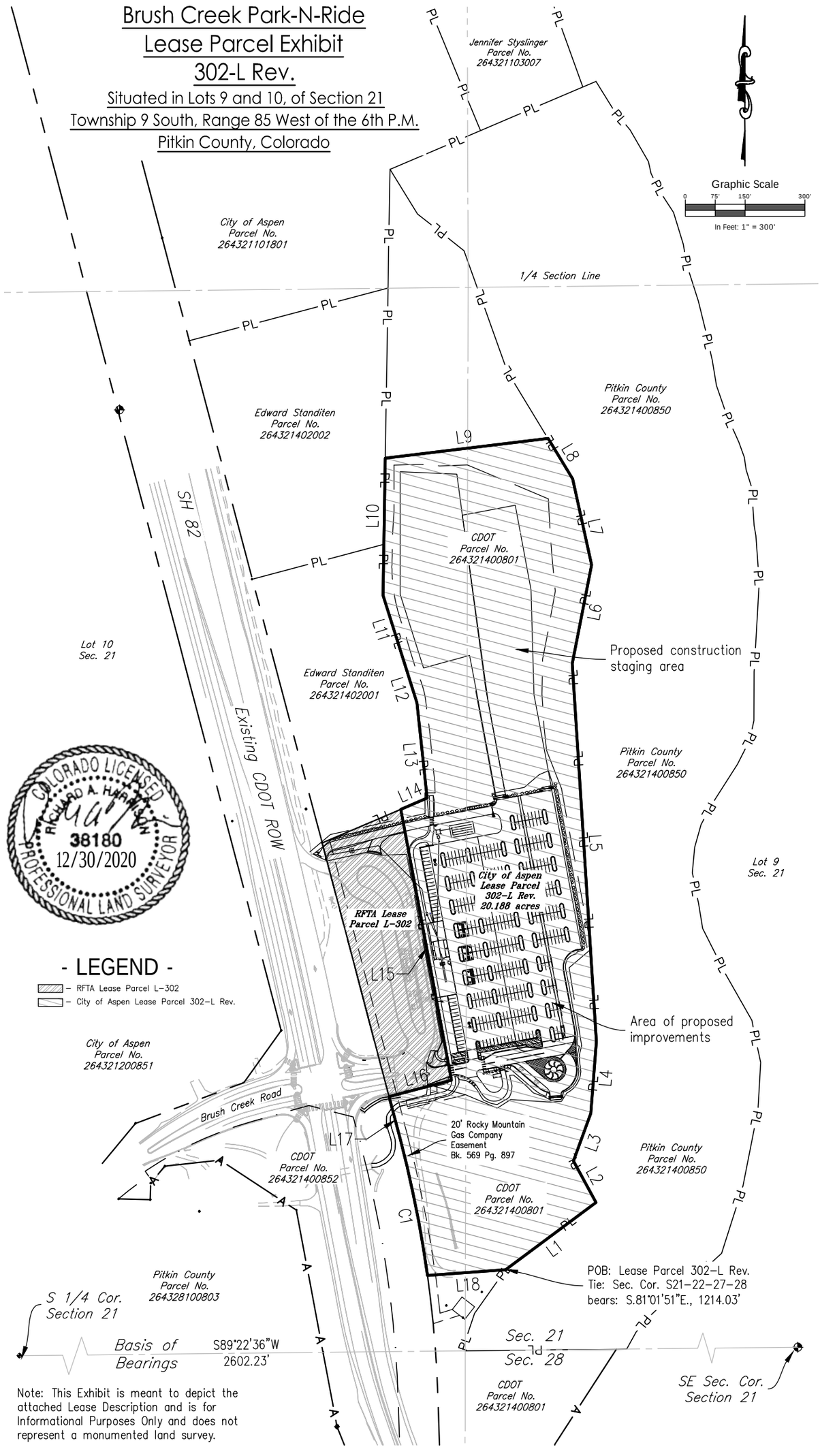
RECOMMENDED FOR APPROVAL:

Tom Oken, Treasurer and CFO

Exhibit B

Brush Creek Park-N-Ride
Lease Parcel Exhibit
302-L Rev.

Situated in Lots 9 and 10, of Section 21
Township 9 South, Range 85 West of the 6th P.M.
Pitkin County, Colorado



COLORADO LICENSED
RICHARD A. HARMON
38180
12/30/2020
PROFESSIONAL LAND SURVEYOR

- LEGEND -
- RFTA Lease Parcel L-302
- City of Aspen Lease Parcel 302-L Rev.

Note: This Exhibit is meant to depict the attached Lease Description and is for Informational Purposes Only and does not represent a monumented land survey.

I:\2020\2020-122-PitkinCoAdmin\001-BrushCreekP-R\H-Dwgs\Surv\Dwgs\BaseMaps\Brush Creek_Lease_Parcel_302-L Rev.dwg

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

CDOT Project No.
STR 0821-029 Unit 3
Pitkin County, Colorado

Job No.	2020-122.001
Drawn by:	RAH
Date:	12/30/2020
Approved:	BB
File:	Brush Creek_Lease_Parcel_302-L Rev

Lease Parcel Exhibit

Page No. 1 Of 2

Brush Creek Park-N-Ride
Lease Parcel Exhibit
302-L Rev.

Situated in Lots 9 and 10, of Section 21
Township 9 South, Range 85 West of the 6th P.M.
Pitkin County, Colorado

- LINE TABLE -		
LINE #	BEARING	DISTANCE
L1	N53°25'22"E	282.39'
L2	N28°41'46"W	118.62'
L3	N20°04'52"E	127.06'
L4	N04°32'16"E	180.60'
L5	N03°40'22"W	949.49'
L6	N11°09'44"E	252.30'
L7	N12°28'42"W	220.29'
L8	N31°19'11"W	118.90'
L9	S83°05'44"W	411.34'
L10	S00°56'43"W	344.12'
L11	S17°34'29"E	209.58'
L12	S17°40'29"E	72.98'
L13	S06°06'21"E	239.71'
L14	S66°50'25"W	71.92'
L15	S10°34'43"E	690.73'
L16	S75°13'49"W	161.84'
L17	S14°46'11"E	109.46'
L18	N85°41'02"E	196.54'

- CURVE TABLE -					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	349.65'	2915.00'	6°52'21"	S11°20'00"E	349.44'

Note: This Exhibit is meant to depict the attached Lease Description and is for Informational Purposes Only and does not represent a monumented land survey.

I:\2020\2020-122-PitkinCoAdmin\001-BrushCreekP-R\H-Dwgs\Surv\Dwgs\BaseMaps\Brush Creek_Lease_Parcel_302-L Rev.dwg

SGM
118 West Sixth Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004 www.sgm-inc.com

CDOT Project No.
STR 0821-029 Unit 3
Pitkin County, Colorado

Job No.	2020-122.001
Drawn by:	RAH
Date:	12/30/2020
Approved:	BB
File:	Brush Creek_Lease_Parcel_302-L Rev

Line and Curve Tables

EXHIBIT "A"

PROJECT NUMBER: STR 0821-029 UNIT 3
LEASE PARCEL NUMBER: 302-L Rev.
DATE: December 30, 2020

Description of Lease Parcel No. 302-L Rev.

A Lease Parcel No. 302-L Rev. of the Department of Transportation, State of Colorado, Project No. STR 0821-029 UNIT 3 containing 879,394 sq. ft. (20.188 acres), more or less, located in the Lot 9 and Lot 10 of Section 21, Township 9 South, Range 85 West, of the Sixth Principal Meridian, in the County Pitkin, State of Colorado, said Lease Parcel being more particularly described as follows:

Commencing at the Southeast Section Corner of Section 21, a found 2 1/2" Aluminum Cap on a 3/4" Rebar, LS 27275, properly marked and dated 2002, thence N. 81°01'51" W., a distance of 1214.03 feet, to a point on the West line of that parcel of land, 302-XA, as described in the Quitclaim Deed recorded as Reception Number 471061, the **TRUE POINT OF BEGINNING**;

1. Thence N. 53°25'22" E., along the West line of said Parcel 302-XA, a distance of 282.39 feet;

2. Thence N. 28°41'46" W., along the West line of said Parcel 302-XA, a distance of 118.62 feet;

3. Thence N. 20°04'52" E., along the West line of said Parcel 302-XA, a distance of 127.06 feet;

4. Thence N. 04°32'16" E., along the West line of said Parcel 302-XA, a distance of 180.60 feet;

5. Thence N. 03°40'22" W., along the West line of said Parcel 302-XA, a distance of 949.49 feet;

6. Thence N. 11°09'44" E., along the West line of said Parcel 302-XA, a distance of 252.30 feet;

7. Thence N. 12°28'42" W., along the West line of said Parcel 302-XA, a distance of 220.29 feet;

8. Thence N. 31°19'11" W., along the West line of said Parcel 302-XA, a distance of 118.90 feet;

9. Thence S. 83°05'44" W., a distance of 411.34 feet, to the East line of the Aspen-Mass Ranch as described in the Second Amended Final Plat of Aspen-Mass Ranch, recorded in Plat Book 35 at Page 62, as Reception Number 375307;

10. Thence S. 00°56'43" W., along the East line of said Aspen-Mass Ranch, a distance of 344.12 feet;

11. Thence S. 17°34'29" E., along the East line of said Aspen-Mass Ranch, a distance of 209.58 feet;

12. Thence S. 17°40'29" E., along the East line of said Aspen-Mass Ranch, a distance of 72.98 feet;

13. Thence S. 06°06'21" E., along the East line of said Aspen-Mass Ranch, a distance of 239.71 feet;

14. Thence S. 66°50'25" W., along the East line of said Aspen-Mass Ranch, a distance of 71.92 feet;

15. Thence S. 10°34'43" E., a distance of 690.73 feet;

16. Thence S. 75°13'49" W., a distance of 161.84 feet, to the existing easterly right-of-way line of State Highway 82 (December 2020);

17. Thence S. 14°46'11" E., along said right-of-way line, a distance of 109.46 feet;

18. Thence along said right-of-way line, a distance of 349.65 feet, along a curve to the right, having a radius of 2,915.00 feet, a central angle of 6°52'21", the chord of which bears S. 11°20'00" E., a distance of 349.44 feet;

19. Thence N. 85°41'02" E., a distance of 196.54 feet, more or less, to the **TRUE POINT OF BEGINNING**.

The above described Lease Parcel contains 879,394 sq. ft. (20.188 acres), more or less.

Basis of Bearings: All bearings are based on a grid bearing of S. 89°22’36" W., from the Southeast Section Corner of Section 21, Township 9 South, Range 85 West, of the Sixth Principal Meridian, a found 2 1/2” Aluminum Cap on a 3/4” Rebar, LS 27275, properly marked and dated 2002, to the South Quarter Corner of Section 21, Township 9 South, Range 85 West, of the Sixth Principal Meridian, a found 3.25” Aluminum Cap on a 2.0” Iron Pipe, LS 17491, Colorado Department of Highways, properly marked and dated 1994.

Richard A. Harrison, PLS 38180
For and on Behalf of SGM, Inc.
118 W. Sixth St., Suite 200
Glenwood Springs, Co 81601

Appendix G

CDOT OTIS Highway Explorer Data

CDOT-OTIS Online Transportation Information System

(/otis/)

- Highway Data (/otis/HighwayData)
- Traffic Data (/otis/TrafficData)
- Data Catalog (/otis/catalog)
- Reports (/otis/FileReports)
- Map View (https://dtdapps.coloradodot.info/MapViewExt)
- Help (/otis/HighwayData/Help?actionName=Index)

Highway Data Explorer

- Search (#search-tab)
- Highway Details (#geometrics-tab)
- Traffic Statistics (#traffic-tab)
- Video Log (#videolog-tab)
- Documents (#documents-tab)
- Structures (#structures-tab)

(/otis/TrafficData#ui/1/0/0/criteria/082A/34.4/35.5/true/true)

Search by highway segment (#)

Select a route and begin and end ref points. You can select a route from the drop down list or click the pencil icon then click the map. You can enter the ref points into the text boxes or click the pencil icon then click the map.

Zoom to County (optional): select a county

CDOT Route Number: 082A Find by Name

Begin Reference: Min(0) 34.4

End Reference: Max(85.293) 35.5

Search by traffic station (#)

Search by structure (#)

Section between intersections (#)

Click the headings below to view results.

Highway 082A between 34.4 and 35.5 **Create Straight Line Diagram (/otis/Sld?route=082A&begRef=34.4&endRef=35.5&keys=126,127,20,23,13,24,18,117,118,63,65,111,94,58,54,55,96,97,95,108,51,100,103,102,109,110,98,48,49,104,105,106,107)**

Description

Pavement Primary Direction

Pavement Secondary Direction

Export to Excel (/otis/API/TRANSYS/PavementSecondaryDirection/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Sec DL Class	Sec Remaining DL	Sec IRI

Speed Limit

Export to Excel (/otis/API/TRANSYS/SpeedLimit/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Pri Speed Limit	Sec Speed Limit
082A	23.277	35.019	11.6	55	55
082A	35.019	35.323	0.33	55	45
082A	35.323	36.2	0.909	45	45

Toll / Managed Access

System Classification

Export to Excel (/otis/API/TRANSYS/SystemClassification/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Access Control	Admin Class	Functional Class	NHS Designation	Special System
082A	33.128	36.245	3.14	E-X: Expressway, Major Bypass	CDOT Highway	3 Principal Arterial - Other	1 Mainline NHS	NON-STRAHNET

Route Classification

Jurisdiction Classification

CDOT Classification

Geometrics 1

Export to Excel (/otis/API/TRANSYS/GeometricsGeneral/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Thr Ln Qty	Thr Ln Wd	Is Divided	Operation	Surface Width
082A	34.363	34.467	0.1	4	12	YES	Two-Way	79
082A	34.467	34.477	0.009	4	12	YES	Two-Way	87
082A	34.477	34.571	0.091	4	12	YES	Two-Way	123
082A	34.571	34.601	0.029	4	12	YES	Two-Way	111
082A	34.601	34.675	0.071	4	12	YES	Two-Way	99
082A	34.675	34.779	0.1	4	12	YES	Two-Way	102
082A	34.779	34.883	0.1	4	12	YES	Two-Way	99
082A	34.883	34.988	0.1	4	12	YES	Two-Way	95
082A	34.988	35.019	0.032	4	12	YES	Two-Way	92
082A	35.019	35.082	0.068	4	12	YES	Two-Way	80
082A	35.082	35.176	0.1	4	12	YES	Two-Way	90
082A	35.176	35.269	0.1	4	12	YES	Two-Way	88
082A	35.269	35.283	0.015	4	12	YES	Two-Way	85
082A	35.283	35.388	0.122	4	12	YES	Two-Way	121
082A	35.388	35.443	0.063	4	12	YES	Two-Way	109
082A	35.443	35.504	0.072	4	12	YES	Two-Way	114

Geometrics 2

Export to Excel (/otis/API/TRANSYS/GeometricsPrimary/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Pri TL Qty	Pri TL Wid	Pri Surf	Pri Out Shld	Pri Out Shld Wid	Pri Out Safety	Pri Out Curb	Pri Snd Wall
082A	34.363	34.467	0.1	2	12	1 Asphalt	2 Bituminous	6	0 None	Unknown	None
082A	34.467	34.779	0.3	2	12	1 Asphalt	2 Bituminous	13	0 None	Unknown	None
082A	34.779	34.883	0.1	2	12	1 Asphalt	2 Bituminous	11	0 None	Unknown	None
082A	34.883	34.988	0.1	2	12	1 Asphalt	2 Bituminous	7	0 None	Unknown	None
082A	34.988	35.082	0.1	2	12	1 Asphalt	2 Bituminous	8	0 None	Unknown	None
082A	35.082	35.176	0.1	2	12	1 Asphalt	2 Bituminous	18	0 None	Unknown	None
082A	35.176	35.269	0.1	2	12	1 Asphalt	2 Bituminous	15	0 None	Unknown	None
082A	35.269	35.504	0.272	2	12	1 Asphalt	2 Bituminous	13	0 None	Unknown	None

Geometrics 3

Export to Excel (/otis/API/TRANSYS/GeometricsPrimary2/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Pri In Shld	Pri In Shld Wid	Pri In Curb	Pri Aux Ln Qty	Pri Aux Ln Type	Pri Aux Ln Wid	Pri LT Ln Qty	Pri LT Ln Wid
082A	34.363	34.477	0.109	2 Bituminous	2	Unknown	0	None	0	0	0
082A	34.477	35.019	0.523	2 Bituminous	2	Unknown	1	Auxiliary Lane	12	0	0
082A	35.019	35.283	0.283	2 Bituminous	2	Unknown	0	None	0	0	0
082A	35.283	35.504	0.257	2 Bituminous	2	Unknown	1	Auxiliary Lane	12	0	0

Geometrics 4

Export to Excel (/otis/API/TRANSYS/GeometricsSecondary/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Med Type	Med Wid	Med Safety Type	Man Acc Lns	Man Acc Lns Aln
082A	34.363	34.477	0.109	21 Depressed	30	0 None	Normal Thru Lanes	Both
082A	34.477	34.601	0.12	21 Depressed	30	3 Blocked-Out W-Beam (Strong)	Normal Thru Lanes	Both
082A	34.601	35.019	0.403	21 Depressed	18	0 None	Normal Thru Lanes	Both
082A	35.019	35.283	0.283	21 Depressed	30	0 None	Normal Thru Lanes	Both
082A	35.283	35.504	0.257	21 Depressed	8	4 Blocked-Out W-Thrie (Strong)	Normal Thru Lanes	Both

Mile Markers

Click the headings below to view results.
Highway 082A between 34.4 and 35.5

AADT

Export to Excel (/otis/API/TRANSYS/AADT/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	AADT	% Trucks	Vehicle Miles Travelled

Traffic Capacity

Export to Excel (/otis/API/TRANSYS/TrafficCapacity/082A/34.4/35.5.csv)

Route	Begin Ref	End Ref	Length	Route Capacity	V/C Ratio	V/C Ratio 20

Count Locations

Export to Excel (/otis/API/TRANSYS/TRAFFStation/082A/34.4/35.5.csv)

Route	Ref	Station	LOCATION	Count Type

Click the headings below to view results.
Highway 082A between 34.4 and 35.5
Camera: Front | Right | Direction: Increasing | Decreasing | Full-Size
View in Windshield App (/otis/windshield#2021/082A/34.4/1/1) | Google Street View

Route	Ref

Photo Year: 2021
The maps and data available for access from the Colorado Department of Transportation (CDOT) are provided "as is" without express or implied warranty of any kind. CDOT disclaims any and all responsibility for the accuracy, timeliness or completeness of the maps and data. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the user accessing the information. For the definitive description of real property, consult the deeds recorded in the appropriate County Clerk and Recorder's Office.
Click the headings below to view results.
Highway 082A between 34.4 and 35.5

ROW Plans

Route	Begin Ref	End Ref	ROW Plan

Click the headings below to view results.
Highway 082A between 34.4 and 35.5

Structures

Export to Excel (/otis/API/TRANSYS/Structures/082A/34.4/35.5.csv)

Route	Ref	Strld	Dir	ClrminNE	ClrmaxNE	ClrminSW	ClrmaxSW	On / Under	Type	Sufficiency Rating	GFP	Location	Photo

Appendix H

Combined Scenario Results – MOE's by Movement

SH 82 / BCR-P&R AJC TIS Operational Result Summary			2022 BASELINE TRAFFIC					2042 BACKGROUND TRAFFIC					2042 TOTAL TRAFFIC				
Approach Movement			*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)	*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)	*Overall LOS*	*Overall Delay*	LOS	Delay	95th % Q (L_T_R)
SH 82 / BCR / P&R	EB	AM	*D*	*46.4*	D	40.5	171_32	*F*	*87*	E	65	174_33_-					
		PM	*F*	*113.1*	F	108.7	421_1629	*F*	*167.2*	F	164.3	411_2765_42	*F*	*178.3*	F	164.9	404_3207_-
	WB	AM			E	79.8	186_122			F	88.3	205_155_21					
		PM			E	62.9	90_71			E	63.4	106_94_39			E	64	81_86_-
	NB	AM			C	23.3	64_115_-			C	25.6	73_124_-					
		PM			F	136.8	78_1654_467			F	205.4	78_5733_-			F	213.3	81_6934_-
	SB	AM			D	47.3	169_743_469			F	101.1	1426_2065_-					
		PM			C	28	70_177_13			C	29.4	84_182_-			C	30.3	67_202_-

Unsignalized Intersections

Level of Service	**Delay (seconds)**
A (Highly Desirable)	< 10.0
B (Desirable)	10.1 to 15
C (Acceptable)	15.1 to 25
D (Acceptable in Urban Areas)	25.1 to 35
E (Unacceptable)	35.1 to 50
F (Unacceptable)	> 50.0

Source: Highway Capacity Manual, 2010

Appendix I

Trip Generation, Reduction, Distribution, Assignment Worksheet

Trip Generation
ITE Trip Generation, 10th Edition

Land Use	Number of Units	ITE Code	Weekday Rate	AM Rate	AM Entering	AM Exiting	PM Rate	PM Entering	PM Exiting	Weekday Traffic	AM IN	AM OUT	PM IN	PM OUT	Saturday Rate	Saturday IN	Saturday OUT	Rate
				Design Hour Rates							Weekday Design Hour Traffic							
Hebrew (Elementary) School	100	520	1.00				0.67	0.32	0.17	100	0	0	32	17				
Synagogue (weekday)	12	560	6.95	0.33	0.20	0.13	0.49	0.22	0.27	83	2	2	3	3	2.78	16	17	9.99
				0.78			0.79			183	2	2	35	20				
			Friday															
Synagogue Service(s)	12	561	7.56		(5:30 - 7:30PM)		2.92	1.66	1.26	91	0	0	20	15	3.87	22	24	
			Weekday										(Friday 5:30 - 7:30PM)					
Day Care Center	*20*	*565*	*4.09*	*0.78*	*0.41*	*0.37*	*0.79*	*0.37*	*0.42*	*82*	*8*	*7*	*7*	*8*				
											8	7	39	25				

Hebrew School + Weekday PM Use

Directional Distribution		AM IN	AM OUT	PM IN	PM OUT	*DHV*
		0	0	35	20	
Aspen	60%	0	0	21	12	
Snowmass Village	25%	0	0	9	5	
Downvalley	15%	0	0	5	3	
Brush Cr Rd (m35.29)		0	0	35	17	*52*
Existing (RI/RO only) (m34.99)		0	0	0	3	*3*

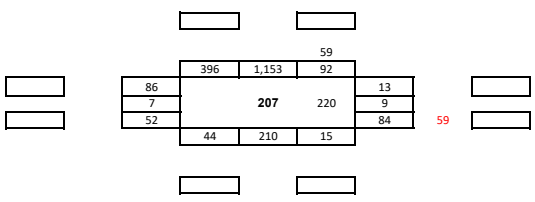
Land Use	ITE Code	Basis of Rate	Time Period Used Above	Weekday Design Hour Distribution AM IN	AM OUT	PM IN	PM OUT	Saturday IN	Saturday OUT
Hebrew (Elementary) School	520	Average	Peak Hour adjacent Street	54%	46%	48%	52%		
Church (Synagogue Weekday)	560	Average	Peak Hour adjacent Street	60%	40%	45%	55%	48%	52%
Synagogue (Friday Service)	561	Average	Peak Hour adjacent Street	63%	37%	57%	43%	48%	52%
Day Care Center	*565*	*Ave Rate*	*Peak Hour adjacent Street*	*53%*	*47%*	*47%*	*53%*		

COUNTSTATI	CALYR	JANCOUN	FEBCOUN	MARCOUI	APRCOUN	MAYCOUI	JUNCOUN	JULCOUNT	AUGCOUN	SEPCOUN	OCTCOUN	NOVCOUN	DECCOUN
236	2019	20116	19966	19984	18414	17804	22109	23152	22780	21201	19369	17424	20402
236	2018	19621	19180	19680	18304	17765	21602	22512	21946	20849	18397	17199	19720
236	2017	18550	18921	19443	16987	16943	21253	22324	21086	19821	18048	16873	19575
236	2016	18612	18613	18878	16828	17254	21393	22397	20902	20479	18174	16340	18813
236	2015	17908	17741	18317	16451	15838	20486	22141	20765	20084	18002	16160	18790
5 yr monthly average		18961	18884	19260	17397	17121	21369	22505	21496	20487	18398	16799	19460
% of average		98.0%	97.6%	99.6%	89.9%	88.5%	110.5%	116.3%	111.1%	105.9%	95.1%	86.8%	100.6%
						May ---> July		131.4%					

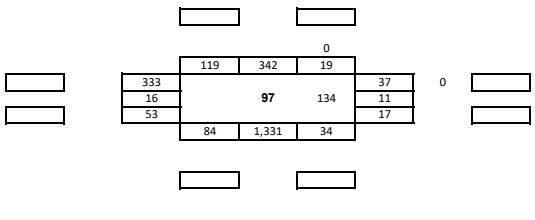
Existing Traffic Volume
Weekday AM
Wed May 19, 7:15 - 8:15 AM Peak Hour

Existing Traffic Data collection
Wed 5/19 7AM to Thu 5/20 6PM

Add Carpool Permit pass estimate

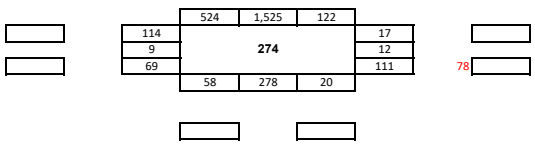


Weekday PM
Wed May 19, 4:30 - 5:30 PM Peak Hour

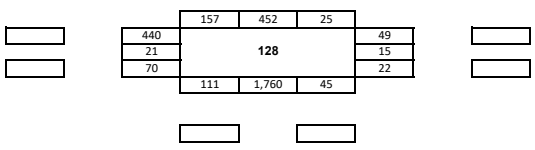


2022 Baseline Traffic Volume
Weekday AM
Seasonal and Annual Adjustment (Sta 000236)
Seasonal Factor (May --> July) 1.314
Factor to 2021 to 2022 opening 1.0065

Add Carpool Permit pass estimate

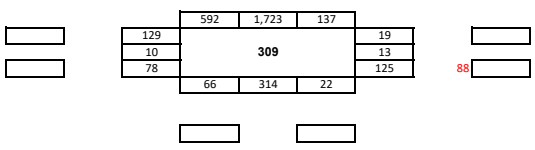


Weekday PM

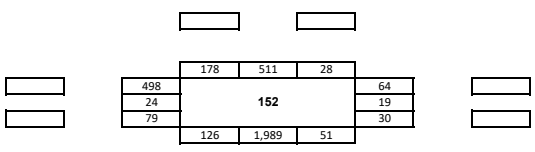


2042 Background Traffic Volume
Weekday AM

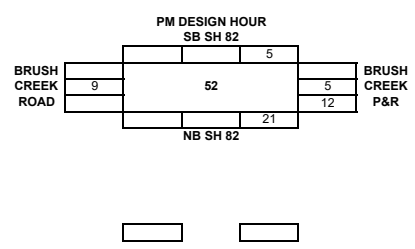
20-year Factor (Sta 103521) 1.13



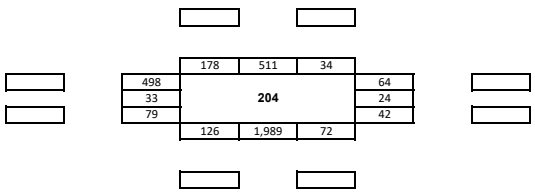
Weekday PM



Project Trip Generation
Weekday PM



2042 Total Traffic Volume
Weekday PM



CDOT Sta 000236 Total Traffic
2021 Through 10/31 6308744
2020 Through 10/31 5646792
2019 Through 10/31 6159996
CDOT Sta 000236 Monthly Traffi

COA MONTHLY CARPOOL PASSES (VEHICLES)

	2017	2018	2019	2020	2021	3-yr AVE	Weekday AVE	DHV (6-11am)
Jan.	4258	7122	6803	6819		6061	289	58
Feb.	4183	6996	6797	7102		5992	285	57
March.	6072	7271	7547			6963	332	66
Apil.	4320	6600	8051			6324	301	60
May.	5355	5758	7443			6185	295	59
June.	6172	6793	7554		4206	6840	326	65
July.	6385	6408	7913		6027	6902	329	66
Aug.	6809	7020	7520			7116	339	68
Sept.	5547	6271	6018			5945	283	57
Oct.	5551	6593	7914			6686	318	64
Nov.	6098	6726	5228			6017	287	57
Dec.	6599	5822	6677			6366	303	61
		AM		PM				
		100%	100%	0%	0%			
		IN	OUT	IN	OUT			
		59	59	0	0			

		AJC DHV	
2011 AP DHV	212	52	25%
New permit total	264		

CITY OF ASPEN

MEMORANDUM

TO: Mayor Torre and Aspen City Council

FROM: Ben Anderson, Principal Long-Range Planner
Phillip Supino, Community Development Director

MEMO DATE: March 10, 2022

MEETING DATE: March 14, 2022

RE: Central Questions requiring Council Direction on the Moratorium Response in the areas of:

- Pace and Scale of Residential Development
- Affordable Housing Opportunities

REQUEST OF COUNCIL: Following previous discussions with Council related to the moratorium on overall scope, problem statements, and potential areas for policy action, and in response to input received from the public and technical stakeholders, staff requests direction from Council on a few specific topics as this work proceeds.

Staff poses specific questions in the memo below and will facilitate a discussion with Council on these questions at the Work Session on March 14th. The response to these questions will provide more precise shape to staff's work in the coming weeks.

SUMMARY AND BACKGROUND: In a previous memo to Council on February 1, 2022 (Exhibit A), staff provided summaries of previous discussions with Council and staff's thinking related to high-level policy consideration of the residential development and affordable housing aspects of Ordinance 27. Council provided support for the identified issues and the framing of possible responses.

Using this previous summary as the guide, staff and our consultant team continue to evaluate this list of topics as we analyze and prioritize the responses that are necessary to be completed during the moratorium and those that are important but could instead be finalized after June 8th.

As staff works through this prioritization exercise, a few policy choices have emerged as foundational and need direction at this stage in the process.

STAFF DISCUSSION: In the range of topics identified in Ordinance 27 and subsequent discussions, staff requests direction in the following areas:

Pace and Scale of Single-Family and Duplex Residential Development

This is an expansive topic that has been identified for several reasons:

- The physical mass and scale of many of these residences are perceived to be contrary to community character and the AACP.
- The frequency of demolition and the overall size and energy use of these residences are contrary to Aspen's climate and environmental goals and commitments.
- The intensity and duration of construction activity is having negative impacts to neighbors and neighborhoods.
- The extent of new construction and the nature and operation of new residential properties is straining community infrastructure and undermining community climate action.
- The intensity of residential development and redevelopment is not managed as intended by the current provisions in GMQS.
- Residential development and redevelopment are not providing affordable housing mitigation proportionate to their employee generation impacts.

Staff is evaluating the best path to respond to several of these issues. Some solutions may be found in amendments to the Land Use Code, others in adoption of new building and energy codes, or in the creation of new provisions in other areas of Aspen's Municipal Code (example: construction waste standards). **A central policy choice has emerged:**

1) Do we intend to address some of these impacts by reducing the size of new or redeveloped homes by limiting floor area below existing allowable dimensions?

OR

2) Do we intend to change mitigation requirements to better reflect the impacts that this type of development is having on the community? This option could be done in combination with other alternatives that do not reduce floor area.

The following discussion is not intended to launch an evaluation on specific tactics, but to provide examples, some level of detail, and context for the larger policy choice.

Floor Area

Reducing the floor area in a home is perhaps the most direct linkage to the impacts of residential construction that have been identified in the larger conversations around employee generation, construction intensity and duration, and importantly, energy consumption. Reducing floor area would reduce the size of any new homes built in the community, thereby reducing its impacts to the community as described above. Depending on the amount of the reduction, it would also change the economics around redevelopment of existing residential properties. Existing homes larger than the revised floor area amounts are more likely to be remodeled than demolished, so as to retain the existing house size.

As staff and our consultants have talked with the development community since the moratorium came into effect, this is the topic that is causing the most concern, uncertainty, and anxiety. When a single square foot of gross floor area in a single-family home is conservatively valued at $3,000, reducing floor area by even minimal amounts will have definitive effect on the entire valuation of a project or real estate transaction. Any proposal to reduce either net or gross floor area would have significant impacts across the real estate and development economies and could potentially have unintended consequences for resident homeowners.

If limiting the allowed floor area were to be pursued, there are at least three things that could be done. Any of these three options would functionally reduce the size of homes in development or redevelopment scenarios:

1) Limiting the net, allowable floor area as established in chapter 26.700 of the LUC that sets the dimensions for each Zone District.

2) Eliminating or reducing the floor area exemptions that are established by Section 26.575.020. Most impactful are the current exemptions for sub-grade areas (basements) and garages.

3) Establishing a new calculation that would create a maximum allowable gross square footage – that would include our current net allowable floor area with some addition of currently exempted area (basements, garages, etc.) that would be allowed under this threshold.

At this point in the process, staff does not recommend reducing floor area – whether net or gross, for the following reasons:

1) Any discussions (both current and historic) about proposed reductions in house size in Aspen or in Pitkin County have been very contentious, and to use a cliché – is a topic that "extinguishes all of the oxygen in the room". More directly, staff believes that this tactic would preclude the community from finding areas of agreement on other important issues under consideration during the moratorium.

2) The reduction of floor area – either net or gross, unless substantial, would not likely translate into the outcomes that Council is seeking with respect to community character, climate and environmental protection, or development regulation.

3) Calculating a reduction in floor area that is based on a defensible rationale for the specific quantity of the reduction would require a lengthy and complex study, particularly given the likelihood of litigation over such a change.

4) There are other potential strategies that could be as impactful towards the outcomes that Council is seeking and may be more likely to generate a cooperative atmosphere.

Non-Floor Area Options

Staff has identified a variety of potential alternative responses that could effectively lead to outcomes envisioned by Ordinance 27. As we have had initial conversations with stakeholders, it is staff's view that while there may be some reluctance within the real estate and development community, and property owners, these policy alternatives may be less contentious overall. It should be noted that these ideas have not been decided on but are examples of the kinds of policies that could be an alternative to directly reducing floor area.

1) AH Mitigation – Already contemplated by Ordinance 24 of 2021 (currently tabled), this would reassess how residential development mitigates for their employee generation impacts – particularly in redevelopment scenarios. Council has approved a contract to update the study on which residential mitigation is based.

2) Changes to *Calculations and Measurements, 26.575.020* – While some areas of this section of the code could be changed to have the direct effect of reducing floor area (example: sub-grade exemptions), staff believes that other areas of this section could be altered to reduce the perceived mass and scale of a home without limiting floor area. Examples of this type of change could be new calculations for how the code measures height, or how grade is defined. Changes could be made to the types of development that are allowed in setbacks, or to how the code calculates decks and other outdoor areas. A positive outcome across the board that could be a result of these efforts – is bringing improved simplicity, clarity, and consistency to topics that often confound staff and the design community.

3) Changes to Growth Management rules to include residential demolition – the general idea in this area is to use the GMQS to create allotments and performance standards for residential projects that trigger demolition. This approach would likely place a governor on the volume of residential demolition/redevelopment and ensure those activities support, not undermine, community character, climate action, and environmental protection policies.

4) Identifying performance standards, and possible incentives or impact fees related to energy consumption and construction waste. This would be a direct way to ensure residential redevelopment supports climate action and environmental protection policies. It could also produce revenue to support programs in those policy areas.

5) Adoption of building code and energy code updates to bring as much efficiency as possible to Aspen's residential development context. These efforts are already underway, and staff has initiated conversations with the building department and design community to identify changes to the Land Use Code that will be necessary in support of these efforts.

6) Working with other City departments in a very intentional way to bring consistency and clarity to city rules and requirements in support of the issues raised by Ordinance 27 and to ensure that we are not working at cross purposes. An example of this could be improvements to aspects of the required Construction Management Plan (CMP).

It is important to note that in staff's view, some aspects of these alternatives are likely necessary to implement under the moratorium, while others are not. Additionally, several of these alternatives would require coordination across City departments, beyond Community Development.

In evaluating this policy choice of physically limiting house size (floor area reduction) versus mitigation for impacts and other alternatives, staff recommends impact mitigation and other alternatives. It is staff's belief that a combination of a recalibrated mitigation calculation and other tactics (examples identified above), could be equally or more effective than reducing floor area. This approach has the significant added benefit of likely reducing community conflict over the moratorium code amendment process.

Staff seeks direction from Council on the majority preference between these two approaches.

Affordable Housing Opportunities

At the policy level, staff and Council have identified several areas for evaluation of policies to facilitate the creation of additional affordable housing units (example: improvements to the AH Certificates Program). While staff believes that a whole suite of tools, enhancements, and incentives will be necessary to really move the needle in this area, **central policy choices have emerged.** It is staff's view that the direction from Council in these specific topics are foundational to our work on the affordable housing topic during the moratorium and beyond:

1) Does Council wish to bring more certainty and predictability to the development of affordable housing projects by making the development review process more streamlined? Policies in this area would allowing qualifying projects that met certain performance standards be reviewed administratively or proceed directly to building permit. Council and staff have previously called this "by right" AH development.

2) Does Council wish to promote the opportunity for AH development across all Zone Districts – residential and commercial?

3) If Council wishes to provide the opportunity for AH development across Zone Districts:

- Should all dimensions for affordable housing, other than the number of units, remain consistent with the underlying Zone District? (floor area, height, setbacks, etc.) **OR**

- Should projects that are 100% affordable, be granted additional dimensional flexibility beyond the limitations of the underlying Zone District? In more direct words, should 100% AH projects have different dimensions than the free-market uses in a particular Zone District?

In staff's outreach discussions, it is clear that there is general support of the idea that affordable housing is appropriate across all neighborhoods in town, but with an important caveat – that it must be of an appropriate scale and character to fit into the neighborhood fabric.

Question 1, above, asks about a streamlined or "by right" process for 100% AH development. In staff's view this would be a positive foundation on which to build other tactics and incentives in support of affordable housing. Council should note however that AH projects currently require at least a review with the P&Z or Historic Preservation Commissions in a public hearing that gives the public and neighbors a chance to weigh in. Moving this review to an administrative or "straight to building permit" process would make development projects that meet performance standards much more predictable, and certain, but would remove public involvement from the review of specific projects.

With direction from Council on these topics, staff does believe that some of the potential changes in this area would be best addressed during the moratorium – and will be a subject of our work in the next several weeks.

CONCLUSION AND NEXT STEPS:
As staff and our consultant team continue to analyze the issues and data and talk with an increasing number of members of the public and experts in the development community, we are engaged in a funneling and prioritizing exercise to identify the most necessary and effective actions to pursue during the moratorium. The direction received on the questions posed above will allow staff and our consultants to fully process and integrate the ideas gathered during our initial public engagement efforts as we shape possible policy and regulatory responses to Ordinance 27.

As staff work progresses, we will compile of running list of policies, code amendments, and programs which are important responses to Council's desires for the moratorium project but are not essential to complete under the protection of the moratorium. That list will be included as an exhibit in upcoming Council packets and form the basis of the ComDev and other departments work plan discussions with Council in the coming months and years.

In the coming weeks, staff will continue to explore policy choices with Council and will begin crafting code changes. In early to mid-April, staff will be re-engaging with the public and technical stakeholders to discuss any policy or regulatory proposals before finalizing any Amendments for Council's eventual consideration. Staff anticipates first and second reading hearings to be scheduled for late April and early May, in advance of the May 7th deadline for ordinance approval, the 30-day effective period for ordinances, and the June 8th expiration of the moratorium.

FINANCIAL IMPACTS: N/A

ENVIRONMENTAL IMPACTS: N/A.

ALTERNATIVES: N/A

RECOMMENDATIONS: Council provide direction during the Work Session discussion in response to the policy questions posed by the memo.

CITY MANAGER COMMENTS:

EXHIBITS:

A – Policy Area Summary, Excerpt from Staff Memo, 2/1/22

EXHIBIT A – Policy Area Summary; Excerpt from February 1, Work Session Memo

1) The pace and scale of free-market residential development and redevelopment

- Development allotments – analyze the current system of development allotments to:
  a.) manage development,
  b.) mitigate environmental impacts,
  c.) support concurrency of infrastructure in accordance with the intent of GMQS,
  d.) address unmanaged development types, STRs, and annual allotment amounts, and
  e.) address residential energy and resource consumption from development and operation of structures.

- Demolition - assess the effectiveness of the definition of demolition at:
  a.) triggering compliance with GMQS standards
  b.) mitigating environmental and community impacts from development,
  c.) restraining or eliminating non-conformities and delivering quality design outcomes.

- Zoning and Calculations - analyze residential development allowances and the methods for calculating building mass and scale metrics to assess alignment with community character.

3) Promotion of Affordable Housing Opportunities

- Credits Program – amend the AH credits program to support clarity in project financing, increase utilization, and realize more units from the program over time.

- Residential Generation and Mitigation Study – conduct a generation and mitigation study which accounts for the current conditions of the residential development sector.

- Zoning – assess opportunities to use zoning tools to reduce obstacles to and incentivize the development of more AH.

- Review Procedures – assess by-right, administrative, and board review standards and procedures to ensure they support community AH policies.

4) Development Procedures within the Land Use Code

- Demolition – analyze the definition of demolition & non-conformities to align regulatory standards with AACP policies and mitigate new community impacts.

- Zoning Standards – assess Land Use Code regulations to ensure permitted, conditional, and prohibited uses support AACP policies.
- Review Procedures – assess by-right, administrative, and board review standards and procedures to ensure they support community development and climate and environmental policies.